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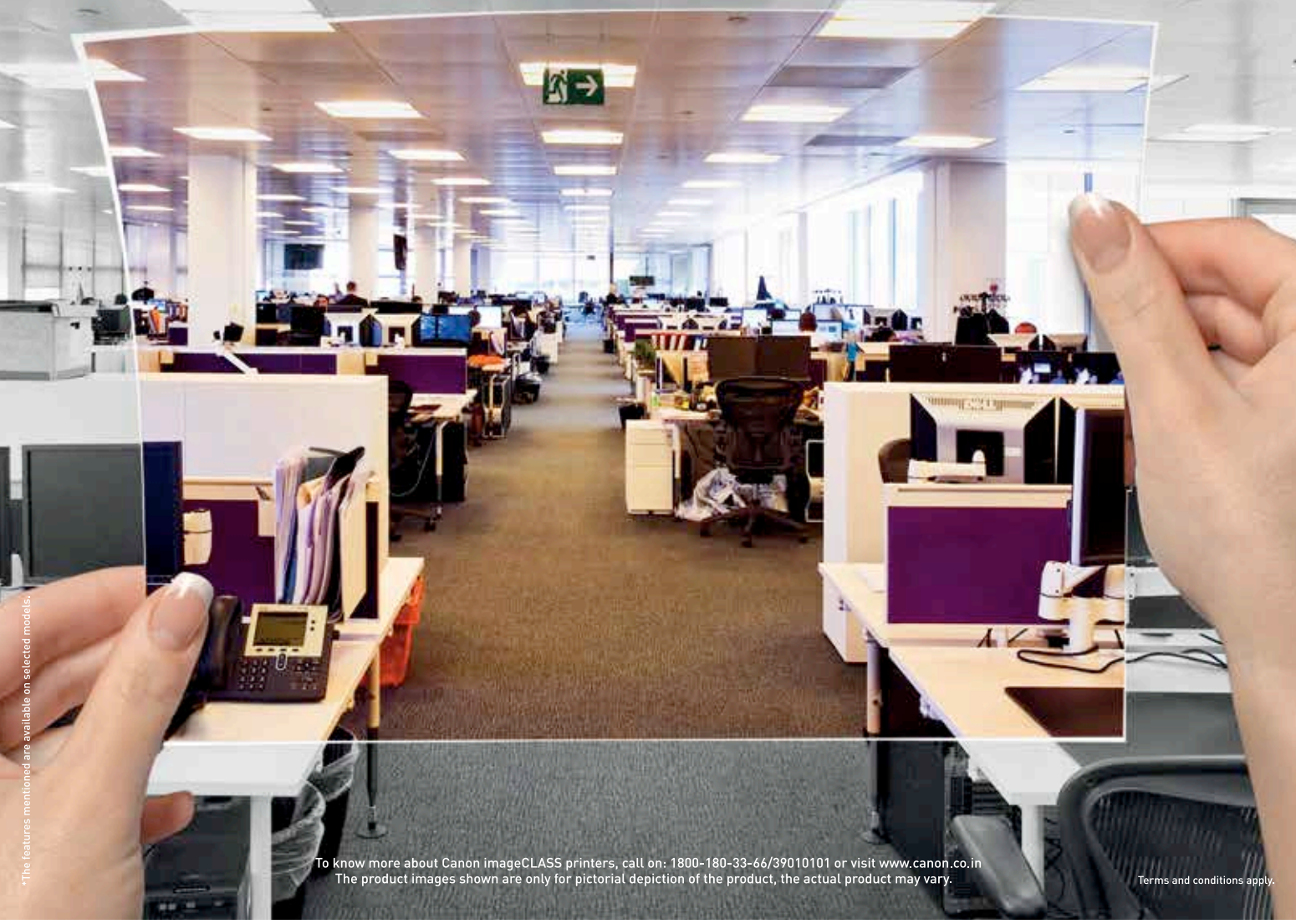
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Are we there yet?

This month the entire digit team seemed to have caught the sci-fi bug and I was no exception. In preparation for our collaborative writing experiment, our collective knowledge of science fiction tropes was being poured into a smelting pot in the hope of coming up with possible story angles and directions for our little sci-fi adventure on page 62.

Almost always though, a natural consequence of any deliberation on this topic brings to mind the infinitesimally small place we occupy in this universe. Just listen to Carl Sagan's pale blue dot audio clip and one can't help but be humbled by how truly small our lives, achievements and problems are in the grander scheme of things. That being said, nothing can stop our infinite curiosity to know more about the physical universe – and that's precisely where science and science fiction stem from.

Leading scientists the world over are currently working hard to come up with a unified theory of everything – the sort of holy grail of scientific study and the elusive answer to "life, the universe and everything". Of course we are far from that stage yet, but there are a few things most scientists do agree on. For one thing, everything in the known universe (multiverses aside) can be studied and understood by analysing matter and energy and the way these two interact with each other in time and space. Sure, new laws of physics will be discovered and new particles will be unearthed but the fundamentals will remain the same. The tools for expanding our understanding of the universe are right there in front of us.

Or are they?

This is where most discussions of this nature set the stage for the entry of spirituality – the idea that there is a missing piece of the puzzle, a fundamental requirement for us to know the answers to everything; the G word. Now I won't call myself an atheist or agnostic, but certainly as a rationalist, these sort of wishy-washy ideals are to me – for the lack of a better word – sacrilege, when mixed with scientific inquiry.

But as it turns out, minds far greater than mine believe that there could be more to the universe than just matter, energy and physical forces. Dr. Thomas Nagel, for instance, in his book *Mind and Cosmos* (which to be honest, I've only recently come to know of thanks to a NYT article) says that modern scientific theory has conspicuously failed to explain such central mind-related features of our world as consciousness. It's true that while we can explain how the brain works to a great extent – neurons, electrical signals, chemical compositions et al., – no one has come close to explaining how thoughts are really produced. What is interesting is that Dr. Nagel is supposed to be an atheist and doesn't really believe in an omniscient creator. He does, however, believe that the mind – a biological organ capable of developing a science so intricate – should be considered a fundamental principle of nature along with matter and energy. Sounds like hippie mysticism? But who knows... Maybe the evolution of the mind was indeed teleological (for a purpose) rather than the simple result of a series of mutations over the eons. Maybe consciousness itself is the key to unlocking and comprehending the secrets of the universe. Look up the concept of panpsychism – it'll blow your mind – figuratively of course.

Coming a full circle back to science fiction, what is funny is all of this sounds eerily similar to a book I'd read ages ago called *Childhood's End* by Arthur C. Clarke. In it humanity is visited by an alien species with seemingly dubious intentions – friend or foe you can't tell till the end. Here's an excerpt from the original back cover quote: *Humans called them Overlords, and initially they brought peace and prosperity to Earth. But then the change began. It appeared first in the children – frightening, incomprehensible. Now the Overlords made their announcement: This was to be the first step in the elimination of the human race and the beginning of – What?*

The dramatisation aside, the book is centred around a theme of transcendent evolution as humanity makes its way towards its next step in evolution. A concept that scientists seem to be giving serious thought to in some way or the other.

Technologically we've come a long way since mankind first started putting pen to paper or charcoal to cave wall whatever you might call it. And this has happened in a mere blink of an eye compared to how long we've been on this earth. Will we find all the answers soon? Maybe not. Certainly not in my lifespan. But considering the progress we've made, I think we're getting there.



Siddharth Parwatay
Assistant Editor
siddharth.parwatay@digit.in

"But who knows... Maybe the evolution of the mind was indeed teleological (for a purpose) rather than the simple result of a series of mutations over the eons."

Got feedback about this column? Drop me a line at:
siddharth.parwatay@digit.in

No dais to bias

Over the years, we've had many conversations and even arguments within the team about the way the world is testing and reviewing technology products. Not just how we review products, but also how you buy products.

Let's take mobile phones for instance, for which consumers used to have a budget in mind first and then would choose the best available phone for that price – OS and brand weren't the starting points of the quest. They were the decision you arrived at in the end, all things considered.

Today, there's a marked difference that we've noticed. Usually, the OS comes first, then the brand. So there's a fair share of people who will decide, "Definitely Android only, and preferably Samsung", and then start comparing. Someone else might decide on iOS (and thus Apple by default) or Windows or BlackBerry, or prefer Android and Sony, or HTC, etc.

Fanboyism has taken over now, and that fact is apparent from all the internet arguments you've no doubt come across (or participated in) already.

Now all this is fine. There's nothing wrong with passionately believing in something. Mankind's being doing it for thousands of years, and we call it religion. The problem only arises when people try and appear scientific about their beliefs. This is when confirmation bias and ownership bias take over, and we start believing that indeed the product we own is the best, and start looking for articles from so-called "experts" to support our claims. The people we're arguing with, however, seem to find just as many "experts" to support their claims as well. In the end, it just boils down to who shouts the loudest and for the longest...Not exactly the most scientific way of arriving at conclusions.

The Digit Test Centre has always been known for its process-driven methodology, and also for our constant drive to reduce individual subjectivity or bias by using rigorous test processes designed by the team as a whole. Many have argued that perhaps it's a little too cold a way to test, but I feel that's the way it should be.

Imagine a judge who'd never convict a good looking girl of a crime, no matter what the evidence. Would that be justice? Verdicts need to be cold to be fair. How can a reviewer/blogger/tech guru of your neighbourhood not be a little biased? All of them own a phone from some company or another, bought with their hard-earned money – ownership bias. Some companies go out of their way to give their latest products to some bloggers and maintain a good relationship – conscious or subconscious bias comes in there as well.

Take me, for instance. As a long-term BlackBerry user, I cannot deny having a soft corner for their devices. Are they the best devices out there, or the best priced? Certainly not! Yet I own one. When asked why I own this brand, I say because it's still the best for email, and work is priority for me on my phone. For fun and games, I have my Nexus 7 and iPad. The next argument thrown at me is "But BlackBerry has no apps", to which I usually respond that I have all the apps I really need. And the fact that I can download and install any signed APK from BBOS 10.2 onwards means I really can have almost all the apps I would ever need. For the life of me, I don't understand why BlackBerry doesn't advertise this more, but that's another story altogether..

However, is BlackBerry the best designed OS for mobile phones? I don't know. I'm not a fanboy (mildly biased, yes; fanatical, no), so I can't say with surety. Not without a rigorous test...

Thus, when the question dawned, "What's the best mobile phone OS?", began the current saga that has brought our little team to its knees with sleepless nights and thousands of features being double and triple-checked. You'll read more about it in the cover story itself, but take my word for it, this is the toughest and most comprehensive exercise we've ever done.

What's more, it's just part 1 of the saga and we'll next take on even more subjective biases and try to analyse those objectively as well. We will look at the actual UIs to decide what's easier to use and what isn't. We will also ask you for your feedback and criticism (and we expect a lot of that) to improve even further and arrive at a result truly devoid of bias of any sort.

Here's looking forward to reclaiming the ground that's been lost by logic, reason and actual testing to the fanatics and marketeers that sometimes disguise themselves as "experts", in order to con you out of your money. Just rest assured that at Digit, we give no dais to bias. Ever!



Robert Sovereign-Smith
Executive Editor
robert@digit.in

"The Digit Test Centre has always been known for its process-driven methodology, and also for our constant drive to reduce individual subjectivity or bias by using rigorous test processes designed by the team as a whole."

Liked or hated this column? Write in to *robert@digit.in* and let me know your thoughts.

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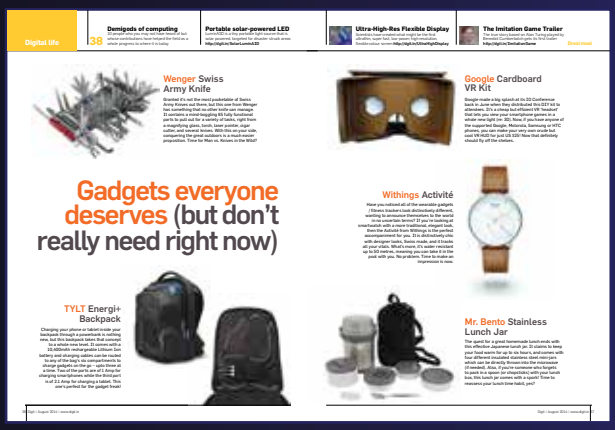
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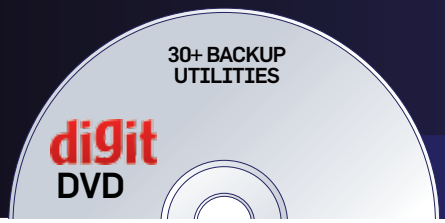
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Robot Olympics 2020
Tokyo is planning to have the Robot Olympics 2020 where robots from all over the world can compete on technical skills **http://dgit.in/RobotOlympics**

Feedback for the August 2014 issue of Digit



✉ Dear Robert,
First of all, I appreciate you and your team's work in bringing out such a cool magazine!

I would like to make a suggestion. It's about Linux. I'm sure Digit can enlighten Windows users about why they should try Linux. Under the 'Hardware Review' section, you could add a section dedicated to Linux, mentioning how well the stuff will work under Linux, and what were the (probably tedious) steps taken to get the system to work. It needn't be too technical, because such a write-up will help everyone who's looking to buy hardware that they can run with Linux (and Windows together) without complications or compromises. Even on the Digit.in website, in laptop reviews you could have a "Linux Compatibility" section for each laptop detailing the wild things the author might have done while setting up a popular distribution. This will definitely complement the write-up well.

I hope you'll consider this suggestion. And even if you don't, you can still do one little thing to help penguin lovers: Specifically list in detail about each component used in a particular hardware. For example, in a laptop, if you look at the wireless chipset on its website, the manufacturer just lists something like "802.11 b/g/n" and that's the end of story. But just that information isn't enough to deduce the Linux compatibility of that laptop. We'll need to know what brand it is and the exact serial number of the model. Another useful detail most of them exclude is related to graphics card. Most of the newer laptops come with a hybrid hardware-MUXless configuration in case there's a dedicated card. But there's no guarantee that the laptops have such a configuration. So such details along with the available BIOS options to tweak them would also be useful.

Thanks for reading!

–Aurabindo J

Thanks for writing and raising some interesting points. Allow me to respond to them one by one:

1. It's not that we don't pay attention to Linux; we've had FastTracks dedicated to Linux and we do regularly feature free linux alternatives to software as part of our SOHO section, not to mention a dedicated section for Linux on our monthly DVDs. And we endeavour to do more.
2. The specifications mentioned for product reviews don't have a lot of in-depth information for want of space on edit pages. Moreover, you can always use NDISwrapper to use a Windows driver in Linux with a good amount of success. But we will keep this in mind and try to squeeze it in.
3. The performance impact of a MUX design vs MUXless design is something we're looking at so you might read an article on the same anytime soon.

–Mithun

✉ Dear Team Digit,
It's been a great feeling receiving your magazine every month since the first day I began reading it all the way back in 2004. In the July issue, it was good to see Robert and Siddharth's articles on both sides of one page. Both the editorials served as an introduction to the articles inside. Great article on Big Data. It looks like we're entering an era of common database. One can find our current location, what we're doing, what we're eating, etc...sounds like a Sci-Fi movie. Do we need to take any protective measures to safeguard our privacy? How? Can you dig out an article on this? It would be appreciated.

The gTLDs article is really helpful. Last year, I attended Hosting Summit by seeing the advertisement in Digit magazine and asked this question: "Will custom-made TLDs be available and are we just entering that era?"

Jayesh added a feather to the hat of the magazine with his article. Devices are changing so rapidly that it's hard to choose the perfect gadget – whether it be about price, configuration, platform or supporting apps as they're also rapidly improving. This must be a question on all of our minds, even if we bought a gadget just a month ago because by then, we have a new OS version. Recently, I saw an ad by a renowned mobile network brand selling iPhone4s at a discounted price. Is it worth buying an ancient technology device just because it's from Apple?

Thanks for the introductory article on Ruby on Rails. It would be great to have a Fast Track on this. Thanks for sharing the Computex Taiwan moments with us. It was incredible.

I recently read a post by you on Facebook about how we're the lowest ranked country as far as high-speed Internet is concerned even though we have one of the largest databases of internet users that's seriously growing at full tilt. In Budget 2014, however, there's plenty of hope for internet users as the government

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Apple Mobile Wallet
Along with the launch of iPhone 6, Apple is planning to launch its mobile wallet utilizing NFC, Bluetooth or WiFi **http://dgit.in/ApplMobWallet**



The Avengers in 8-bit
Watch the makeover of The Avengers in an old school 8-bit video game styled piece **http://dgit.in/8BitAvengers**

LETTER OF THE MONTH

✉ I'm a 16-year-old tech fan and the July issue was my second issue, and I've got to tell you I'm very happy to have subscribed to Digit. I got a reward of ₹3,000 for my good performance in Class 10 and I immediately sent a request for a subscription. For a guy who comes home after studying for 10 hours, it's great to get some knowledge in tech every day.

What I like:

1. Fast Track: One of the things that attracted me to Digit was Fast Track. I don't know what kind of geniuses you've got working for you there; it's so simple and yet tells you what you need to know.
2. Encyclopedia Technica: Despite being so small, your Encyclopedia Technica teaches a lot. Keep creating such awesome content.

A few suggestions:

1. Sometimes, the glue on the pages is weak and the front part (usually near Robert's column) starts to come out. Please check the magazine once before sending it.
2. The Intel advertorial isn't very useful, but it doesn't bother me too much.
3. It would be great if you included some posters for new games.
4. Make the Digit Diary section larger. It's very funny.
5. Please include a section in which you give suggestions on handy tech that will be useful to us (e.g. Recommending a portable battery bank, useful adapters, etc.)

You guys have been doing a great job, so keep it up.

P.S. Do all members of Team Digit have cool beards?

–Nishanth Banda



Hey Nishanth, were you talking about the Intel Galileo article? Well you're missing out on one of the most happening scenes – Dev boards. These are powerful computing devices that make for great learning tools. As for the glue coming off, it's something that happens due to the humidity during monsoon and the glue doesn't dry properly during the binding process. It only affects a few hundred copies. As for the poster, we're looking towards making that happen, so stay tuned. The size of the Digit Diary has been bumped up recently and I'm afraid our meagre brains can only suffer so much at the hands of our colleagues. If we were to increase the size further then we'd have to cause a few "accidents" to get more material. As for the recommended section, our tests generally do carry such a section and so does our website (The Top 10 section). Not everyone sports a beard here; the ones who do are mighty proud of theirs!

–Siddharth

has allowed manufacturing units to sell products through e-commerce platforms without any additional approval. As far as internet connectivity in villages is concerned, maybe we need to sign a petition.

While purchasing gadgets online, we need a proper guide on that particular product and no one can provide details on gadgets like you. So thanks for being there, especially through Digit.in. The content of the magazine is increasing and evolving. Even the snippets at the top of the pages with links are interesting. Thanks for making Digit.in responsive.

Some suggestions for the magazine:

1. Why don't you offer a page tag? You can use that for ad space too and help us to track the pages. I found the subscription envelope useful as a tag.
2. Provide SMS alerts for subscription intimation and renewal notice.
3. Bring back Subscriber accounts so that we can check our subscription details through it.

Thanks again for the great magazine and keep up the good work. Keep bringing us the best of technology resources. When we're not googling we're Digit-ing.

–Debraj Rakshit

Whoa! That's one huge letter. As for safeguarding your privacy, here are a few articles to guide you. http://dgit.in/PrivProt The iPhone offer is taken up by a lot of people. Not everyone can afford the flagship so offers like these do matter. As for your suggestions:
1. By all means, fold the envelope twice and glue it to create a much better bookmark, let the paper not go to waste.
2&3. We'll forward these suggestions to our subscription department. Thanks!

–Mithun

✉ Hi,
Happiness is reading your favorite magazine at a height of 11,000 feet, moving at a speed of 840 km/hr with outside temperature of -50 degree C.

Sadness is leaving the magazine inside that plane.

This is exactly what happened to me while travelling from Hyderabad to Delhi. I realised my mistake once I got into the airport. I went back to check, but the police wouldn't allow me to return. They suggested checking with help desk. I ran towards the SpiceJet help desk without caring much for the luggage that was supposed to come on belt number 3. Even my girlfriend was waiting at another terminal (T3), but I continued to look for the magazine. I told the customer care service my seat number and went back to collect my luggage with the hope that I'd get my magazine on returning, but was disappointed.

I was only able to read 4-5 pages including the first editorial from Siddharth. It was good to know that we're part of Big Data. I found two words in Crossword and liked the new concept of words starting with Q/R, etc. Letter of the Month is now an old concept. Introduce something like Status/Tweet of the Month. Keep up the good work!

–Gaurav Khurana

Well Gaurav, think of it this way: you left a bundle of happiness for the flight crew or the next traveler who occupied your seat.

–Siddharth

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India gets an e-Library

While the rest of the world takes technology to the futuristic level

All-access Indian National e-Library

Human Resource Development Minister Smriti Irani has stated that every citizen of the country will have access to the contents of the National Electronic Library (NEL).

HRD Minister Smriti Irani said in a written reply to the Lok Sabha, "The government of India has taken a decision to provide access to NEL to its citizens including students and teachers in schools, colleges and universities. Most resources in NEL would be available in open access to every citizen of India without any restrictions,"

NEL is a digitised library that will be device independent, according to the minister.

"The National E Library will contain all research, documentaries, books, curriculums, etc and people from abroad have also shown interest. The students will be able to access it at home and not only students it will be available for everyone," said Irani.

Irani stated a few of the resource contents will be especially subscribed to students, researchers and faculty of colleges. The resources available under the National Repository of Open Education Resources (NROER), launched in 2013, will also be part of e-library. The HRD minister added that the resources available in NROER are in the form of concept maps, learning objects, video, multimedia, photographs, diagrams, audio clips, talking books, etc.

"NROER is a collaborative platform that endeavours to bring together relevant and appropriate digital digitizable resources in multiple languages for the school system for all classes and subjects," she said.

"It (the e-Library) can be accessed using a variety of devices, including desktops, laptops, tablets, smartphones and other devices"
–Smriti Irani, HRD Minister

Carbon nanotube chips could lead to pocket-sized supercomputers

Researchers claim that the theoretical 3D chip stack that interleaves next-gen memory and logic technologies using carbon nanotubes which could lead to pocket-sized supercomputers.

H.S. Philip Wong, Stanford University's Professor of Electrical Engineering, recently talked about the future of computing power at a recent Semicon West conference. Wong stated in his talk that the material faces huge technical challenges, but the idea is that the interleaving of layers of resistive and magnetic RAM with logical layers made from 1D and 2D field effect transistors could result in a computing system that would theoretically be as powerful as the IBM Watson supercomputer, but in pocket-sized form.



Can this truck-sized supercomputer fit in your pocket?

"This design requires new, high-efficiency heat spreaders—the thermal aspect is critically important," he said. "The resulting design could provide a thousandfold power reduction for the IBM system that consumed 175 kW power to beat human contestants in the Jeopardy game show. That system packed 2,880 IBM Power 7 cores running at 3.5GHz delivering 80 Teraflops. All the content was loaded into Watson's DRAM, not hard drives, because so much energy is spent in moving data," said Wong.

Wong states three challenges in using the technology: "The material is not suitable for the high-temperature doping processes used in today's chip fabs. Researchers still need to improve the purity of the material they grow. And, like all transistor materials, it faces challenges when contacts scale to increasingly small sizes."

Other companies are also exploring ways to utilize carbon nanotubes in order to advance computing technology. IBM recently announced that they have plans to produce the first commercial carbon nanotube chips by early 2020. The company is planning to invest I $3 billion over a period of five years to develop processors that are much smaller, tightly packed electronics that will be able to sustain computing progress in the longer run. IBM is also working on graphene to create a chip that is only 1 atom thick and could run your smartphone run longer.

Samsung is working on Graphene -synthesis to develop lighter and flexible electronic devices. Graphene which is one of the strongest and most durable materials on the planet is made of densely packed carbon atoms in a hexagonal lattice. Researchers at Samsung have developed a new method to create high-quality graphene on silicon wafers, that could lead to mass production of graphene transistors.

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Airtype

Airtype is a new portable cuff-like device that attaches to your hands and monitors your finger movements to find out the letters you intend to type. The project is currently in early prototype phase.

A Texas-based hardware and machine learning startup, AirType is developing a "keyboardless keyboard" accessory that allows you to type on any surface for your phone. Airtype is still in a prototype stage and the makers says that the device is no different than typing on a keyboard and allows you to type on any surface. The device makes the letters you want by learning your finger movements. Unlike projection keyboards, which use a virtual keyboard image displayed on a flat surface, the AirType doesn't have any visual component at all. The makers describe AirType as "a keyboard that fits in the palm of your hand".

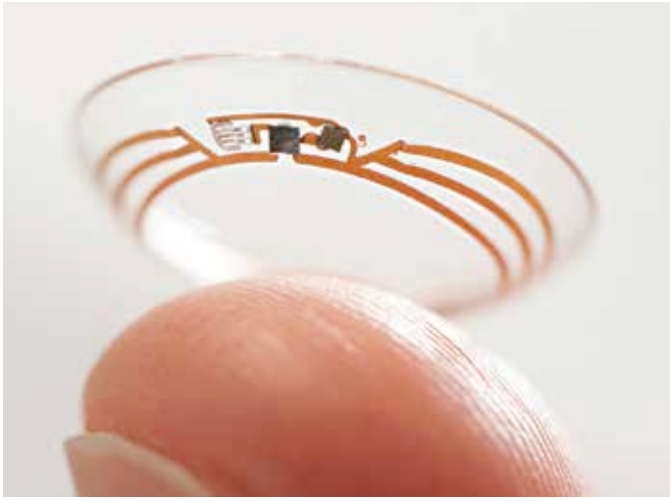
Airtype is designed to be as portable as a cell phone and can easily clip into a tablet for easy transport. Air Type's website says that the system will learn to adjust to your typing habits. The app has dynamic text prediction and correction, the developers added. However, the team is not saying how exactly the prototype works, but it will most likely connect to devices via Bluetooth or NFC since it doesn't have any wires.

Since most of the people type erratically and never bother to learn the skill of typing, its difficult to guess how well Airtype will really work. Check out this video to see the prototype in action: http://dgit.in/atypPrev

Google/Novartis smartlens

Google is collaborating with the Alcon eye care unit of Swiss pharmaceutical company Novartis to license the smart lens technology. Under the agreement, Novartis and Google will team up to develop an actual smart lens to helping diabetics better manage their condition.

People with diabetes has to constantly monitor their blood glucose levels by pricking their finger with needles. Google's smart lens technology will provide a less invasive solution as it measures the tear fluid in the eye to track the glucose levels. The readings are then sent wirelessly to the user via a smartphone.



The 24/7 eye doctor – a scientific probability?

The smart lens technology will also help people with presbyopia, a disease in which the eye loses its ability to autofocus making it difficult to see objects that are close. The smart lens tech could correct vision by trying to restore the eye's autofocus capability through a contact or intraocular lens.

The smart contact lens have tiny sensors and microchips that according to Google are "so small they look like bits of glitter," while the embedded antenna is "thinner than a human hair."

Project co-founders Brian Otis and Babak Parviz stated in a blog post in January, when Google unveiled its prototype contact lens, "We're now testing a smart contact lens that's built to measure glucose levels in tears using a tiny wireless chip and miniaturized glucose sensor that are embedded between two layers of soft contact lens material. We're testing prototypes that can generate a reading once per second."

Novartis CEO, Joseph Jimenez stated, "We are looking forward to working with Google to bring together their advanced technology and our extensive knowledge of biology to meet unmet medical needs. This is a key step for us to go beyond the confines of traditional disease management, starting with the eye."

The partnership will help reshape healthcare technology by helping patients monitor their own health and lowering the costs of managing chronic diseases. Novartis CEO Joseph Jimenez stated that the product could be on the market in about five years' time. He added that the new technology could also help in other areas including remote patient monitoring in heart failure.



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28 **Security watch**
Check out the latest developments in security from the attacks on Indian websites to the Android Wear encryption bug

The end of Nokia X

...and the beginning of everything else new this past month

Microsoft loses 18,000

Microsoft announced that it would be cutting 18,000 jobs in the next year in what's believed to be its biggest round of layoffs as a part of ongoing restructuring efforts. The company also announced that it would be scrapping Nokia's X Android smartphones in favor of Windows Phone.

Microsoft CEO Satya Nadella stated that Nokia's Devices and Services business, which it acquired for $5 billion last year, will be most affected. Microsoft plans to cut 12,500 "professional and factory positions" by the end of the year. In an email to employees, Microsoft CEO Satya Nadella explains that the company's new strategy is designed to make it "more agile" moving forward, allowing teams to work more freely.

Microsoft Devices chief, Stephen Elop details the company's renewed focus on Windows Phone: "In addition to the portfolio already planned, we plan to deliver additional lower-cost Lumia devices by shifting select future Nokia X designs and products to Windows Phone devices. We expect to make this shift immediately while continuing to sell and support existing Nokia X products."

Nokia launched the X Android series of smartphones earlier this year, creating much excitement but the phone lacked good hardware for the price category it was placed in. Microsoft announced its successor, the X2 just last month.



Nokia's now-doomed entry into the Android market

Microsoft is also reportedly planning to scrap Nokia's feature phones, including the Nokia Asha series and Series 40. The devices will shift to what is described as "maintenance mode," and services to support existing devices will be shut down over the next 18 months. "This means there will be no new features or updates to services on any mobile phone's platform as a result of these plans," said Jo Harlow, head of the phone business under Microsoft Devices. Microsoft is also planning to offer Nokia MixRadio as a third-party service to iOS and Android. Until it's sold, it has been moved into maintenance mode.

Free Internet on DataWind

DataWind's budget tablets will now come bundled with 12 months of free unlimited Internet browsing with BSNL in southern India. The tablet maker has also entered into a partnership with retailer, UniverCell, to market the company's UbiSlate tablets. Until recently, DataWind products were primarily sold via e-commerce and direct-to-consumer channels such as TV home-shopping.

Datawind, known for its Aakash tablets, will be offering its UbiSlate series of models including 7Cx, 7C Plus, 7CZ and 3G7 which are priced between ₹3,999 and ₹4,999 with the free Internet access. Datawind's entire product range of UbiSlate Tablet PCs and PocketSurfer smartphones will be available at more than 500 of UniverCell's retail outlets spread across southern India. Suneet Singh Tuli, chief executive at DataWind sees UniverCell as a significant player in the retail market. Speaking about the association with BSNL for its bundled internet service, he said, "This unique partnership validates our technology and belief in low cost internet connectivity sans barriers."



Free Internet browsing in south India

The company will focus on rural areas to increase its market share. "We ship around 2,500-3,000 devices a day now, and in the first quarter of the year, we were the largest supplier of tablets in India. We sold a million units in the last one year (15 months) plus 1 lakh units (of Aakash) to the Government," said Tuli.

Tuli added that Datawind would also participate in bidding for the 22-lakh 'Aakash-4' project expected to happen in mid-December. The tablet maker also has plans to enter overseas markets such as the UK, the US and Canada. Datawind already has presence in 13 countries including Mexico, Nepal, Bangladesh, Zambia, Tanzania, Uruguay and Sri Lanka.

"We are aiming to add around two countries every month over the next few months," Tuli added.

Firefox OS in Asia soon

Open Source giant Mozilla last month announced its expansion plans on its blog. This means that phones from ZTE, LG and others currently running the Firefox OS may soon be available in Europe, Latin America



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Firefox OS almost here!

and Asia. Phones include LG Fireweb, ZTE Open, ZTE Open C, ZTE Open II, Alcatel One Touch Fire, Alcatel One Touch C, Alcatel One Touch Fire E and Huawei Y300 II.

In India, Mozilla is partnering with 20 carriers to launch Firefox OS smartphone at very low prices. In other Asia Pacific regions, Telenor has confirmed that it will offer Firefox OS run smartphones.

Telecom service provider Deutsche Telekom will be launching four new Firefox OS driven smartphones in four new markets – the Czech Republic, Croatia, Montenegro and Macedonia. Another telecom company, Telefonica, will be bringing Firefox OS run devices to Germany. Telefonica was one of the original partners of Mozilla for its smartphones.

At the time of writing, O2 already began the pre-sales of the Alcatel One Touch Fire E in Germany, while ZTE launched the ZTE Open C smartphone in France.

LG G3 is here!

Korean tech giant LG launched its LG G3 flagship smartphone in India in July. The phone has been priced at ₹47,990 for the 16GB version and ₹50,990 for the 32GB version.

LG G3 is the newest flagship in the G series of smartphones from LG. The device boasts of a quad HD 2560x1440 pixels display with an eye-watering pixel density of 538 ppi. In the smartphone, LG has introduced a feature which uses a laser to calculate distance and then focus, thus simplifying photography. The camera on the device also offers optical image stabilisation, a key element of digital cameras. Here are some of the key features of the device:

- **Chipset:** Qualcomm Snapdragon 801 (up to 2.5GHz Quad-Core)
- **Display:** 5.5-inch Quad HD IPS (2560 x 1440, 538ppi)
- **Memory:** 16/32GB eMMC ROM, 2/3GB DDR3 RAM, microSD slot (128GB max)
- **Camera:** Rear 13.0MP with OIS and Laser Auto Focus, Front 2.1MP
- **Battery:** 3,000 mAh (removable)
- **Operating System:** Android 4.4.2 KitKat
- **Size:** 146.3mm x 74.6mm x 8.9mm
- **Weight:** 149 g
- **Network:** 4G / LTE / HSPA 21 Mbps (3G)
- **Connectivity:** Wi-Fi 802.11 a/b/g/n/ac, Bluetooth Smart Ready (Apt-X), NFC, SlimPort, A-GPS/Glonass, USB 2.0
- **Color:** Metallic Black, Silk White, Shine Gold, Moon Violet, Burgundy Red
- **Other:** Smart Keyboard, Smart Notice, Knock CodeTM, Guest Mode, etc.

LG has been making some very good devices and its involvement in the Nexus program indicates this, however ₹47,990 is still a steep price for a flagship device.

Dr. Smartphone is in

Researchers have developed a new display sensor for smartphones that can read a user's spit to not only check his body temperature but also analyse his DNA. These sensors – developed by researchers from Polytechnique Montreal and Gorilla Glass manufacturer Corning – can be embedded within the smartphone's display. They allow users to take their temperature, assess blood sugar levels (if diabetic) and work alongside platforms such as Apple's HomeKit to provide more information about their health.

The scientists have also created their first laser-written light-guiding systems that could pioneer these advancements. They shot lasers into glass to create pathways that transmit data in the form of small beams of light, while the waveguides act as a tunnel that channel light.

The researchers mentioned that while waveguides aren't new, the approach created by the team is nearly 10 times better at minimising loss compared to previous ones made with lasers. These biomedical sensors could be embedded into tablets and Window PCs as well. The team added that the technology could also be used to add security to mobile devices and monitor carbon monoxide levels in the air as well.

"Now that the technique is viable, it's up to people to invent new uses for it", said paper co-author Raman Kashyap, a professor of Electrical Engineering and Engineering Physics at Polytechnique Montreal, in a statement.

Recently, German scientists at the Karlsruhe Institute of Technology developed a sensor that can be attached to your smartphone to measure fine dust particles in the air to draw a pollution map. Users can join a participatory sensing and download the corresponding app to measure pollution levels. The images can be evaluated locally or transmitted to a computer system to combine this data with other measurements and display the dust concentration on the user's smartphone.


LG's flagship G3 has been launched in India


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Better speeds: The big 512

The Telecom Regulatory Authority of India (TRAI) has raised the minimum broadband speed limit from 256 kbps to 512 kbps. The regulator also amended the Telecom Consumers Complaint Redressal Regulations, 2012, which will now be known as the Telecom Consumers Complaint Redressal (Third Amendment) Regulations, 2014.

TRAI's new definition for broadband is "a data connection that is able to support interactive services including internet access and has the capability of minimum download speed of 512 kbps to an individual subscriber from the point of presence (POP) of the service provider intending to provide broadband service".

It may be recalled that the government under its National Telecom Policy (NTP) 2012 had planned to raise the broadband download speed from 256 kbps to 512 kbps in 2014 and subsequently to 2 mbps by 2015.

State-run MTNL recently announced minimum broadband speed of up to 2 mbps. The operator said that the newly improved speeds come in the wake of NTP 2012 that stressed the need to upgrade existing broadband speed.

Notably, the regulator is planning to set a minimum download speed for mobile Internet as well. The minimum download speed for wireless data services will be based on minimum download speed reported by service providers in the last three quarters.



The Internet's getting faster!

You can read more about the TRAI notification at http://dgit.in/trai512

Point-to-point mapping

Google has rolled out a new update for Maps that allows users to measure the distance between multiple points on the map. The feature was available earlier under the experimental Google Labs options, but has now been rolled out as a part of the main service.

To use this option, right-click on a starting point on the map and select "Measure distance," and then choose a destination to see the distance between the two points. What's more, you can click anywhere on the map to add locations and measuring points to your trip.

Google has also added an option to drag an existing map point measuring the distance from a pre-selected location to another. The feature also allows travelers to twist and turn points to align them with streets on the map to get precise measurements. This new feature is ideal for runners, cyclists and motorists who want to create a real world plan of places to travel.

Google had rolled out a new version of Google Maps in February after working in preview mode for nearly a year. The new interface gives improved integration of search results, smart route navigation and easier access to image galleries. Search results are now embedded right into the maps and navigation system with real-time traffic reports. Street View graphics give you previews of your destination. The May update to its Maps brought back Terrain View, which shows the elevation of geographic features and is popular with trekkers.

Twittershop with #AmazonCart

Amazon launched its #AmazonCart shopping feature in India allowing users to order items directly from their Twitter feeds. The feature allows users to add products to their Amazon shopping carts without leaving the micro-blogging site.

Amazon India's #AmazonCart tagline reads, "Add it now. Buy it later. Shop from within Twitter." To be able to use the feature, you must connect your Amazon and Twitter accounts



#Amazoncart now in India



Gionee's slim phones
While Gionee's Elife S5.5 is currently the thinnest smartphone, it's working on creating a phone that's 5mm thinner than this one **http://dgit.in/ThinnerGionee**

Connect from anywhere...
...using the GoTenna mobile communication system created by two New Yorkers **http://dgit.in/GoTennaConn**

and simply retweet any tweet that contains an Amazon product link. Include an #AmazonCart hashtag and it will be added to your shopping cart. In the US and the US, where Amazon announced the feature in May, it's called #AmazonBasket.

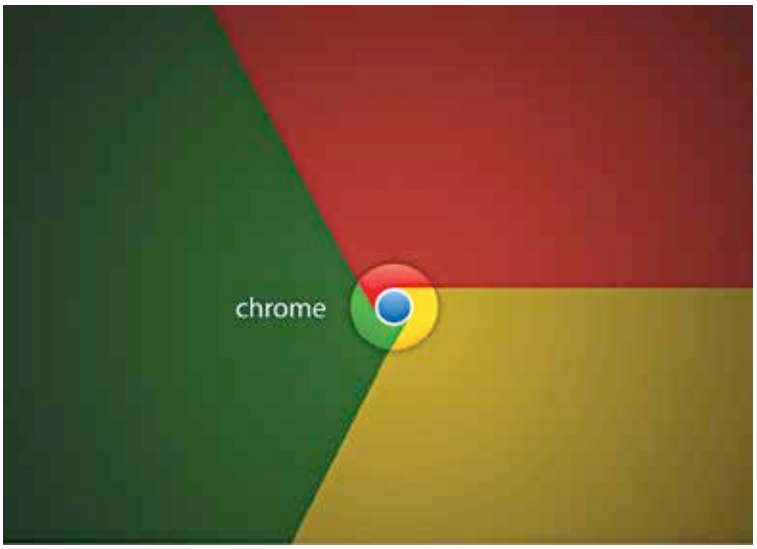
Amazon spokeswoman, Julie Law explained the process in a statement: "It's simple. When a customer discovers a tweet from their favorite artist, expert, brand, or friend with an Amazon.com product link, they simply add '#AmazonCart' to their reply on Twitter and the product is added to their Amazon.com Shopping Cart. Customers who have not connected their Twitter and Amazon.com accounts will receive a reply tweet asking them to connect their accounts to enable the new feature."

Amazon India started its operations in June last year and has about 35 million registered users. According to a recent report, the Indian online retail market accounts for only 0.4 per cent of the overall market, but it's growing rapidly. Amazon's entry into the Indian market has increased competition in the online space and has also improved the pace of consolidation in the $2.3 billion e-commerce market.

"The global leader is expected to vie for the top slot in India as well, which has triggered an increased urgency and competitiveness within the sector. As a result, there has been a significant increase in the investments that are being injected as well as the speed of consolidation," states a report by consulting firm Technopak. In May this year, e-retailer Flipkart acquired online fashion retailer Myntra in an estimated ₹2,000 crore deal, making it one of the biggest consolidations in the e-commerce space in India.

Chrome v36 launched!

Google Chrome was recently updated to version 36 for Windows, OS X and Linux. The update brings a few new features and various under-the-hood changes. The update is rolling out to all Chrome users now.



Chrome amps up its design and features

Here is the changelog for Chrome 36.0.1985.122 provided by Google:

- Rich notifications improvements
- An updated Incognito/Guest NTP design
- The addition of a browser crash recovery bubble
- Chrome app launcher for Linux
- Many under-the-hood changes for stability and performance

Google also mentioned that the update includes 26 security fixes. The search giant highlighted that the fixes were contributed by external researchers.

The new version of Chrome has also been rolled out mobile devices. If you're already using it on your mobile phones, you'll receive an update.

Here is the changelog for the the browser on devices:

- Improved text rendering on non-mobile optimised sites
- Doodles return to the new tab page
- Lots of bug fixes and performance improvements!

The new update enables support for streaming some videos with Chromecast and also addresses some security issues.

NICCA in trouble?

The Indian government stated in a release that it's looking into the unauthorised digital certificates issued by NIC Certifying Authority (NICCA). Technology giants Google and Microsoft had raised the issue of fake signatures in July itself on their respective security blogs.

The Controller of Certifying Authorities (CCA) monitors certification authorities (CAs), who issue digital certificates for electronic authentication of users. A digital certificate is like an electronic passport that allows a person, computer or organisation to securely exchange information over the Internet.

Digital certificates provide identifying information such as the certificate holder's name, a copy of his public keys and a serial number. It is forgery resistant. Unauthorised certificates could be used for eavesdropping on Google services like Gmail or Google Docs. Currently, only Windows users have been affected by this issue as the India CCA certificates are included in the Microsoft Root Store.

In a blog post in July, Google said, "On Wednesday, July 2, we became aware of unauthorized digital certificates for several Google domains. The certificates were issued by NIC of India, which holds several intermediate CA certificates trusted by the Indian Controller of Certifying Authorities (India CCA)."

Tech giant Microsoft added that it was aware of improperly issued SSL certificates that could be used for performing phishing attacks.

"SSL certificates were improperly issued by NIC, which operates subordinate CAs under root CAs operated by Government of India's Controller of Certifying Authorities, which are CAs present in the Trusted Root Certification Authorities Store," it added.

The Department of Electronics and Information Technology Secretary R.S Sharma stated: "We are looking into this issue. Certifying Authority (CA) is taking appropriate steps and is working under the guidance of the CCA."

Meanwhile, CCA in a post on its website said: "Due to security reasons, three CA Certificates issued to NICCA have been suspended and the corresponding CRLs (Certificate Revocation List) have been updated for this purpose. Further updation will be notified."

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Chrome Browser eating battery
Read on to find out why your Chrome browser had been draining your battery on a Windows system all these years **http://dgit.in/ChromeBattery**



App to track partner's activity
Spying apps are all around and mCouple lets you spy on your partner's locations, call logs and messages **http://dgit.in/mCouple**

India hit hard by cyber attacks

We take stock of the latest developments in the security space that ranges from attacks on the Indian websites to the Android Wear encryption bug.

India continues to be a top target of cyber attackers spread across the world. The Computer Emergency Response Team-India (CERT-In) has reported as many as 62,189 cyber attacks in the first five months of this year, while 9,174 Indian websites were breached.

In a written response to Lok Sabha, Communication and IT Minister Ravi Shankar Prasad said: "During the years 2011, 2012, 2013 and 2014 (till May), a total number of 21,699, 27,605, 28,481 and 9,174 Indian websites were hacked by various hacker groups spread across worldwide. In addition, during these years, a total number of 13,301, 22,060, 71,780 and 62,189 security incidents, respectively, were reported to the CERT-In."

According to the minister, the attacks include spam, malicious code, website intrusions, phishing and scanning. "These attacks have been observed to be originating from the cyber space of a number of countries including the US, Europe, Brazil, Turkey, China, Pakistan, Bangladesh, Algeria and the UAE," he disclosed.

"Cyber space is virtual, borderless and anonymous due to which it becomes difficult to actually trace the origin of a cyber attack," the Minister pointed out.

The latest figures – over 60,000 cyber attacks in first five months – are cause of concern for the Indian security sleuths as well as Internet users in the country.



Cybercrime on the rise – is India safe anymore?

It's notable CERT-In's monthly security bulletin for March 2014 reveals a "total of 13930 security incidents including phishing, virus/malicious code, network scanning/probing, spam, spread of malware through website compromise and technical help under others category" in that month.

"In addition, a total of 1472 Indian websites were defaced in March, 2014. A consolidated picture of security incidents reported in March, 2014 and website defacements tracked by CERT,"says the report.

NSA spied on BJP?

Latest revelations that US' National Security Agency (NSA) spied on the Bhartiya Janata Party prompted the Indian government to summon the top US diplomat to raise the issue. Describing the alleged snooping "totally unacceptable", the government sought an assurance that it won't be repeated.

Earlier, NSA whistle blower Edward Snowden released a data that revealed BJP was among a list of six non-US political parties globally that the NSA had the permission to covertly spy upon. The revelation, as expected, triggered another round of controversy around the surveillance actions of the NSA.

It may be recalled the Indian government had raised the issue with the US last year when reports about the NSA spying emerged. While the previous government had played down the alleged NSA snooping, the current BJP-led government is likely to take a hardline stand.

Torrent hosting websites blocked

Department of Telecom (DoT) through a large court order has blocked a number of BitTorrent sites including KickAssTorrents, The Pirate Bay, Torrentz, etc to stop piracy.

DOT India had blocked file sharing sites in India few months back leading to speculation that Torrents sites will also get blocked soon which has actually happened now. Torrent sites allow users to downloading illegal copies of latest movies, songs, software's, etc. The government of India and the DOT have passed new policies that aim at putting an end to illegal file sharing. Last month over 104 Indian illegal music sharing sites were also blocked through an order passed by Calcutta High Court.

According to reports, Reliance Communications ISP and Zylog Wi5 ISP have been the first to implement the new policies. Broadband visitors of Reliance Communications who try to access the blocked sites are redirected to a custom page saying "The site has been blocked as per instruction from DOT" message when browsing the above file sharing sites.

However, later the government asserted that the ISPs have been facing difficulty in blocking websites that carry sensitive information.

Minister of Communication and IT Ravi Shankar Parsad said:

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Device to measure calories
GE creates prototype device to measure the amount of calories in food using low-energy microwaves **http://dgit.in/GECalorie**

"Difficulties have been reported to block the websites when the parameters relating to identification of such websites is encrypted with 'https'/secured protocols." He stated that ISP's have limited resources in terms of capacity of infrastructure deployed. "The government is in regular touch with ISPs to address the difficulties," he added.

Don't resell – burn!

Researchers from Prague-based security software company AVAST have found that default data wipe tools to delete personal data is not sufficient before reselling or donating your old phone.

Security software maker AVAST stated that they purchased 20 used Android smartphones from eBay whose previous owners had performed a factory reset option on the devices. The researchers were able to recover over 40,000 pictures from the smartphones, 750 emails and text messages, the identities of four previous owners as well as one completed loan application.

Avast stated in its report that the company's own Android security app comes with a deletion tool that can work better that the factory reset options included in your smartphone.

"We purchased a variety of Android devices from sellers across the US and used readily available recovery software to dig up personal information that was previously on the phones," said Jude McColgan, President of Mobile at Avast. "The takeaway is that even deleted data on your used phone can be recovered unless you completely overwrite it," he said.

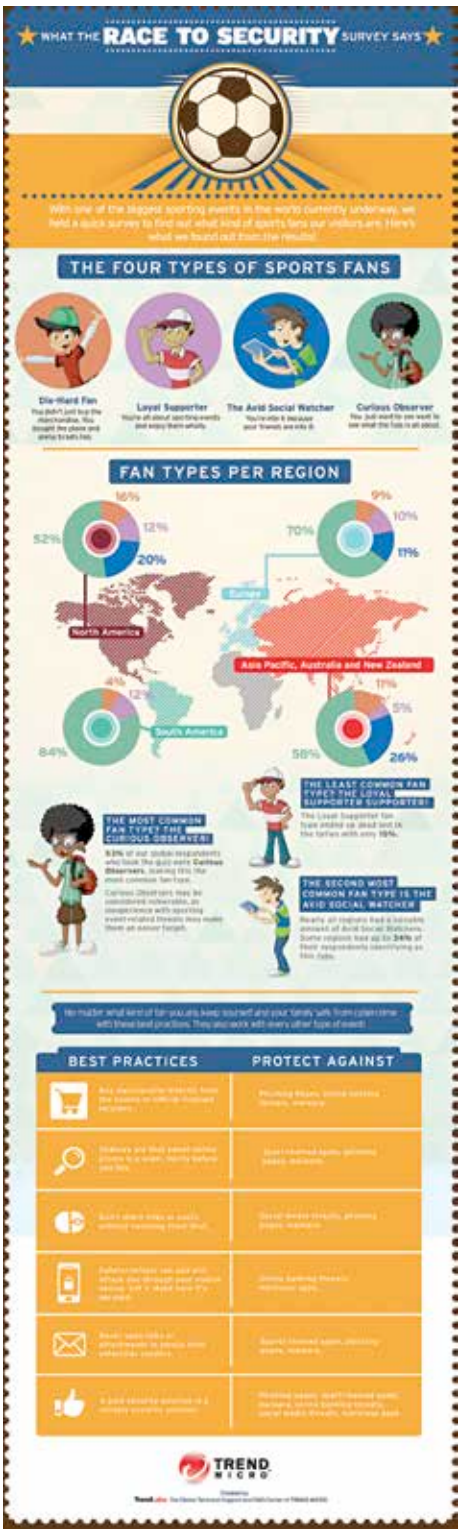
Android has an in-built encryption feature that can be turned on via settings, security, and "encrypt phone." Google says that after the encryption is done users can hit the factory reset button this makes the handset secure if you plan to resale. However guidelines from the National Industrial Security Program state that no software method is able to prevent some kind of data recovery and suggests that it is better to physically destroy the device that holds your data.

World Cup endangered

According to a new Trend Micro report, during the recently wrapped up 2014 Brazil World Cup a majority of users were "curious observers" - fan type who is generally more relaxed when dealing with the event but are nonetheless interested to know what it's all about.

"In APAC, the survey found that the most common fan was the "curious observer" meaning many fans in the region are vulnerable to online attacks because of their lack of familiarity with sporting related threats," said Dhanya Thakkar, Managing Director, India & SEA, Trend Micro.

Researchers suggest curious observers are vulnerable to downloading a fake, SMS-stealing version of the official world cup mobile app or buying fake game tickets that cost almost 4,000% higher.



A Trend Micro infographic

Trend Micro research found that this overwhelming amount of traffic was not without dangers to consumers, with a number of scams attempted during the event. The danger was due to an increase in the threats designed to take advantage of the global interest, from phishing websites to spam to malicious mobile apps.

Trend Micro released a graph that showed countries affected by the attack. The United States was top of the list with 19 per cent, followed by Japan (14 per cent) and Germany (12 per cent). India was on 10th place with only two per cent affected.

Android Wear anti-paid bug

Google's Android Wear OS seems to be giving newly launched wearables some trouble. According to a report by Android Police, the wearable component of paid apps on Google Play aren't transferring from smartphones to wearables. Apps on Android Wear are installed from Google Play, with components for both a wearable device and their associated smartphones.

The Android Police report states that the problem is with the app encrpytion system that Google employs in Android Wear. This system acts as somewhat of a copy-protection mechanism, which has been enforced in order to curb piracy on the new platform.

With the bug reported, Google shouldn't take much time to fix it, so if you have an Android Wear-run device, expect an update soon. Android Wear was launched at the company's annual I/O Conference recently, presenting a whole new platform, meant only for wearable devices. Being new, the platform is expected to have some bugs like this and users shouldn't be worried about the current bug.

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ICICI Bank's App for Windows
Already on the Android, iOS and BlackBerry platform, ICICI launched its banking app on Windows **http://dgit.in/ICICIWindows**



Transformers Battle
YouTube user Harris Loureiro has created an epic Transformers stop-motion video **http://dgit.in/TransformersSMA**

10 must have food delivery mobile apps for India

Get piping hot food delivered to your doorstep whenever you want with these ten extremely popular apps.

Nikhil Pradhan
nikhil.pradhan@digit.in

The massive influx of young professionals into big towns and cities in India has ensured that the restaurants and food delivery segment also grows at a fair clip. Coupled with the sharp rise in smartphones and app downloads, it was only inevitable for the food delivery apps to hit the mainstream.

Below you'll find a list of the most popular and impressive apps that you can use to quickly and securely get your favourite food delivered to your doorstep with the help of your smartphone.



Foodpanda

Link: *http://dgit.in/1r7X9Tz*
Available on: *iOS, Android, Windows Phone*

Foodpanda is by far the most popular online food delivery service in India. The reason for its popularity is its large database of restaurants from most big Indian cities and the discounts and offers available.

The Foodpanda mobile app lets you create your profile so that you can save your favourite restaurants and orders for quick access the next time around. Creating a profile will also let you save multiple addresses under different labels (work, home etc.). The app also gives you access to features available on the website including the ability to use coupons and avail discounts and opting for different payment methods including credit or debit cards and cash on delivery.

The app currently offers restaurant listings for 34 Indian locations.

Just Eat

Link: *http://dgit.in/WlYCKU*
Available on: *iOS, Android, Windows Phone, Windows 8*

Just Eat may not offer the same number of restaurants (or as some may argue- the same quality of service) as Foodpanda, but it is undoubtedly very popular especially in Indian metros. The Just Eat app offers relatively the same features and services as Foodpanda including access to a large number of menus and restaurants and the ability to pay using cards or cash on delivery.

The Just Eat app caters to nine Indian cities including Delhi, Mumbai, Hyderabad and Chennai among others.





TastyKhana

Link: *http://dgit.in/1r7XjdE*
Available for: *iOS, Android*

TastyKhana is one of the newer names in online food delivery but that doesn't mean that it falls short in any respect. It offers access to more than 7,000 restaurants across all the big cities in India and lets you, like the apps above, save your profile and data such as multiple addresses and favourite orders. TastyKhana also lets you pay using the method of your choice including net banking, credit/debit cards or cash.

TravelKhana

Link: *http://dgit.in/WgOBOO*
Available for: *Android*

How often have you felt hungry on a train but didn't really want to eat the food on offer in the pantry or the train stations? If you've faced this issue before then TravelKhana is the app for you. You can place an order for the food you want to eat and it will be delivered to you at one of the stations on your route. The app has a database of restaurants from across India and especially along popular train routes. Pick a restaurant. go through the menu and pick from dishes that they offer.

The app does appear to be a little anaemic with respect to the number of restaurants on offer, but hopefully that number will go up soon.

Domino's Pizza

Link: *http://dgit.in/1rvDgVK*
Available for: *iOS, Android*

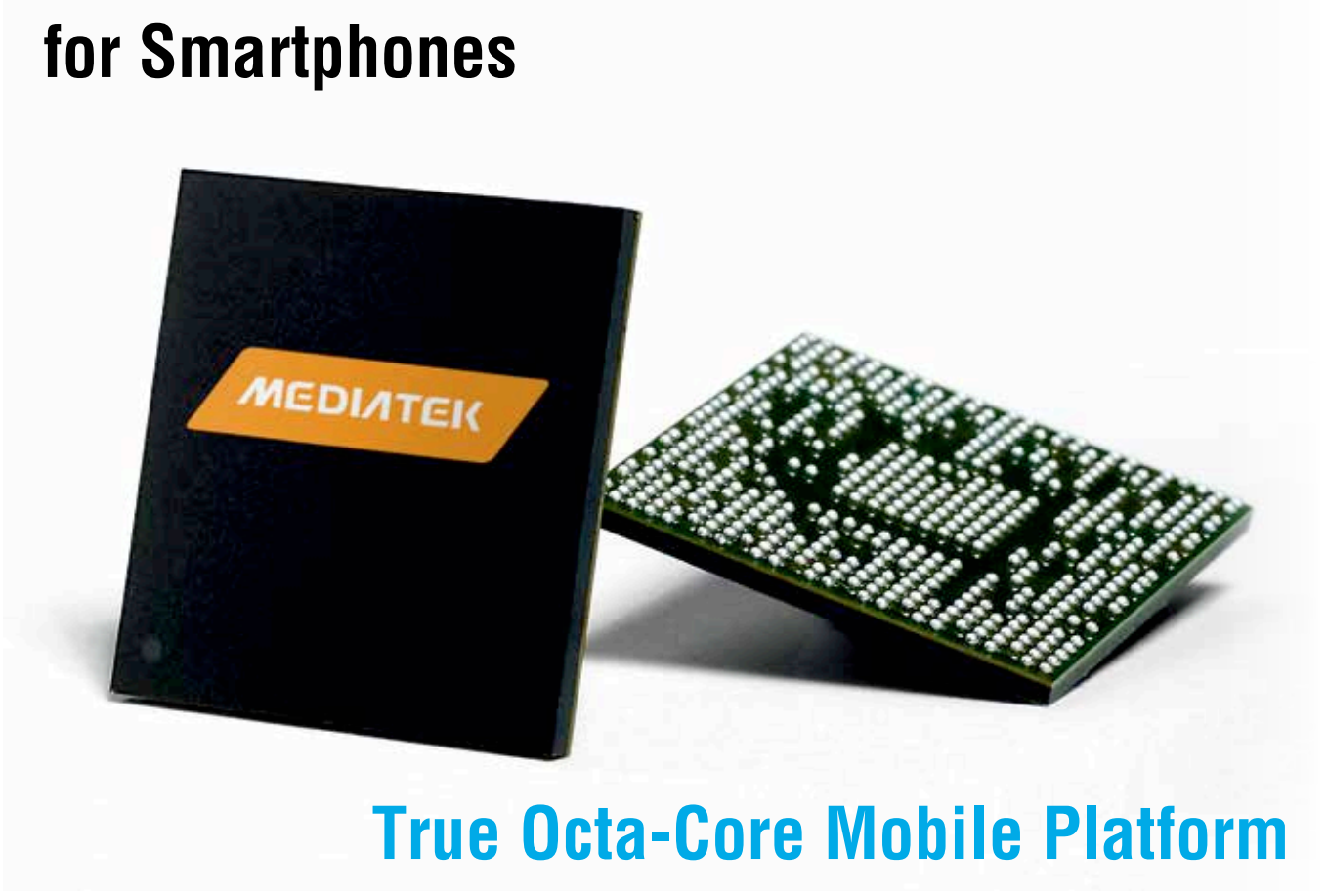
We'll be the first to admit that the Domino's Pizza app in India



is not very good. Okay, it's pretty terrible. From the forced landscape perspective to the touch controls that require a couple of taps to register, it's pretty clear that Domino's could have done much more to make its app

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Microsoft acquires InMage
Microsoft has procured InMage to enhance its choices for business continuity in hybrid cloud environments. **http://dgit.in/MSInMage**

Chrome 36
Google has released Chrome version 36 with rich notifications improvements, new incognito design, and doodles on Android. **http://dgit.in/GCHRv36**



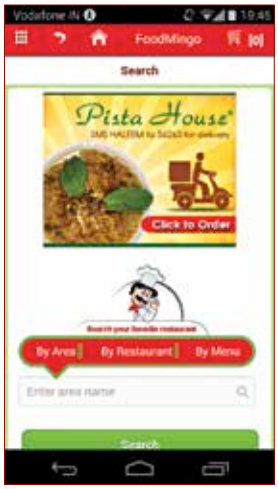
better. However, if you're a regular, the app gives you the most exhaustive and easiest way to order without resorting to a call.

To its credit, the Domino's app lets you add coupons to your order and also pay using your method of choice.

FoodMingo

Link: *http://dgit.in/1oPER4M*
Available for: *iOS, Android (only in Hyderabad)*

FoodMingo is a food delivery service that's currently only operational in Hyderabad. Even though that effectively reduces its audience, if you happen to be a resident of the city famous for its cuisine, FoodMingo serves you well. The FoodMingo app (and website) has a repository of over 200 restaurants from the City of Pearls. The app lets you place orders online and opt from payment options including COD, net banking and card payment. Apart from that, the app also lists out exclusive deals that some of its partner restaurants may be offering.



Faaso's

Link: *http://dgit.in/1wCDTx9*
Available for: *iOS, Android, Windows Phone*

Faaso's is a very popular fast food joint in Mumbai, Bangalore, Ahmedabad and Pune that's known for its large selection of wraps. Unlike Domino's, Faaso's has done a great job with its app and treads a fine line between making the app stick to the restaurant's aesthetics while still being easy and simple to use.

The app gives you the options to customize your



orders in multiple ways. Once you've finalized your order you can either opt for COD or use the app to make an online payment or a card payment. The app also tracks your orders.

Okay, now that we've seen apps that work hand-in-hand with restaurants to help you order online, let's also check out some popular apps that work with huge databases of restaurants and help you decide where to order from. Of course, because of the large number of restaurants, these apps do not let you order directly but instead give you the restaurant's details.

Zomato

Link: *digit.in/1lz79j2*
Available for: *iOS, Android, Windows Phone*

Zomato is the most popular, and (some would argue) the best restaurant recommendation service



in India. The service covers most Indian towns and cities and has a massive database of restaurants, outlets and even 'thellas' on offer. The Zomato app is understandably excellent to use and is consistently updated to keep the UI in tiptop shape and to fix bugs.

Zomato also works as a sort of social network for foodies. You can follow different people to read their restaurant reviews and also create your own profile. The Zomato team also regularly creates curated lists, called 'collections', in which they list out the best or the most impressive restaurants and joints under different categories. If you relate to terms like 'eat out', 'dine in' or 'take out', Zomato should be installed on your smartphone.

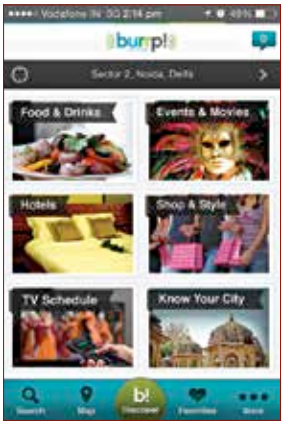


Times City

Link: *http://dgit.in/1jW4MMn*
Available for: *iOS, Android, Windows Phone*

The Times of India's app is a multi-purpose one for anyone who lives in an Indian city and likes to be informed on anything happening around him/her. The Times City app lets you know such information with respect to theatre, movies and other events. It is also a great restaurant recommendation service on its own.

Like the Zomato app, the Times City app has a comprehensive listing of restaurants from 10 Indian cities. The app is well designed and follows the design cues of iOS 7 and Android Material Design – good looking and minimalistic. Once you find a restaurant that you like, you can get the info. You can also read and write users reviews of restaurants.



Burrp!

Link: *http://dgit.in/1rvDRa3*
Available for: *iOS, Android, Windows Phone*

Burrp! and Zomato have been around for a while and are considered to be competitors. Burrp! also covers a large number of restaurants from a large number of Indian cities and includes menus and information of most of them. What sets Burrp! apart from Zomato is that it also does what Times City does – It helps you keep track of what is happening in and around your city.

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38

Demigods of computing
10 people who you may not have heard of but whose contributions have helped the field as a whole progress to where it is today

Portable solar-powered LED
LuminAID is a tiny portable light source that is solar powered, targeted for disaster struck areas
http://dgit.in/SolarLuminAID



Wenger Swiss Army Knife

Granted it's not the most pocketable of Swiss Army Knives out there, but this one from Wenger has something that no other knife can manage. It contains a mind-boggling 85 fully functional parts to pull out for a variety of tasks, right from a magnifying glass, torch, laser pointer, cigar cutter, and several knives. With this on your side, conquering the great outdoors is a much easier proposition. Time for Man vs. Knives in the Wild?

Gadgets everyone deserves (but don't really need right now)

TYLT Energi+ Backpack

Charging your phone or tablet inside your backpack through a powerbank is nothing new, but this backpack takes that concept to a whole new level. It comes with a 10,400mAh rechargeable Lithium Ion battery and charging cables can be routed to any of the bag's six compartments to charge gadgets on the go – upto three at a time. Two of the ports are of 1 Amp for charging smartphones while the third port is of 2.1 Amp for charging a tablet. This one's perfect for the gadget freak!





Ultra-High-Res Flexible Display
Scientists have created what might be the first ultrathin, super fast, low-power, high resolution, flexible colour screen **http://dgit.in/UltraHighDisplay**



The Imitation Game Trailer
The true story based on Alan Turing played by Benedict Cumberbatch gets its first trailer **http://dgit.in/ImitationGame**



Google Cardboard VR Kit

Google made a big splash at its IO Conference back in June when they distributed this DIY kit to attendees. It's a cheap but efficient VR 'headset' that lets you view your smartphone games in a whole new light (re: 3D). Now, if you have anyone of the supported Google, Motorola, Samsung or HTC phones, you can make your very own crude but cool VR HUD for just US $25! Now that definitely should fly off the shelves.

Withings Activité

Have you noticed all of the wearable gadgets / fitness trackers look distinctively different, wanting to announce themselves to the world in no uncertain terms? If you're looking at smartwatch with a more traditional, elegant look, then the Activité from Withings is the perfect accompaniment for you. It is distinctively chic with designer looks, Swiss made, and it tracks all your vitals. What's more, it's water resistant up to 50 metres, meaning you can take it in the pool with you. No problem. Time to make an impression is now.



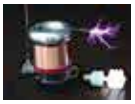


Mr. Bento Stainless Lunch Jar

The quest for a great homemade lunch ends with this effective Japanese lunch jar. It claims to keep your food warm for up to six hours, and comes with four different insulated stainless steel mini-jars which can be directly thrown into the microwave (if needed). Also, if you're someone who forgets to pack in a spoon (or chopsticks) with your lunch box, this lunch jar comes with a spork! Time to reassess your lunch time habit, yes?



Chinese Military Gaming Bus
To avoid feeling isolated and bored, the Chinese military has its own camouflage bus meant only for gaming **http://dgit.in/MilitaryGaming**



Singing Tesla Coil
TinyTesla is a device anyone could use to build their own Tesla coil and play MIDI music files on it **http://dgit.in/TinyTeslaCoil**

Demigods of computing you may not have heard of

We look at ten individuals from the past whose inventions and concepts were crucial milestones, paving the way for computing in the 21st century

Abhijit Dey
readersletters@digit.in

We've all heard about Bill Gates, who created Microsoft along with Paul Allen and revolutionised the software industry; Steve Jobs, who founded Apple Computers with Steve Wozniak and commercialised the entire personal computing industry; and Tim-Berners Lee, who created the World Wide Web and completely transformed what the Internet could do. But there are many more pioneers who made seminal contributions to computer science that we don't know about. Trailblazers whose names got lost in the plethora of names associated with computing. Here are some of those demigods who have created some of the most important things in this domain.

1 Grace Hopper
(Compiler, COBOL)

After a brief tenure of working with the US Navy, Grace Hopper created the first ever compiler for a computer programming language in 1951 when programmers used machine language for writing code. A compiler converts the source code written in a programming language into a machine-understandable code for the machine to execute. Initially, computers were programmed in binary machine code, and only a limited number of people could really understand such code and write it. The compiler encouraged further development not only for programming but also for the computer, which was then used only as a calculator. Grace wanted programming languages to be closer to the English language, so that we could learn and understand them better. And hence in 1959, she went on to develop COBOL, which was one of the first modern programming languages that still finds application in certain fields. The term 'debugging' was popularised by her when her team found an actual bug (a moth, to be specific) in the wiring of their computer system.



2 Ajay Bhatt
(USB)

"Our rockstars aren't like your rockstars," goes the byline of a famous Intel ad featuring Ajay Bhatt shown as having a rockstar status at the company. Not only at Intel, Ajay is considered as tech's rockstar for co-inventing the USB which has made our lives so much easier and less complicated. He believed that there should be a universal port for all peripheral devices when he was trying to connect a multimedia card to his computer. He headed the team at Intel that worked on the standards of the Universal Serial Bus (USB) which was started by a group of seven companies in 1994. The impact has been huge and today there are about 6 billion USB devices of different types around the world. He also developed the Accelerated Graphics Port (AGP) used to connect a video card to the motherboard, replacing existing PCI connections. He then went on to develop the PCIe bus standard (short for PCI Express), a high-speed bus standard that replaced all the previous PCI, PCI-X and AGP bus standards.



3 Edward Roberts
(Personal Computer)

After the Altair 8800, the world's first personal computer, was featured on the January 1975 cover of *Popular Electronics* magazine, a revolution started off in the field of computing. Earlier, computers were only meant for academic and military purposes and not for personal use. Roberts, however, wanted computers to be something more and so with his experience in electronics, he decided to build a personal computer. The Altair, which needed to be assembled, was mostly purchased by hobbyists. It was a great success and the company gained huge profits. It also saw the origin of Microsoft when this machine caught the eyes of Bill Gates and Paul Allen. The duo persuaded Roberts to develop software for the Altair using a new computer language called BASIC. What followed was a rivalry between Apple and IBM, and many more companies later, to build the best commercial personal computer in the market.



4 Jonathan Fletcher
(Search Engine)

On graduating from the University of Stirling, Scotland, Jonathan worked as a systems administrator at the university itself and created the world's first web-crawling search engine, JumpStation way back in '93. Though internet search engines were already operative for a couple of years, JumpStation was the first to search the World Wide Web. This search engine was based on the same



technology that today powers the likes of Google and Bing. It created an index using a web robot and covered the three essential features of a web search engine – crawling, indexing and searching. Due to the lack of investors and funding, Fletcher was compelled to leave the university and the development of JumpStation was terminated. Hosted at the university, his search engine indexed websites and acquired a database of about 275,000 entries across 1,500 servers.

5 Ray Tomlinson
(Network Email System)

You may not even be able to recall the last time you sent across a handwritten letter, thanks to email that has almost completely replaced the conventional mailing system. Before the internet, everyone was trying to improve the ARPAnet, and Tomlinson had the same intention to send messages to people over the network in a simpler way. At that time, email was already present but could only be sent to various users of the same computer. Ray developed a mail system with which email could be sent to different hosts on the ARPAnet. He made this possible by using the "@" sign to separate the senders from the recipients. The same system has prevailed ever since, making business and personal communication easier and more productive.



6 Narinder Singh Kapany
(Fiber Optics)

If you enjoy high speed communications on your computers, then you have Narinder Singh Kapany to thank for it. Considered as the "father of fibre optics", Kapany demonstrated how light could travel through bent glass and coined the term 'fibre optics' way back in the late '50s. Narinder also made great contributions to the fields of lasers, biomedical instrumentation, solar energy and pollution monitoring, with over a hundred patents to his name. Though his contribution missed out on a Nobel prize, laser surgeries and endoscopy are just some of the many perks that we enjoy today due to his existence.



7 John McCarthy
(Artificial Intelligence)

Siri and all other voice recognition technologies are based on Lisp, a programming language for Artificial Intelligence created by McCarthy in 1958, who coined the term himself. He invented the concept of 'garbage collection', a memory management technique in programming, that saves programmers







Importance of Oceans
Read to find out how the oceans play an important role in supporting life on exoplanets **http://dgit.in/ImpOceans**



Sponge to produce steam
Researchers at MIT have built a sponge-like structure that can produce steam from water using sunlight **http://dgit.in/SpongeSteam**

TRAILBLAZERS, NOT PART OF OUR TOP TEN BUT WHO LEFT AN INDELIBLE MARK ON THE COMPUTING LANDSCAPE



Ralph H. Baer (Video Game Console)
Considered to be the "father of video games", Ralph built the first commercial home video game console named 'Magnavox Odyssey' after working on a prototype called 'Brown Box', forging the video game industry in 1972. He also created the first light gun, a peripheral device for consoles that you might have worn out with use in the popular *Duck Hunt* to shoot down ducks on the Nintendo Entertainment System (NES) video game console.



William Fetter (Computer Graphics)
While working as a graphic designer at Boeing, Fetter created the first computer model of a human body known as 'Boeing Man' referred to by Fetter as 'First Man'. It was used as a standard figure of a pilot in Boeing to test whether the pilot was able to reach all the instruments in a virtual cockpit set-up. To describe the work he was doing at Boeing, he coined the term 'Computer Graphics'.



Gary Thuerk (Spamming)
After a new model of a computer was available at Digital Equipment Corporation, Gary Thuerk, a marketing representative at the company, came up with the ingenious advertising idea of sending out a mass email to 393 recipients with the help of an assistant on the ARPAnet. Since then, Internet pipes have been spewing spam all the time, being not just a nuisance for your inbox to deal with on a daily basis, but also negatively impacting companies that run the Internet.

David Bradley (Ctrl+Alt+Del)
David designed the three-finger salute, or the 'Control+Alt+Delete' command, initially intended to perform a reboot function without shutting down the computer, a useful feature to developers and programmers. It was originally made for IBM PC-compatible computers, and now the Control+Alt+Delete shortcut invokes the task manager in Windows XP and later. Linux performs a soft reboot too, while reboot on the Mac OS works with a different command.





Gary Kildall (BIOS)
He created the mass-market CP/M operating system and went on to create the concept of BIOS, which is the first software that runs on your PC when it's turned on. The BIOS basically tests whether the hardware components of your computer are running properly and then loads the operating system to the memory device. Gary is also known as the man who missed out on a crucial meeting with IBM, which let Bill Gates cut a deal with DOS, later turning Gates into the richest man on earth.

from manually performing the task every time. The Father of AI also came up with the concept of computer time-sharing and networking, which was a precursor to cloud computing. In the 1970s, John presented a paper which spoke about buying and selling via computers, clearly predicting the e-commerce system.

8 Charles Bachman (Database Management System)



When direct-access storage (disks and drums) became available, there arose the need for a system to handle all the data. Working at General Electric as an engineer, a dyslexic Bachman developed the Integrated Data Store (IDS), which was the first proper working database management system (DBMS). Also, called "navigational database", this system went on to become the world's most useful technology. One can't even imagine how today's flight reservation systems and inventory control systems would have been possible without a DBMS.

9 Leslie Lamport (Distributed Computing)



The benefits of a computer network in an organisation are obvious, however the reliability of the data exchanged hasn't always been guaranteed. Enter the concept of "distributed computing" chalked out by Leslie while working at Stanford Research Institute. He invented various algorithms for software that would ensure the reliability of functioning even when there are separate machines with multiple cores and multiple processors running. Today's cloud and web services are powered by the same concept. Without distributed computing, massively multiplayer online games such as *World of Warcraft* and *Age of Empires*, as well as P2P applications would probably not exist.

10 Douglas T. Ross (CAD)



Ross is credited with leading the development of APT (Automatically Programmable Tool) – a high-level programming language used to write instructions for numerically controlled machine tools in creating complex parts with cutting tools such as mills, lathes, plasma cutters and water jet cutters, moving in space. Computers are now used for such precision-based tasks, automated by computer-aided design (CAD) and computer-aided manufacturing (CAM) programs. These software are used to create 2D and 3D models of parts in the automotive, shipbuilding and aerospace industries, among many others. Ross also originated the term "CAD" and made significant contribution to the future development of CAD.

worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

(MUST READS)



DO PEOPLE EVEN WANT SMARTWATCHES?

Samsung has five smartwatches already in circulation, and Apple has hired executives from TAG Heuer to help build its own smartwatches. But this article contends no one outside of silicon valley really wants these wearable accessories.
http://dgit.in/smwatch

WHY (NOT) SO SERIOUS?

What makes things funny? What is the anatomy of a joke? So many theories of laughter and yet so many chuckles left unexplained. This article plumbs into this simple subject and comes up with some surprising findings:
http://dgit.in/lolies

THE PASSWORD IS DYING

To make a point Wall Street Journal author, Christopher Mims, revealed his Twitter password out to the whole world, confident that knowing it won't help anyone get into his Twitter account. Why? Read on to find out:
http://dgit.in/pwdied

EVEN AMERICA HAS IT'S MIG 21

At a cost of $399 b, the next-generation F-35, is most expensive plane ever built and yet it may be too dangerous to fly. Why is the project still on? Read on to find out:
http://dgit.in/flyngfail

[Wired Corner]

DESIGNING GADGETS TO BE DIY WILL MAKE US LOVE THEM EVEN MORE



In a well thought out opinion piece, columnist Nikki Pfarr argues the merits of having users build a piece of a product or service. With the DIY culture permeating consumer electronics, it's possible for product designers to get consumers hooked. http://dgit.in/wwdiyo



Why you always seem to choose the slowest line
After sizing up the ticket lines, the one you join seems to move slower than the rest. In its "What's up with that" section, Wired explains the science behind a strange phenomenon that you may be wondering about.
http://dgit.in/wwslowq



Why Apple's Swift language is supposed to be incredible
Last month, Apple released a test version of Swift to coders at large, billing it as a faster and more effective means of building software apps for iPhones, iPads, and Macs. Wired gives it its stamp of approval
http://dgit.in/wwswift



Meet "Project Zero"
A group of top Google security researchers whose mission is tracking down and neutering the most insidious security flaws in the world's software. They'll be given free rein to attack any software. How was this elite team built? Find out:
http://dgit.in/zerhack

SHORTS

HOW TO BLOCK ONLINE TRACKING

In our cover story last month we showed you how many companies track you online without explicitly asking for your permission. Here's how you can combat the trackers by using tools and services such as Ghostery, Disconnect, and Privacy Badger.
http://dgit.in/trknomore

FACEBOOK BETTER THAN FBI



This is not really a headline to be proud of, we know, but as it turns out Facebook is better at facial recognition than the dreaded US federal agency. How is that even possible? Follow the link to find out:
http://dgit.in/bigfbbro

WHY NEIL ARMSTRONG GOT TO TAKE THE LEAP

The three astronauts chosen to make the first trip to the moon on Apollo 11 lobbied all throughout their training for being the first man to touch the lunar surface. Ultimately, the honor went to Neil Armstrong Neil due to the basic structural design of a part of the Eagle.
http://dgit.in/bgleapm

WHEN AMERICA ALMOST NUKED THE MOON

Declassified documents revealed the US wanted to nuke the moon back in the cold war era, causing an explosion so big that it'd be visible from Earth. They hoped the explosion would be a show of might and boost the confidence of Americans
http://dgit.in/nukemun

Essential Android apps for Gamers

Do you love gaming? Then here are some essential apps for your Android device that you should definitely have to keep the gamer inside you alive

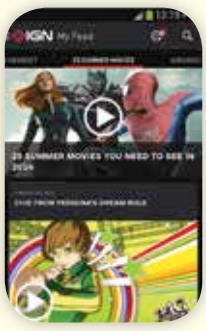
– By Kunal Khullar

Almost everyone has some point or the other played video games, be it on consoles, PC or your smartphones. Then there are some who just can't live without gaming and spend days in completing that one tough level. Well if you love gaming, then we have listed some Android apps that keep you informed about the latest stuff happening in the gaming industry and also help you out during gameplay.

Machinima



Machinima is one of the most popular names when it comes to gaming. The video network covers a variety of gaming related content and keeps you engaged for hours. All of the content published by Machinima can be accessed from the official app and also allows you to share them with your friends.
Download: http://dgit.in/machapp



IGN Entertainment

Like Machinima, IGN is well known name among gamers where one can get gaming news, reviews, cheats, walkthroughs and a lot more. IGN's Android app brings you all of this and also features an upcoming calendar, which lists upcoming releases so that you are informed well in advance when your favourite title is about to launch.
Download: http://dgit.in/ignappd

Google Play Games



Android has become the next big gaming platform and it has already become the biggest mobile platform for gaming. The official Google Play Games app saves your profile and gives an overview of all the games you have played. The app also gives you game suggestions and you can also interact with your friends who are on Google Play Games. A must have for all Android gamers.
Download: http://dgit.in/daplay



PlayStation

The name says it all. The app is a must for all PlayStation lovers as it allows you to explore your games, console devices and your profile on the PlayStation Network. You can keep a tab on your gaming achievements and also browse through Sony's catalogue of PlayStation and PS Vita games.
Download: http://dgit.in/psplayand

Xbox SmartGlass



The official Xbox SmartGlass app can connect to your Xbox 360 or Xbox One and lets you check out your Xbox profile, content stored on your console, and also browse Microsoft's catalogue of gaming and video content. The app lets you control some of the functions of your Xbox including playing videos, launching games and so on.
Download: http://dgit.in/xboxplay



Steam

So you think console gaming sucks and PC rules? Well here is the official Steam app for Android which works exactly like the PC app and lets you purchase gaming titles, check out special sale offers and also interact with your Steam friends and see what they are playing.
Download: http://dgit.in/stmapp

THE STORY OF SLENDERMAN



Every generation creates its own monsters. Folk tales tell of witches and wyrms in the woods, the last TV-infused generation feared Jaws in lakes and Bloody Mary in the mirror. This generation gets its monsters from the Internet.
http://dgit.in/slendym

MEET MATERIAL DESIGN

No it's not a new branch of material science but rather Google's new design language. Its new design ethos could make the company an amorphous problem solver of unimaginable scale. In effect, Google is about to take over your whole life, and you won't even notice
http://dgit.in/gomatdes

FACEBOOK HAS BEEN MESSING WITH YOUR MIND

Not figuratively but literally. Recently it revealed that it had been altering the content of some users' News Feeds in an attempt to study the psychology behind what causes people to post emotional material. Here is an explanation for why Facebook would do such a thing:
http://dgit.in/fbpsych

KEEP CALM. CARRY ON... UNDERGROUND

As the world held its breath during the Cold War, England built a top-secret underground city to save its government in case of nuclear attack. If the nation was ever nuked, 4000 government employees would be shuttled via a secret train line from London to a blast-and-radiation-proof bunker.
http://dgit.in/brlingtn

Top Smartwatches to buy in India

The country has seen a swift inflow of wearable products, headed by smartwatches. Here's what companies are offering in India

– By Prasid Banerjee

They came, they saw, but they haven't conquered yet. Wearable gadgets and smartwatches in particular have been around for over a decade now, but they have only just come back in vogue, in perhaps a more refined avataar. Here's what you can buy in India.

Tizen

While initially starting with Android, Samsung decided to make its own Tizen OS the on to run on its smartwatches. The result? Four devices, which are compatible only with Galaxy smartphones. Samsung pulled an Apple on you.

Samsung Galaxy Gear: Samsung's first wearable smartwatch didn't sell much, but it is still available in the market. It has a 1.9 MP autofocus camera, an 800 MHz processor and a 315 mAh battery. It was launched with the Android OS, but now runs on Samsung's Tizen platform.
Price: Rs 15,290

Samsung Gear 2: After testing the market with the Galaxy Gear, Samsung launched the Gear 2 smartwatch, which runs on the company's Tizen OS. This device has a dual-core processor, 512 MB RAM, a Super AMOLED screen and a 300 mAh battery.
Price: Rs 21,550

Samsung Gear Fit: Launched alongside the Gear 2, this is a more compact smartwatch from Samsung, which takes some cues from Nike's Fuelband. It runs on Tizen and has a Curved Super AMOLED display along with a 210 mAh battery.
Price: Rs 15,450



Samsung Gear 2 Neo: While the Gear 2 allows you to take or make calls on your smartphone, the Gear 2 Neo doesn't. Except that, this is the same as the Gear 2 smartwatch. It isn't as pricey though.
Price: Rs 15,450

Android

Before Samsung decided to go with Tizen, smartwatches had been running on Android for some time.

Sony Smartwatch 2: While Samsung's watches work only with Galaxy smartphones, Sony's Smartwatch 2 can work with any Android phone that operates on a version above Android 4.0.
Price: Rs 14,990



Sony Smartwatch: The first version of Sony's wearable watch, this was launched long before Samsung and other companies came into the party. It is available at a cost below Rs 10,000 and will work with an array of Android smartphones.
Price: Rs 6,390

Android Wear

Looking to jump into the wearable party, Google launched its own wearable platform at its I/O Conference this year. Android Wear, as it is called has two devices already, while a third (Moto 360) is to be launched soon.



Samsung Gear Live: This is the first of three smartwatches to run the Android Wear platform. It comes with 4 GB internal memory, 512 MB of RAM, 300 mAh battery and a 1.2 GHz dual core processor.
Price: Rs 15,900



LG G Watch: LG joined the smartwatch party bringing its first wearable smartwatch, which has a bigger battery (400 mAh) than the Gear Live. It also costs about Rs 1,000 less than the Gear Live.
Price: Rs 14,999

TECHQUICKIE

From Linus TechTips comes a channel whose sole focus is to explain a particular technology in a matter of minutes. The



topics range from Refresh Rates, Pixel Density to even PC Case Sizes. The subjects are covered fully at the speed of thought.
http://dgit.in/tcquickie

(QR Code)

For a list of all the links from this section, head over to http://dgit.in/wwaug2014
Or point your phone to the QR code above

(PRODUCT LAUNCHES)

DROPLET ROBOTICS SPRINKLER



Even garden equipment is getting connected these days. It features a combination water timer and connects to your smartphone to leverage real-time weather data, soil information and plant species data for an efficient sprinkle.
Price ₹18,000 approx.

OBI OCTOPUS S520



The Octopus S520 is the first smartphone from Obi Mobiles to be launched in India. It runs Android 4.4.2 KitKat and is powered by a 1.7GHz octa-core MediaTek processor along with 1GB of RAM.You get a 5-inch HD IPS display
Price: ₹11,990

THE XIOMI MI3



The Xiomi Mi3 has a 5-inch HD IPS LCD Capacitive touch-screen and 720 x 1280 pixels resolution. The smartphone is powered by a quad-core Qualcomm Snapdragon 800 2.2 GHz processor coupled with 2GB of RAM.
Price: ₹14,999

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C	V	S	D	W	P	S	C	S	H	F	S	U	S	V	B	L	M	B	B
J	E	A	R	V	C	E	A	C	I	X	T	R	I	X	L	V	T	M	P
G	E	U	N	R	U	T	N	K	D	A	U	O	R	W	P	T	M	D	W
U	O	G	I	X	O	X	B	B	B	Z	W	T	T	Y	V	Q	N	L	N
B	T	B	E	F	R	J	T	L	O	D	Q	Z	E	B	S	M	F	Z	X
H	D	O	O	E	W	E	E	P	S	P	D	O	T	V	E	H	Z	N	X
A	D	Z	Y	F	I	T	O	P	S	E	L	F	I	E	T	L	V	K	O
P	A	P	P	X	S	T	A	H	C	P	A	N	S	A	Y	E	V	C	B
Z	E	M	U	M	H	N	E	C	V	L	A	T	O	M	B	J	F	C	D
V	R	Q	M	O	A	D	I	W	B	A	E	S	A	J	A	O	X	D	N
B	H	S	Y	J	V	K	J	K	S	A	C	N	W	G	R	P	C	K	A
V	T	V	O	O	L	K	M	J	M	A	Y	B	X	R	E	X	S	W	S
X	T	R	O	L	L	U	J	W	D	Z	O	P	W	A	T	P	Q	J	E
U	T	D	B	E	A	E	C	A	F	E	P	Y	T	N	E	R	R	O	T
I	L	F	X	I	S	E	C	R	U	O	S	V	I	N	X	Y	I	K	G

There are 20 technology-related terms in the grid alongside. Find them all. [Hint: they all start from either S or T]

Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these videos playing on your screen



The year 3000
Duration: 0 min 30 seconds
Futurama's take on what the world will look like 1000 years from now. In glorious 3D. Check out the tools used.
http://dgit.in/futrmm



The secret CIA museum
Duration: 4 min 22 seconds
Look at Osama bin Laden's assault rifle, a singed al-Qaeda training manual, a spy rat corpse and much more.
http://dgit.in/ciamusi



Hit the deck
Duration: 0 min 58 seconds
An F-16 lands uncomfortably low, close to air show spectators. You will duck while watching this video.
http://dgit.in/fliebye

Google is plunking down 50 million to teach girls programming

>>Made With Code is a new Google initiative to encourage girl programmers>

Google held this new event called Made With Code in New York City recently to spread the love for programming among the fairer sex. Given that only 18% of computer science degrees are earned by women, Google is taking steps to increase that statistic and close the gender gap in the tech industry. And for that it's willing to plunk down $50 million. The idea behind the program is to show girls that they things around them have some element of programming in varying magnitudes and by learning programming they too can apply these skills to help with their own projects.



Enrol your kid now!

The event had television personality Mindy Kaling, Clinton Foundation Vice Chair Chelsea Clinton, iLuminate creator Miral Kotb, Director of Photography at Pixar Danielle Feinberg and co-founder of UNICEF Innovation Erica Kochi along with 150 high school girls participating. The Made With Code website will offer learning resources and projects to help kids learn programming and there will be a community to discuss individual lessons and collaborate. Learn more about the project here: http://dgit.in/GMadeWithCode

A 2013 report by the AAUM(American Association of University women) reported that "unsupportive classroom environments and outdated pedagogy" along with "a limited peer group" in college environments inhibit female participation in computer science education. Colleges play a massive role in getting young girls to code. Google X EVP Megan Smith explains the philosophy behind the program. The lack of role models to look up to in the industry is one of the reasons why there is so less interest in the area. Made with code looks towards solving this problem with having an entire framework in place. And this involves having mentors from different technical vocation coming together to guide students through the program.

We're seeing a lot of effort from a lot of institutions promoting programming among children. Just recently we had a video go viral which featured Mark Zuckerberg, Jack Dorsey, Gabe Newell and Bill Gates promoting learning programming in schools. The video also featured musician will.i.am and Chris Bosh of the Miami Heat basketball team. These individuals talk about what got them into programming and how they went about getting into computer science in an effort to generate interest among today's youth. >

You can watch the video here: http://dgit.in/CodeStars

*side panel

*Hour of Code

>> No doubt, you must've watched the viral video about industry stalwarts encouraging kids and adults alike to learn coding. It's about code.org where learning resources have been aggregated for beginners. Learn more:

http://dgit.in/CodeHour

*AlgoXY'

>>Ever wanted an eBook where all elementary algorithms and data structures are put together for easy reading? Head over to this repo where you can get it for free:

http://dgit.in/AlgoXY



*Kernel for the layman

>>Explaining what a kernel of an operating system is and what it does might be made a lot more simpler thanks to the Matrix:

http://dgit.in/KerWhat

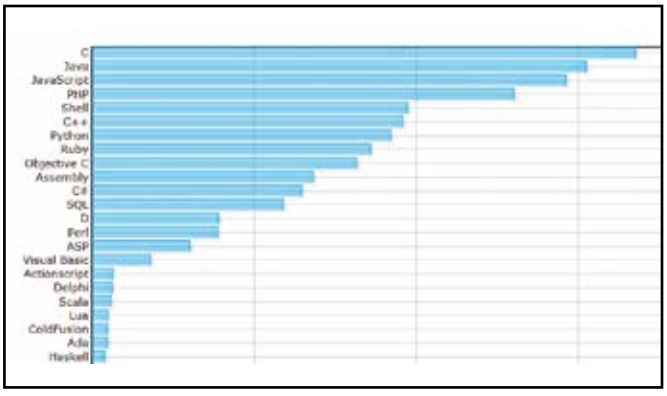
For latest news, updates and features, join us on Facebook at **facebook.com/devworx.in**

Perhaps you need the D

>>It's quite similar to C++ but the world is torn over using D rather than the former.>

Introduction

D is a new programming language that is object-oriented, imperative, multi-paradigm system programming language. It started off as a re-engineered C++ though over the years it has been redesigned quite a bit to incorporate features of modern day programming languages like Java, Python, Ruby and C#. So you have the same performance as C++, is shorter in size and is memory safe but it has the expressive power of modern languages as mentioned above.



D is quickly gathering mainstream recognition

If one were to put forth how exactly D pans out then you can describe it as C++ done right. However, the evolution of D through time has worn different avatars. D1 or 'D in the early days' felt as if you were programming using a low-level-oriented Python. The analogy might seem weird but you have speed and there is focus on the task at hand rather than fixating on the aspects of the language. D2 brought more features but it also bought more complexity that C++ has. Concurrency is a built in feature for D2 and that is what makes D2 more popular among programmers. It is still developing and there are plenty of people dropping their preferred language for D.

The image below showcases D's popularity growth.

Programming paradigms

D supports the following programming paradigms:

1. Imperative

This paradigm is pretty much the same as C. Functions, data, statements and expressions work the same as in C. The differences include D's 'foreach' loop construct which allows looping over a collection and nested functions which have functions within function with the internal function having access to the variables of the enclosing function.

2. Object-oriented

Object-oriented programming in D uses a single inheritance hierarchy. It does not support multiple inheritance, instead it uses interface influenced from Java.

3. Metaprogramming

By combining templates, compile time function execution, tuples and string mixins you get metaprogramming support in D. And these templates can be written in a more imperative style as compared to C++'s functional style.

4. Functional

Function literals, closures, recursively-immutable objects and higher-order functions are supported in D.

5. Concurrent

Concurrency is where language constructs for enabling multiple computations to occur simultaneously.

SafeD

SafeD is a subset of D where there are no writes to the memory that isn't allocated or has already been recycled. Functions that are marked as @safe are checked at compile time to ensure that they do not use any features that could result in memory corruption.

So D is C++ but is simpler to code in. Then why on earth would anyone sacrifice C++? That's a question we can't answer properly either. If you are used to C++ then there isn't any reason to drop in



To D or not to D, that is the question!

for something you have yet to even learn. And if concurrency is that important you might want to take a look at Go, a language developed by Google and is part of some of their processes. Here are a few usage scenarios if you are still stubborn on using D:

1. Creating a project from scratch with a faster interface creation time period.
2. If you need fast low-level programming binaries while making a program from scratch.
3. Native support for concurrency.

Major Design Goals of D

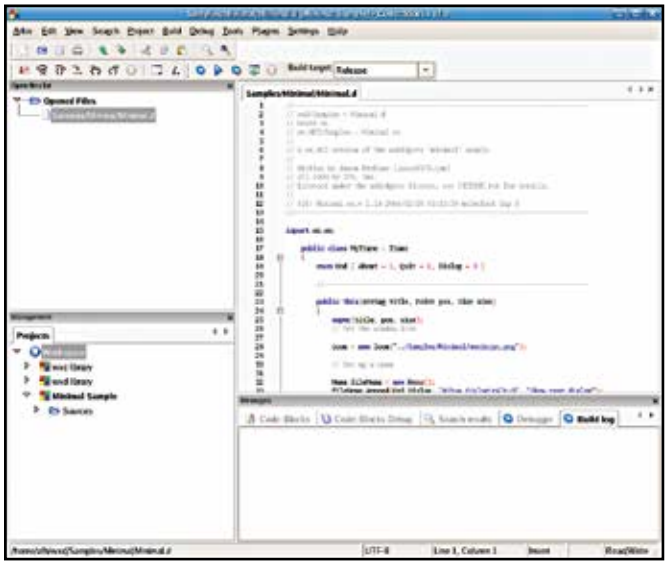
Every language has certain design goals that are the guidelines for the development of the language and here are some of the design principles for D.

1. Make writing code easier that is portable from compiler to compiler, machine to machine and from operating system to operating system.
2. To provide syntactic and semantic constructs to eliminate common programming mistakes.
3. Support memory safe programming.
4. Have a shorter learning curve for programmers comfortable with C or C++ or Java.
5. Be compatible with the binary interface of the local C application
6. Have context free grammar
7. Incorporate contract programming and unit testing
8. Help build lightweight and standalone programs
9. Reduce documentation creation costs

Who should use D?

Programmers who regularly use lint or similar code analysis tools before the code is even compiled. Those who keep warning levels at maximum with warning categorised as errors. For projects that consist of million lines of code that need built-in testing and verification. Then there are numerical programmers, since D supports features like floating point precision, core support for floating types and defined behaviours for NaN's and infinities.

D's compiler structure is modular. The lexical analyser and parser are totally independent of each other and the semantic analyser so if you were to write a simple tool to manipulate the source code then you can modify parts of the compiler rather than the entire compiler. This also means the source code can be broken down as tokens for specialised applications. And lastly, for those who believe that C++ is just not enough a little modern touch is necessary for their project. The language as a whole is kept as close as possible to C++ which means a transition into D shouldn't be difficult at all.



D programming with Code::Blocks as the IDE

Who shouldn't use D?

Let's face it, C++ has matured over the ages so there is no way someone is going to sit down and convert his/her million line C/C++ program into D. D is similar to C/C++ but it doesn't compile C/C++ source code out of the box. However, D supports legacy C API's quite well.

People getting into programmers shouldn't choose D over the more favoured legacy languages like C/Java/Basic.

Getting started with D

There are three popular compilers for the D programming language.

*coding matters



Learn Swift for free

>>Apple has released a free PDF on iTunes for Swift, the new programming language that will make its debut with iOS 8 later this year and is to make coding for the new iOS much easier. Get it here.

http://dgit.in/FreeSwift



Top languages to learn

>>IEEE Spectrum has curated a list of the most popular programming languages based on job demand, popularity among different communities and platforms.

http://dgit.in/TopLanguageList



Amazon introduces Cloud Watch

>>The new service from Amazon lets you monitor and troubleshoot systems and applications from Amazon EC2 instances. Learn more here:

http://dgit.in/CloudWatchAmazon

GDC is based on top of the GNU Compiler Collection, LDC is based on LLVM and DMD is the reference compiler created bu the same person that made D, Walter Bright. GDC and LDC are great compilers since they produce more performant binaries than DMD does but they are difficult to set up in Windows than DMD. We're focusing on the Windows OS in this article.

Go to the DMD download page (http://dgit.in/DMDDown) and get the installer for Windows. Once you've downloaded the zip file, simply unzip it in any location and add the path for the binaries in the environment variables for Windows. It should be "dmd2\windows\bin". This is only if you are using just one version of DMD, if there are more than one installations of DMD then there will be a conflict during calls and you'll run into a few errors or warning over version differences. You can always use the installer and get it done with since it too does exactly the same thing. Once you have the path configured, open up command prompt and type 'dmd' and press enter. Invoking DMD in this manner without any extra arguments will cause it to display the version number along with all the valid command line options. If you do see those then your installation went fine and you can begin programming in D.

You can also use IDE bundles like DDT, Mono-D, Visual-D and Code::Blocks. You can now start programming in D. All source files are to be saved with a .d extension. As is customary with any new programming tool, here is a hello world program for D.

INLINE BOX CODE:

```
import std.stdio;

void main() {
writeln("Hello World!");
}
```

Once you have saved the program (let's call it hello.d), simply navigate to the folder in a command prompt window and type "dmd hello.d". Your console should have a new line as Hello World!, if this is not the case then there was a problem in locating the compiler binary, recheck the installation and ensure that the binaries have been added to the path.

Speed

D is as fast as C++ if you use the right compiler and also the correct arguments when compiling on a platform. Using the default arguments can lead to code that is ridiculously slow. Here is a little benchmark that was run on a machine with code written in C and D to perform the exact same operations. The code was then compiled using different compilers and using different arguments on each compiler to figure out which was the best way to go about using D versus C++. The results do shed light on D's claims on performance. The results are mentioned below and you can visit http://dgit.in/DversusC for the complete discussion on the same.

D (const ref arguments, dmd compiler, correct optimization): 9.6s
D (in arguments, dmd compiler, correct optimization): 6.1s
D (in arguments, gdmd compiler, correct optimization): 3.9s
C++: 3.8s

We see that the default compiler DMD isn't that great, especially when it adds 2.2 seconds to the overall runtime despite having the correct optimization and the right arguments being passed to the compiler. However, when an alternative compiler (gdmd) was used with the proper arguments and all optimization done, D performed just as good as C++ does. So would you say it's worth the effort?

Resources and further reading:

- http://dlang.org/download.html
- http://dlang.org/spec.html
- http://www.tutorialspoint.com/d_programming/index.htm
- http://www.dprogramming.com/tutorial.php
- http://ddili.org/ders/d.en/index.html
- http://www.prowiki.org/wiki4d/wiki.cgi?FrontPage
- http://www.wikiservice.at/d/wiki.cgi?EditorSupport
- http://dui.sourceforge.net/
- http://www.dsource.org/projects/build/
- http://www.dprogramming.com/dfl.php >

*the source code



Learn how Bootstrap 3 works

>>Bootstrap Grid 3 is one of the most commonly used libraries for making fluid layouts for websites. Here is a good article explaining the working behind the framework.

http://dgit.in/Bootstrap3Grid



Shorten map locations using Map Code

>>Mapcode is a way to shorten any location down to just 4 letters and a dot. For more complex addressed they've 5 letters and a dot. Here's how you can use it in your project.

http://dgit.in/MapCode



Smoother fonts with DirectWrite

>>The next version of Google Chrome will enable DirectWrite instead of Graphics Device Interface for crisp rendering of text even on high DPI displays.

http://dgit.in/ChromeDirectWrite

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- 225 Colleges by placement
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- 10 Things to check before finalising a college
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INTEL REALSENSE: THE FUTURE IS NOW

DO YOU WANT TO CREATE GAMES AND APPLICATIONS THAT STAND OUT? DO YOU THINK ITS TIME THAT THE COMPUTING EXPERIENCE GREW BEYOND KEYBOARD, MOUSE AND TOUCH? INTEL REALSENSE PROVIDES YOU THE RIGHT SET OF TOOLS TO HELP YOU BLUR THE LINE BETWEEN VIRTUAL AND REAL.

The Internet today has penetrated multiple devices, which are now present in multiple form factors, be it smart watches, mobile phones, tablets or even TVs. The varied form factors have definitely changed the way we interact with our computing devices and have taken us in the direction of natural interfaces. Organisations are now trying to evolve newer ways of making interaction with computers much more easier and much more natural. Gone are the days when a keyboard, mouse and dot matrix printers were the only ways to get data in and out of the system. Intel is one such company, which has always been at the crux of the computer manufacturing industry and has helped drive computer manufacturers into developing new ways of interacting with computers.

Intel's RealSense technology extrapolates the existing devices to involve not just you, but also all your surroundings and you realise just how much computers have evolved to now simultaneously see, hear and feel, introducing new ways to process this information and revolutionise the way we use them. This is expected to not only make the computing experience more immersive, but also shrink the line between the real and virtual world for you. Some features such as speech and facial recognition, finger sensing, gesture recognition and 3D scanning/printing bring out the third dimension from our computers. This allows you to naturally manipulate and play with 3D objects and interact with them as if you were playing or working with your buddy sitting next to you.

While many may feel that these technologies are still a few years away from reaching the market, they're here and developers are already bringing out newer applications of these features as we speak. The only thing required now is to have developers build and innovate from what we already have and take it forward to newer heights. It's only when this technology comes into the hands of mainstream users will it spur further innovation to make the experience even better. At present, it needs to be proven that there's a real need for these devices and that consumers should upgrade to newer devices. Some companies have already made this interactive technology mainstream in the form of devices such as Kinect and Wii U, but its application has mostly been restricted to casual gaming. As the market growth for PCs continues to decline, innovation in this direction will definitely generate a renewed vigor in the purchase of personal computing devices.

Intel has been working to introduce something very similar to the mainstream computing devices, albeit in a different and exceptional way. Its journey in this domain began with the Perceptual Computing SDK, which was released in 2013. The RealSense SDK is somewhat of a sequel to the same chapter with some tweaks and many new features. The Beta version of this SDK is due to be released in Q3 of this year.

REALSENSE SDK: THE FEATURES

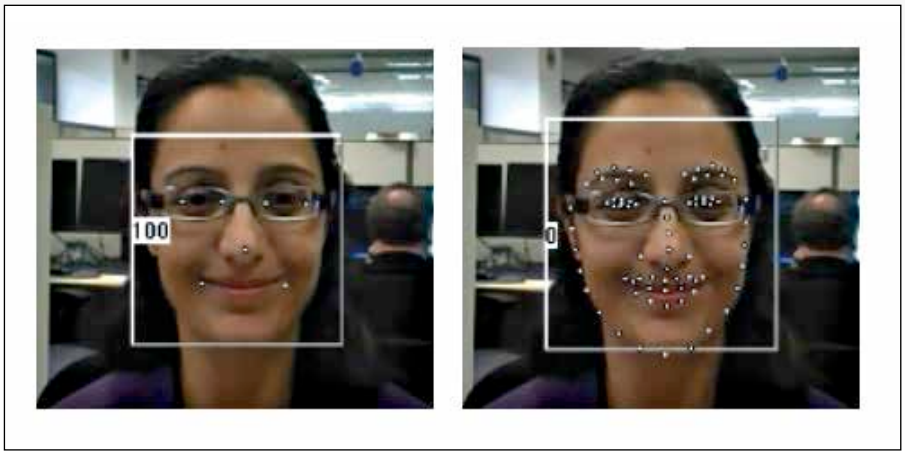
The Intel® RealSense™ SDK is a software development kit available for systems based on Intel Core processors 4th Generation and onwards. It will be available for download starting Q3 in 2014, but developers can sign up now on the Intel website (http://goo.gl/hHMOLF) to be notified when it's available for download. The SDK allows easier access to all the features supported by the RealSense technology. With the help of this software stack, developers can now deploy next generation applications with natural interfaces while concurrently bringing out the best in the collaborative features in a way never possible before. Some of the key technology areas in which this SDK works are as follows:

SPEECH RECOGNITION

In partnership with Nuance, Intel has released Speech Recognition features for the RealSense SDK. These features work with the help of Nuance Dragon Assistant, a well known software stack available for natural language processing applications on Windows 8. It works on top of the Microsoft Speech API and enables the user to speak into the microphone and directly interact with the computer as if he was speaking to the application in a conversational manner. This is made possible by the contextual dialogue capabilities of the system. It provides integration with more than 170 content providers including Spotify and TripAdvisor, among others. This allows you to get voice-activated directions, flight bookings or dinner reservations directly from within your apps.

FACIAL ANALYSIS

Facial Analysis features have taken a turn for the better in this release of the RealSense SDK. The features now support depth with 78 landmark points for accuracy like never before and enable 3D detection of the face with roll, pitch and yaw. This is a big improvement in comparison to the 7 landmark points supported in 2013. It can also identify specific facial features and the direction in which your face is turned to provide useful contextual feedback to your application. What's more, it can even



The Facial Analysis module supports 78 landmark points for better accuracy



The new finger tracking module supports 22 points of hand and joint tracking

recognise expressions and emotions like anger, surprise and frustration, on a face that's within the camera's visual range.

HAND AND FINGER TRACKING

The RealSense SDK supports 22 points of hand and joint tracking to support gestures and finger tracking within a range of 0.2m-1.2m. This can be used to provide a very sophisticated means of interacting with the application – including a much more granular GUI control. It enables hand orientation detection and fingertip tracking at the same time, a useful feature that provides control to users for interacting with the application in mid air, as long as their hands are within the specified range. A list of common actions that can be performed with Gesture Recognition is available as examples in the documentation.

GESTURE RECOGNITION

Gesture recognition works with hand and finger tracking to identify dynamic gestures such as grab, zoom, move, swipe, push etc. as a way for you to interact with your application. It is this ability to detect that helps you identify up to 8 static poses and 6 dynamic gestures. They provide an innovative way by which you can gesticulate without any complicated tracking mechanism.

WHAT'S NEW IN 2014

In 2014, 3D Printing and Augmented Reality (AR) have been the talk of the town, and Intel – as always – is at the forefront of such technologies working to bring them to users in a cheap and easily available way. The Intel® RealSense™ SDK has been growing at a fast pace and a number of its modules have been developed and integrated in partnership with the best in the field. This ensures that the aim of integrating 3D Printing and AR into our day-to-day devices such as ultrabooks and tablets is achieving its mark, as it's never done before. Some of the new features added this year to the SDK have been mentioned here, although they may not be available in the SDK just yet, but you can stay tuned to receive updates on the same.

EXPERIENCE NEW LEVELS OF INTERACTIVITY AND THE ABILITY TO MANIPULATE BACKGROUNDS AND ENVIRONMENTS IN REAL TIME. THE POSSIBILITIES ARE LIMITLESS WITH REALSENSE

AUGMENTED REALITY

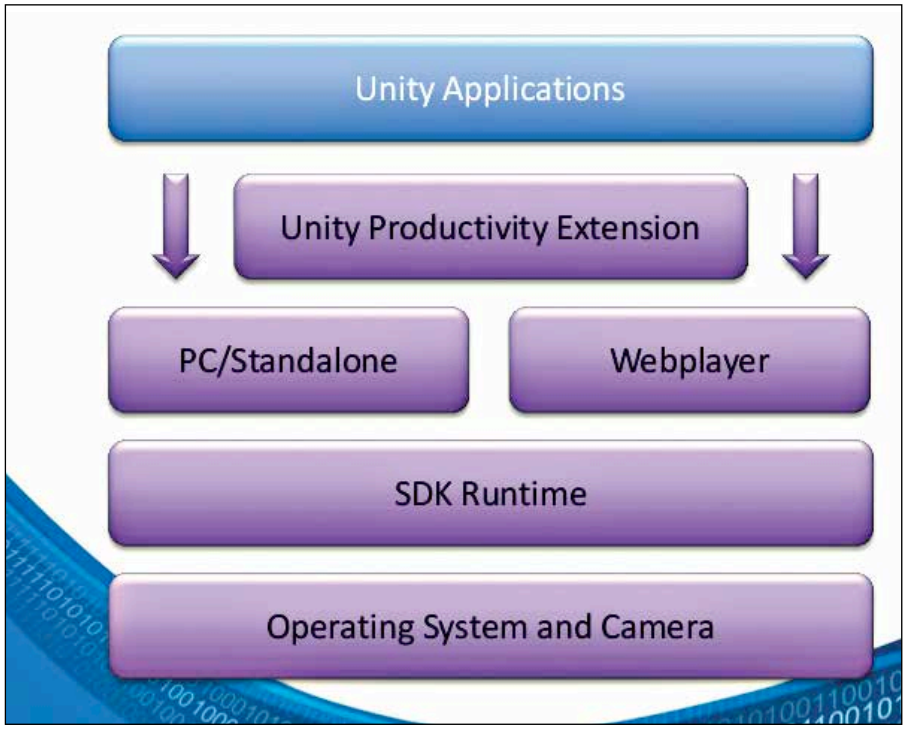
In conjunction with Metaio, Intel has developed Augmented Reality features, which can be brought to life in the form of various practical or gaming applications such as Interactive Storytelling. Such features also allow you to create a 3D virtual world that's aware of the user thus personalising content according to his/her presence. The tracking and recognition engine from Metaio works in combination with the 3D RealSense camera to offer depth data, bringing new levels of interactivity and the ability to manipulate backgrounds and environments in real time. The users could, for example, scan their room and rearrange the furniture in the virtual world.

3D SCANNING AND PRINTING

The new 3D Scanning and 3D Printing technologies in the RealSense SDK have been developed in conjunction with 3D Systems Inc. They offer the possibility of scanning 3D objects into your computer (with the help of a multi-sensor array of cameras) and porting them to the virtual world as 3D models, which can be manipulated as needed. What's more, you can then perform 3D editing and printing of the same or any other 3D model that's been generated by your application. The Intel® RealSense™ SDK enables easier access to these professional quality features, which are now packed into one place.

ENHANCED UNITY SUPPORT

The new RealSense SDK in 2014 completely rethinks the support it offers and has bundled the same for Unity. It adds the Unity Productivity Extension, which provides configurable actions/rules based on the capabilities provided in the SDK. Further, it allows you to write less



The Intel® RealSense™ SDK supports Unity standalone as well as web player applications

code and work through drag-and-drop features, which enable you to associate game objects with action scripts and rules. Apart from standalone PC/Unity apps, the support for Unity Web Player has also been added. This allows you to develop web-based Unity Web Player apps or interactive websites.

SKELETAL HAND TRACKING

The Hand Tracking module adds some revolutionary new features, which provide greater accuracy and resolution. One of the features allows you to track additional points as compared to those allowed earlier – giving the user granular control and better hand orientation for sophisticated interactions. The additional track points give you access to the full hand's skeleton, which segments the hand from the background and requires no calibration.

CREATIVE EXAMPLES

THERE CAME AN ECHO

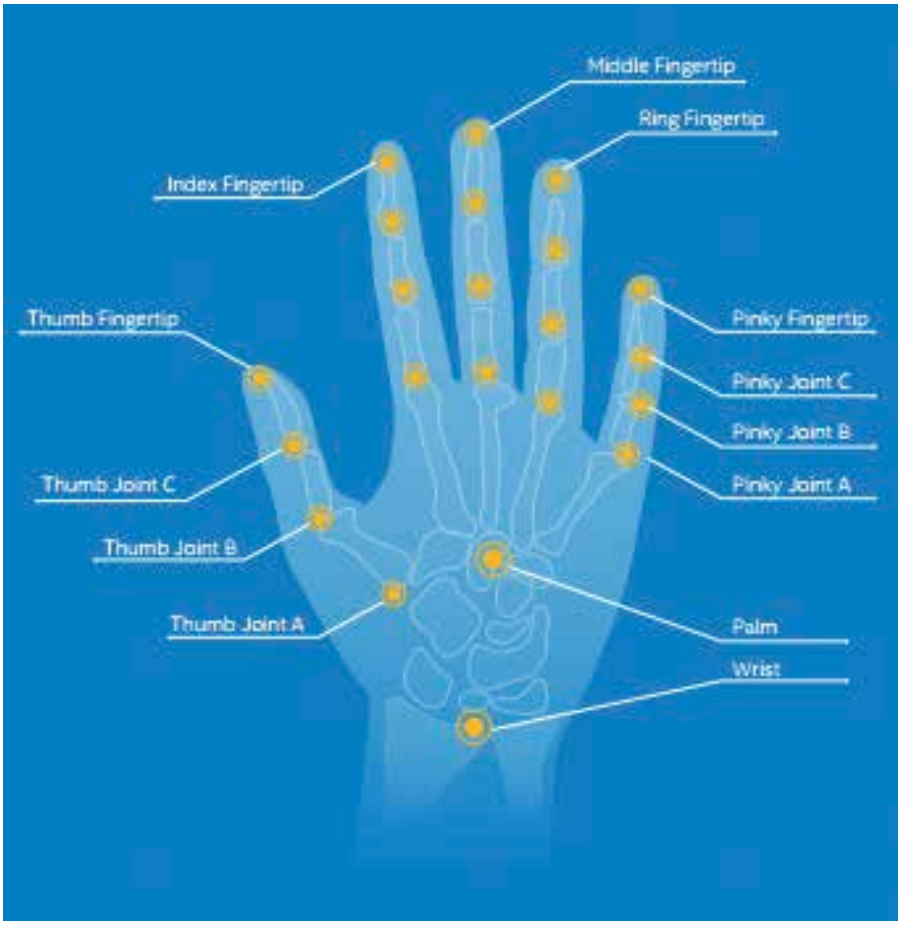
'There Came an Echo' is a war strategy game developed by Iridium Studios, which uses Intel® RealSense™ SDK for its speech recognition technologies. All the combat actions in the game are controlled by a white-listed set of commands, which can be spoken by the user to perform a certain action. These commands are customisable by the player, who transforms into a war general able to order troops around the map to perform certain missions while simultaneously interacting with the game as if s/he were in a real war. This very feature provides a level of interactivity never before experienced by users.

UNCLE JEFFREY'S FUNKY FARM

Interactive Storytelling and Augmented Reality are taken to a whole new level in a demo project called 'Uncle Jeffrey's Funky Farm', which provides you with a familiar immersive experience. It demonstrates some of the endless possibilities of the Augmented Reality experience as the children can interact and use all their senses to participate in the experience. You can experience this wonder yourself online at http://dgit.in/IntelRealsense

DEPTH CAMERA FOR PCS AND TABLETS

The new Intel 3D Depth Camera provides the hardware required for developing and experiencing the interactive 3D experience provided by the Intel® RealSense™ SDK. It features full



The Intel® RealSense™ SDK provides access to the full hand skeleton

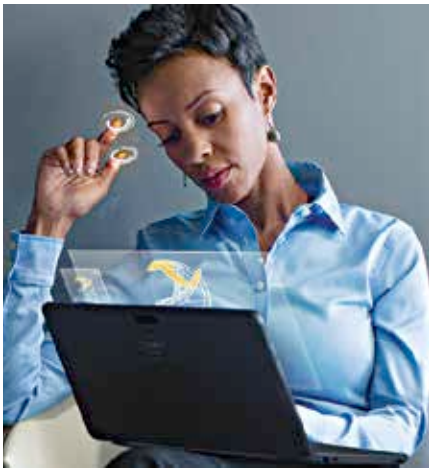


1080p color and can be integrated in PCs as well as tablets. Intel has partnered with OEMs to allow it to integrate with Windows 8 and 8.1 devices such as ultrabooks, detachable notebooks, 2-in-1's and all-in-one's from hardware manufacturers such as Acer, Asus, Dell, Fujitsu, HP, Lenovo and NEC. Most of this hardware is expected to be available in the later part of 2014.

The Depth Camera, which is less than 3.5mm thick can also be integrated in tablets running on Intel Core and Intel Atom based processors on platforms such as Microsoft Windows and Android. This camera, as compared to other 2D devices, can change the way we use our devices. Be it capturing a moment, highlighting a memory or interacting with someone on the other side of the world, you'll be able to utilise never before seen features such as background subtraction and 3D scanning in portable devices which will soon be available to mainstream users. When used with the rich ecosystem of innumerable mobile and tablet apps, the possibilities for development are only limited by our imagination.

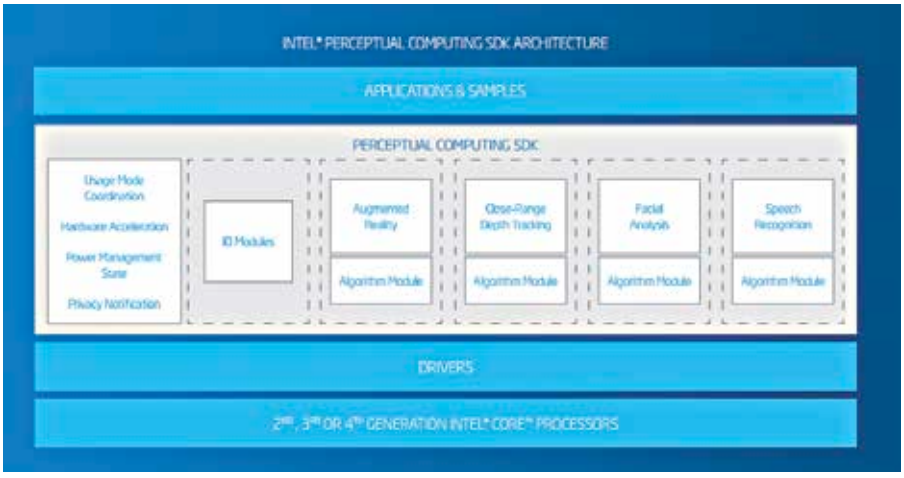
TECHNOLOGY APPLICATION SHOWCASE

Once you complete developing a game or application, the Intel® RealSense™ Technology Application Showcase – to be held online – will be the place where you can show off your work



to customers. In addition to applications, the Showcase will also host technology demos and videos about the technology. Such an App portal as well as App marketing opportunities will be the key to developing an ecosystem for such technologies, and form the crux of Intel's plan for releasing the Intel® RealSense™ SDK by the end of this year.

In conclusion, we've already seen how the 3D, Augmented Reality, Speech Recognition and Gesture Recognition technologies have taken shape. The goal for Intel® RealSense™ SDK is to make their implementation easier, accelerate their adoption and bring them into the mainstream. ■



Intel Perceptual Computing SDK Architecture



In a process to reward its developers, Intel has always striven to ensure that it's able to showcase and sell their products successfully while also promoting newer development utilising the revolutionary features being made available in the Intel® RealSense™ SDK. Intel® RealSense™ Technology Developer Resource Center is the single place where you can download the SDK, receive updates, order the 3D camera and read the documentation.

The Intel® RealSense™ App Challenge 2014 is being held this year following the highly successful Intel Perceptual Computing Challenge in 2013. In the Ideation Phase, developers will be given an overview of the new Intel® RealSense™ 3D Camera and SDK before submitting application proposals. These proposals can be submitted in a total of 5 categories: Gaming and Play, Learning and Edutainment, Interact Naturally, Immersive Collaboration/Creation, and Open Innovation. Subsequently, finalists will then be selected from this phase to proceed towards the App Development Phase, when they'll receive an Intel® RealSense™ 3D Camera Development Kit and approximately 10 weeks to complete their application demo. Finalists will get an opportunity to compete for their share of $1,000,000 in cash and hundreds of marketing opportunities around the globe at various technology events.

In addition to the Challenge, in 2014 Intel will hold events to train developers on the SDK and help them be successful. Some of these will be Hackathons, Virtual AE sessions, webinars etc.

- **Hackathons:** Intel® RealSense™ Technology Hackathons are in-person events scheduled worldwide. Here, developers get the chance to gain hands-on experience with the SDK and camera, ask questions, share ideas and have fun.
- **Virtual AE Sessions:** These are a cross between Hackathons and webinars. Held online, Virtual Application Engineer (AE) sessions give you the chance to interact with a group of like-minded individuals and get your development questions answered by an Intel AE.
- **Webinars:** In 2014, Intel will again hold a series of Intel® RealSense technology webinars to help train developers on the technology and show them how to build great applications with it. Webinars are expected to vary between overviews of the SDK and highly technical webinars on coding.
- **Tutorials and Documentation:** For those of you who aren't able to participate in a Hackathon or attend a Virtual AE Session or Webinar, in 2014 Intel will have a robust set of self-help tutorials and in-depth documentation at the Resource Center.

CHALLENGE OVERVIEW

Competing developers are granted access to Intel's® RealSense™ technology in order to design and showcase groundbreaking new demos.

Qualifying Participants
Professional and Student Developers who are residents of one of the participating countries

Prizes
Upto $1,000,000 in Cash, Marketing Opportunities and more...

Resources Provided
Finalists may receive Intel® RealSense™ 3D Camera and SDK, and Intel® Developer Zone resources

Estimated Timeline
July 2014 – Ideation phase begins
Sept 2014 – Development phase begins
2014 end – Winners to be announced

VISIT: http://intel.ly/1k8oc04/ TO PARTICIPATE

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Tales from the Void
Be a part of our collaborative writing experiment where we try to pen a bestseller together



Ocena in the Desert
Watch this video about how an ocean ecosystem was built by the University of Arizona **http://dgit.in/Biosphere2Ocean**

A Future Beyond Earth: Is Terraforming Our Way Out?

Soon enough the earth will no longer be able to sustain us. Do we find a new home planet or build one? That is the question.

Samir Alam
readersletters@digit.in



Kepler-186f is the most Earth-like planet discovered but is 493 light years away, making exploration slightly problematic.

Misao Okawa was born in a world radically different from ours. On her island kingdom the farthest extent of technology was the occasional steamboat and mechanically configured machines; the highlight of which being firepower. Now, over 116 years later, Misao Okawa lives in Japan, the country of her birth - a country unlike the one she was born into and has witnessed change through numerous wars, natural calamities and cultural shifts.

The last hundred years have seen the Earth's population explode from 1.65 billion to over 7 billion. And this leap has come at the cost of the planet and its stability. The challenges faced by humanity, brought on by human caused climate change, such as droughts and rise in sea levels could scarcely have been imagined in the youthful life of Misao Okawa. And despite being faced with the denial of climate change by millions there is no doubt that the Earth is growing exhausted with humanity and will soon prove insufficient for our growing demands. It is perhaps time we found a new home. Or wait why not maybe create one?

In search of Magrathea

We have marvelled over the last few months as regular updates from NASA have given us hopes for possible Earth-like planets. The Kepler mission's space telescope has searched thousands of planets and sent back observations of over 3200 candidates that could potentially be Earth-like. Of these thousands, over a 1000 planets across 400 star systems have been confirmed to be exoplanets. After hundreds of candidates over the four years of its missions scientists have a short-list of planets that could foreseeably be our next home, but in a few hundred years of course.

Most of these findings remain statistical and based on distant readings of esoteric scientific data. It is almost certain that despite the inherent importance of these discoveries they will do us little good in the short term. In the highly unlikely event that we ever did find a planet that is in a habitable orbit around a star, capable of holding liquid water and sustaining an atmosphere, we would be hard pressed to find a means to reach it. The closest Earth like planet discovered so far

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Colonisation would require planetary biodomes to sustain life and implement research on new planets..

is Kepler-186f about 493 light years away. Not an easy trip to make into an unknown part of space.

As citizens of the solar system we have spent the bulk of the last 50 years making remarkable advances in localised navigation. Simply put we have a better chance at making it to Mars than to Kepler-186f. And looking further beyond nearby planets, we know that the moons of Jupiter such as Europa offer a far more realistic opportunity for humanity to explore and colonise. These seemly farfetched flights of fancy are no longer just within the realm of science fiction but widely recognised among the scientific community as an essential part of humanity's survival.

With the release of The Millennium Project's "State of the Future" report indicating the massive challenges facing humanity, NASA's chief scientist Dennis Bushnell even committed on record that "the entire ecosystem is crashing" and given the massive growth rates in population humanity will "need at least three planets" if it is going to survive. The *State of the Future* report does indicate that the threats brought on by population, climate change, limited resources and over-consumption are a real issue and not simply the premise of an epic Christopher Nolan movie. The answer in such a scenario can reasonably be to advance our ambitions within our local system first and let the farther reaches of space proceed as a Plan B.

Terraforming or Colonizing?

Amongst the vast community of scientists the terms terraforming and colonisation can evoke radically polarised reactions. While colonisation is seen to be an essentially necessity driven act by humanity as a means to further our existence in space, terraforming becomes a greatly ethical and moral dilemma. The problem with terraforming planets is akin to the Prime Directive as envisioned by Star Trek. After all, terraforming is a radical interference with the natural state of a world. So the question arises - should humanity alter Nature? Some believe why not? Since we already have.



That could be Titan in a few hundred years

The Earth of today versus that just one hundred years ago is a radically different planet. From atmospheric composition to the nature of the biosphere, if we were to travel back in time, the planet would be almost alien for most people around the world. The lack of super-structures, electronic and mechanical technologies and the relative sparseness of resources would make Earth a challenge for most modern humans. The ethical dilemma then isn't "whether we should" but "how should we" - keeping in mind all the mistakes we've made due to lack of foresight and greed with our own planet.

Terraforming a planet is clearly beyond the scope of current technology but not

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beyond the extent of our knowledge. As a highly seemingly *advanced* species we have imagined numerous practical means to redesign planets within a few lifetimes. Already, scientists have begun experimenting with the various approaches via which this goal can be accomplished. By embracing terraforming, especially within the local neighbourhood, we can apply our ever increasing database of knowledge about planets and moons to determine where we will thrive.

Colonisation is an essential part of the process, as it would require vast resources both technological and labour-oriented to make terraforming feasible. Projects such as the Biosphere Dome experiment have revealed invaluable lessons over the last 30 years. The ability to build, develop and sustain organic life in a myriad of environmental conditions is a basic necessity of colonisation. In addition to which, the technology necessary to build durable and secure life support systems has long been established and is on a constant upward state of development as we innovate new construction materials. But colonisation is just the interim step which humanity needs to prepare for as it transitions to rebuilding a whole planet suited to its needs.

Terra Incognita Exotica

Long before humanity had ever stepped into space scientists were intrigued by the idea of creating another Earth. In 1961, famed astronomer Carl Sagan published his idea of Venus being a candidate in Science magazine. The means of doing so were elegant and naturalistic. Sagan opined that by seeding the atmosphere with algae we could convert the nitrogen and carbon dioxide into life-sustaining compounds. The resulting transformation would reduce the naturally high greenhouse effects on Venus and lower temperatures within human-tolerance levels. Of course, further research into Venus's composition established that Sagan's methodology would prove useless since the planet is enveloped in thick clouds of concentrated sulphuric acid under high atmospheric pressure.

Carl Sagan even pioneered the idea of Mars as a potential candidate in 1973 in an article published in the journal Icarus. But it wasn't until 1982 that the term "terraforming" joined the popular lexicon as a replacement for "planetary engineering" and "planetary ecosynthesis". Terraforming as it exists today requires the presence of a planet, moon or other heavenly body which at the very minimum is capable of hosting liquid water, conditions necessary to assemble complex organic life and a sustained source of energy for metabolic activities. Beyond these broad parameters the real challenge is creating technology that can foster these essential traits.



As our closest neighbour, Mars is the easiest planet to reach and re-imagine as a second Earth.

Each candidate planet comes with unique challenges to terraforming depending on a multitude of factors. Venus is relatively a simpler problem since its three key transformation criterias are interrelated. The composition of Venus makes it an extremely hot, atmospherically dense and toxic environment. The reigning temperatures can reach over 450 degrees Celsius with an unbreathable atmosphere that is over 90 times as dense as Earth, consisting of carbon dioxide and sulphur dioxide. In addition to these challenges, the planet also receives twice the sunlight and reducing the insolation would greatly ease surface temperatures. Other options such as Jupiter's moon Europa, our own Moon and Saturn's moon Titan, are all possible candidates for terraforming but nothing compares to Mars as the most viable option.

Making Mars Home?

Mars on the other hand is a completely different problem. The nearly barren planet is farther away from Earth with significantly lesser gravity. The lack of a dense atmosphere and a magnetosphere also renders it prone to radiation threats from the Sun. With only a thin carbon dioxide atmosphere sustaining organic life is impossible. The most recent exploratory results from the Mars Curiosity rover tell us that the only remaining source of water on the planet is in the form of permafrost under its polar surfaces and within its soil which could prove to be a silver lining.

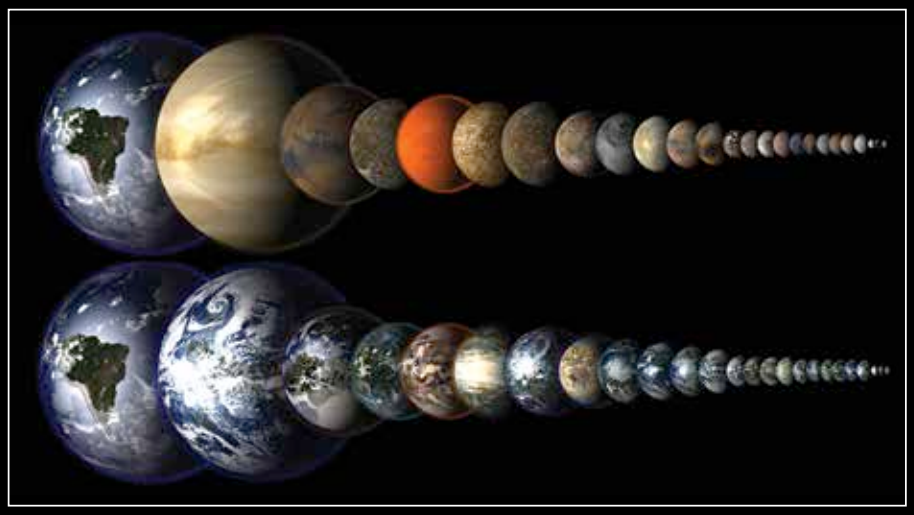
On the whole the challenge of terraforming Mars would still be more preferable than Venus as it is only on the fringes of the habitable zone orbital range of the



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Can we convert a desolate landscape into paradise?

Sun. The three essential goals to begin such a process are - the enhancement of its atmosphere, increase in temperatures and preserving the atmosphere from being lost to space. Scientists have already developed a number of practical and theoretical methods of creating an atmosphere on Mars and increasing its temperature.

Techniques such as the sublimation conversion of south pole ice would give the planet the atmosphere comparable to the peak of Mount Everest. Other ways like introducing ammonia to the atmosphere or various hydrocarbons or chlorofluorocarbons to increase the greenhouse effect have also clearly been outlined. An intriguing method is that of introducing a variety of extremophile lifeforms like lichens, algae and bacteria to the planet that would convert the carbon dioxide to carbohydrates exhaling oxygen into the atmosphere. Some of the more radical methods include the use of orbital mirrors to increase the total insolation the planet receives or by directing small asteroids to Mars to increase temperatures. In all cases the ultimate challenge remains that without a dense enough atmosphere any gases released would be lost to space.



Are we ready to say goodbye yet?

Imagining a new home

For many people the challenges and sheer enormity of attempting terraforming seems like a futile effort. None of the processes and technologies that are truly within reach hold any short-term feasibility, with even the most optimistic estimates requiring nearly three hundred years of continuous effort. Most people would call it impossible. But it is worthwhile to remember that if someone had told Misao Okawa on her 16th birthday that she would live to see a world where that derives its energy from the sun and the atom, or that humanity sends probes to interstellar space looking for habitable planets or that she would live to be 116 years old she would most likely have said they were imagining things - and she would be right - but that doesn't make it impossible. After all the first step towards accomplishing an impossible task is believing it's possible - then its all about developing the innovation and technology necessary. With the very existence of humanity at stake we can expect the dream of discovering, settling and building new worlds to soon become a casual reality.

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Everyone can use a helping hand when it comes to writing Sci-Fi. Some things to keep in mind: **http://dgit.in/gensyfy10**



The 7-Step Process
A 7-step process for coming up with concepts for writing. A good starting point for people feeling overwhelmed by it all **http://dgit.in/ioh97syfy**



CHILDREN OF THE MOON

We launched our Science-Fiction section 'Tales from the Void' a couple of months ago. As an experiment, we've decided to reign in the sci-fi buffs amongst you to contribute. This issue, we shall publish chapter one of a fictional series, entitled 'Children of the Moon'.

Here's where you all come in: Create a backstory, introduce new characters, integrate plot twists—heck, if you can draw, make some illustrations! All we want you to do is contribute in some way. Even if you don't fancy yourself a writer, make suggestions to our authors about the plot. Anything and everything is welcome, let's see if we can pen a best seller together!



Prakrit Dhondiyal
readersletters@digit.in

Chapter One

Sometimes, it's the little things that push you over the edge; someone honking behind you in traffic, a beggar touching you on the street, a spilt drink, an inter-dimensional being trying to rip your heart out... you know, the small stuff.

The Foraxian stood, grinning, showing off her metallic teeth. Kit could see the blurry shadow of his heart on her outstretched palm, about to be teleported straight out of his body.

"That's the last straw. Diplomacy be damned", he thought. In a swift motion, he brought his blade down on her forearm, slicing through the force field surrounding her, and eventually through her metal arm, breaking the teleportation sequence.

Before she knew what had transpired, he grabbed her by her cold neck and slammed her into the wall. The force of the blow smashed through metal and wires, and her body slid to the floor like a shiny black rag doll, leaving her decapitated head staring at Kit with her swivelling eyes.

The reek of her rotting biomechanical fluids would have curled a skunk's nose hairs, but Kit leaned in close, with the calm and unfazed expression of someone who'd just chopped up some vegetables for dinner.

"Now. If we can discuss this like normal people, you may realise you have something to gain by not salvaging my organs for credits." He glanced down at the Foraxian's twitching pile of circuitry. "Or I could always return the favour. I'm sure your body would fetch a pretty sum on the black market."

Kit felt a familiar grip on his shoulder and heard Conan's gruff voice behind him, "You know better than to start a fight in my pub, boy."

"Tell that to this wench. My heart is still half-out of phase."

Her face had a look inorganic incomprehension on it, undoubtedly trying to comprehend Kit's unusual ability to overpower her. But then again, she was a machine. Maybe he was imagining it.

"Boy. Either you take this outside, or I will. You've known me long enough to know I won't need any fancy teleportation to rip your heart out! "

There was a short pause. Kit counted down from six, as his therapist had taught him to. "Fine." He muttered through gritted teeth, and slid his hand-and-a-half back into the scabbard around his waist, but kept a firm grip on the decapitated head "Could you ask Shalar to bring the body outside? I don't want to take my eyes off her head."

Conon chuckled, to Kit's relief. He knew he hadn't done anything wrong, but Conon's word was law within these walls – and without, to be honest, for a long, long way around. Bartenders were influential on every world.

"Shalar! You heard him."

The big blob of yellow muscle in the corner grunted and picked up the still-sparking body of the Foraxian and led the way out through the quiet crowd.

It was dark outside. Shalar plodded along with Kit right behind. He lugged the body onto the sidewalk next to Kit's 3049 Gravitron, and stood there quietly.

"Thanks, Shalar. I think I can take it from here."





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Grant on writing
Robert Grant gives his tips and tricks for writing Sci-Fi **http://dgit.in/rbgrntsyfy**

Shalar looked at him pointedly. Kit sighed.

"Relax, old friend. I'm not going to kill her. Not yet, anyway."

With a grunt, Conon's loyal henchman plodded back into *The Prancing Porpoise*.

Kit placed the Foraxian's head onto the dashboard of his bike and pulled out a pipe. He packed the tobacco into it and lit it up, taking a few puffs, the droid seemingly forgotten.

Ka'Dor's eyes lay fixed on this stranger's face. If the species was capable of projecting emotions to a face, this one would show it. As it was, her face was expressionless and cold.

There were several minutes of silence. Neither spoke nor moved, other than Ka'Dor's twitching body and Kit's occasional drag at tobacco.

After a while, the head spoke.

"You spoke of a deal."

Kit made no attempt to respond. Instead, he looked up at the sky.

"Beautiful, aren't they?"

After a pause, Ka'Dor replied, "I wouldn't know. Beauty isn't –"

"– a part of your programming. Yes, I know. Humour me."

Ka'Dor looked up. The *lunes jumelles* lit up the night sky. One a bright luminescent blue, the other a sickly yellow ochre. They cast a greenish tinge across the city scape. The sky, cast in a dark black, lay as a clear canvas for these two rulers of the night devoid of stars.

"From what I know of human taste, they may have an aesthetic beauty. But I don't think they're the reason you ripped my head off."

Kit turned to face her. "I forget. Your kind isn't one for small talk. No. That was because you decided to make a move for my heart. My apologies, but I've had a very annoying day."

"Self-preservation is in my nature."

"I see. And you thought it necessary to defend yourself because...?"

"You are human." She stated, simply.

Kit stared at her. His face shrouded in shadow, giving away nothing; But it was clear he wanted her to elaborate. Ka'Dor's positronic brain was getting tired of these games.

"If you want to destroy me, please go ahead. There's no point in this delay."

"You haven't been paying attention. I said I wanted to talk.", said Kit.

Ka'Dor found this hard to believe, but went with it anyway. "Then talk."

"Have patience. However, if you cannot wait, you may leave." He politely bowed and gestured that she was free to walk away. When she said nothing, he took another puff from his pipe and leaned against his vehicle. After a minute, the droid spoke.

"First of all, I have a name."

"So do I. Except mine's not a serial number. And you're–"

"My name is Ka'Dor."

Kit gave a start. "What?"

"Ka'Dor. It means–"

"I know what it means. *Batarde!* You took on a local name?"

"Why not?" Ka'Dor's head whirred to look up at the twin moons in the sky. "Their aura of mystery is an allure for Foraxians."

Kit stared at her for a few seconds, then shrugged and followed her gaze. "What do you mean?"

"Well, the stars have been missing for the past decade. Yet, these satellites shine. Two orbs in the sky, illuminating a planet that hasn't seen sunlight in years; An almost divine phenomenon. Yet we know that 'God' does not exist. The logical reason for the existence of the twin orbs has eluded us. Through the years, the Foraxian Empire has come to hold a kind of reverence to them."

She paused.

"But you already knew that."

He repeated the gesture. "It's not exactly common knowledge, but yes, I knew."

"You were attempting to ascertain my claim of being Foraxian."



Concept art by Jason Hazelroth



Kit nodded.

"Why?"

He sat down on the curb. The dozens of scars that cut into his visage became more prominent as the weariness set in, making the twenty-two-year-old look at least a decade beyond his years.

And was it surprising that he looked the way he did? The misplaced Thoraxian War had taken a toll on all the human settlers on the planet. Kit was a 4th Genner. He had known no place other than Quatro Prime as his home. The war had force-drafted hundreds, killed thousands and left the rest of his race homeless and scattered across the massive planet. Kit had been one of the few surviving drafted who had been lucky enough to be scattered.

The Event had dissipated the war. Eight months into the bloodbath, when the sun winked out of existence and the rest of the stars followed suit, both sides dropped their weapons where they stood and backed off in pitch darkness. When the planet had entered Rapture. An era of darkness that had covered the planet for 13 months straight. Just when everyone had given up hope of ever seeing again, a dim light spread across the land, slowly growing brighter. The two orbs in the night sky mildly illuminated the planet, giving it enough light to survive and go on. Any expeditions made to these satellites were unsuccessful. Space above the planet's stratosphere seemed to have undergone some kind of metamorphosis, corroding almost any material it came into contact with. Kit had been on one such sip. He had been lucky to get him and his crew back to the surface safely. It had also cost him his job with the Astronomer's church, but Kit was fine keeping his body firmly planted on the ground.

Kit snapped out of his reverie. He looked at Ka'Dor and sighed. "I apologize for the rough treatment. But I couldn't take a chance." He looked away respectfully "You can put yourself together, now. You may be more comfortable."

The Foraxian was still for a few seconds, then with a whir of gyres and hiss of metal, its body pulled at its parts. polycarbonate tendons pulled metallic limbs together as nanobots buffed out the chips and scratches. The cables hanging from her severed neck creeped down the bike and pulled her head into place with the rest of her body. In a few minutes, Ka'Dor stood up, flexing her body, testing the repair. Kit turned back to look at her. She looked at him with a steady gaze.

"You know too much about us, human. Who are you?"

Kit raised the sleeve of his trench coat to reveal an odd tattoo on his lower arm. Ka'Dor reeled back, stunned. If she was capable of emotion, the shock on her face would have made Kit snigger. The tattoo glistened silver, as if made out of some kind of alloy. In incredible detail, the design was in the shape of a crescent moon, entwined in the boughs of a banyan tree.

"Impossible!"

Kit smiled, as the tattoo vanished under his sleeve once more.

"But you are human!"

"Yes, and I am a part of the Order. One of the few that your Sovereign trusted to bring into his fold."

Ka'Dor began to bow, as a reflex. Kit raised his hand. "Enough of that. I respect your customs, but I am not your master." He stood up and dusted his clothes. "I do need your help, though."

"How can I help you?"

"I need you to guide me to the children of the moon."





Is it even possible to arrive at a scientific result for this? We certainly believe so, which is why we undertook the largest undertaking this test centre has ever attempted, to try and find out. Read on to find out how we're going to be evaluating all the mobile OSes...

Team Digit

We called for the flagship phones from all brands, for the obvious reason that we wanted the smoothest experience in a test that was going to take months of man hours, and also because we assumed that the overall OS would be designed with the flagship phone in mind, and the top-of-the-line would obviously show off the most features of the OS (and who wouldn't want to get their hands on a shiny new flagship?).

We also want to say right at the start that we called for a Samsung S5 to make sure their version of Android was also included, and they did send it to us, but took the phone back in a rush citing an upcoming refresh and thus not wanting to publicise old versions of phones/OSes.

Since this is still an ongoing process, and one which we intend to continue with

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High Internet Usage

No control over unwanted heavy downloads

Network Down

Lack of security awareness and virus infections causing network disruptions or slowdown

Unsecure Remote Connections

Unprotected communication between company's remote users and office-to-office connections

Cyber Attacks

Lack of resources to counter advanced and persistent attacks

Low Productivity

Lack of control over popular social networks and other sites that are unrelated to work

Unauthorized Internet Access

No control over user identity for Internet access

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upcoming OS refreshes such as iOS 8, Android L, BlackBerry 10.3, etc., we will still attempt to get all the Android variants in and pit them against each other. For now, for this test, we're really looking at stock Android 4.4.4 vs iOS 7.1.2 vs Windows Phone 8.1 vs BlackBerry OS 10.2. We will also be including HTC's Sense 6.0 port of Android to give you an idea of the differences between vanilla Android and a modded one.

We will also be giving you this completed sheet in the DVD and putting it up online, so that it can be a ready reference for you to fill in details yourself, perhaps about new OSes as and when you're exposed to them – and we will also keep this list updated ourselves with OSes we're looking forward to including Amazon's Fire Phone, Ubuntu Touch, Firefox OS, etc.

ROUND 1: FIGHT

As we mentioned earlier, we've broken this test into two parts, the first is the more time-consuming, detailed study of every OS and how you interface with it, how many steps are taken for each task, etc. Round 2 will expand this to even more OSes and versions of OSes such as Android, and then also evaluate things such as one-handed use, and looking at more subjective things such as whether swipes are preferred to taps for various settings.

We've included two tables here, one is a short table that will decide the winners based on the scoring with all the boring details removed, and another which is the full blown table for just one of the 10 aspects we tested – Photography. We're doing this on purpose to give you a proper sense of the detail and enormity of the task we undertook, and also for another reason:

DISCOVERY

While undergoing this test, we first had people familiar with their OS fill a sheet. So for example, Robert filled in BlackBerry, Anirudh filled in KitKat 4.4.4, Prakrit filled in iOS, etc. Then we had someone else who doesn't use those phones recheck each step, and also got our interns to search for shortcuts for each step for all OSes and to try and find faults in the process.

What we discovered was that although we think ourselves well-versed with our OS of choice, there are always hidden features we've never really thought of or used earlier. We also discovered that although we go about doing something a certain way, it doesn't mean that's the easiest and fastest way of doing so.

An example here is Siddharth pointing out that the easiest way to call a contact on Android is to go to the dialler, type out the name in the old style – for "Jayesh", just type 5 2 9 3 7 4 (by the time you have typed half those numbers "Jayesh" will show up), select and call. While most of us would do it the old fashioned way – go to Contacts > Search > type "Jayesh" > Select Jayesh's contact > Call.

It's the coming together of different perspectives and brains that made this rather rigorous exercise fun, and it was also a myth busting experience, as many of us were exposed to how other OSes handle the same task. It was an exercise that opened up our eyes to the flexibility and power of other OSes and each and every one of us developed a healthy respect for an OS that we might have otherwise brushed aside. Of course, we can all accuse each OS from stealing something from the other, but stolen or not, the OS with the best implemented features wins.

FINALLY, THE SCORING AND WINNERS

Now here's what you've been waiting for. Based on the extensive sheets and scoring, we've arrived at the following results:

BROWSING

For those looking for the premiere browsing experience and security on the phone, the results are in and Android is the winner. The HTC Sense OS actually pipped Android, despite running with the stock Android browser. Android was a fair bit ahead of iOS in second,

HOW WE TEST OSes

So how do you go about "testing" an OS? For one, we couldn't run benchmarks, because that's a test of hardware running an OS and not really a test of the OS itself. So we decided that we would need to break this down into the components of what we use mobile phones for, and how we use them the most.

So how do we use our phones the most these days:

- Browsing to find content to read and research
- Good old email to communicate for work and personal reasons
- Messaging, IM and social networking, obviously
- Customising our phones to be exactly as we want them to be, and thus we gave importance to settings and not just what was possible but how easy it was to find
- Managing contacts and the dialler to call and keep in touch
- Photography, obviously, as we now click more pictures with smartphones than dedicated cameras
- Notifications, and being alerted and updated about what's happening
- The lock screen of our phones (which some claim will be the most important screen going forwards) as it is the real summary of what's happening as soon as we lok at our phones
- Searching for things (on or off the phone), because we're all used to using search for absolutely everything these days
- Videos that we take and then want to share with friends

Are these the only way we use our phones? Of course not, some of us may find creative uses for phones, such as using them to read long



and way ahead of Windows in third. BlackBerry have a decent browser, but loses out on expected functions such as browser customisation, and the inability to sync with browsers on other devices did cost it dearly.

EMAIL

BB users are always harping on that OS's superlative e-mail management, but it was something that the non-BB useres among us (which is everyone except Robert) never really took seriously. How much better can a BB10 device really be than an Android device, for e-mail? Well, 60% better, judging by our sheet! The BB 10.2 powered Z30 got away with an impressive score of 83.2%, leaving Android and iOS at a distant 53.07 and 46.6 per cent respectively. BBs are truly are built with e-mail in mind.

MESSAGING

SMS and MMS are still important to many, especially when you consider that we're also looking at settings to mute conversations, delete, and also block senders. With the amount of SMS spam still circulating, it's still important to be able to control every minute detail of messaging.

SETTINGS AND CUSTOMISATION

As we mentioned before, the ability to access settings and customise is very important to a certain subset of people (hint: Digit readers), because let's face it we love to tinker with our toys. We've always felt that Android is the most customizable OS out there and our test doesn't prove us wrong. Without a doubt, the most tinker-friendly OS was Android as it lets you tweak just about anything and everything, and we haven't even considered apps yet!

MANAGING CONTACTS AND CALLING

Smart phones are still phones, and given the amount of people we have to keep in touch with these days, although calling may not be the highest priority for most of us, contact management surely is.

The OS that outshone all others here was BlackBerry (we're starting to see a trend here), with Windows not that far behind. Part of the secret to BBs success in this department has to do with its contact management capabilities.

PHOTOGRAPHY

Various stats from around the world will say varying things, but you don't need all that to realise that you've probably clicked more pictures in the last year from your phone than you have with any dedicated camera. Whether it's clicking your surroundings, friends, selfies, or just clicking a piece of paper instead of scanning, you probably wouldn't buy a phone that didn't have a half decent camera. With social networking demanding more creativity, it's also important that your phone also offer filters, frames and the like to enhance the pictures you click.

We were, at first, very surprised when we found BB pipping the likes of Windows Phone and iOS to take the top spot here, but one needs to remember that we're dealing with stock OSs here and we know for a fact that every other OS has a superlative camera app hidden up its sleeve. Out of the box however, the others are a poor match for BlackBerry.

NOTIFICATIONS

Smartphones are the ultimate communications devices, and the way they communicate with you is by notifying you. Not just merely when someone calls you, but when someone writes on your Facebook wall, mentions you in a tweet, emails you, etc.

Based on our findings, iOS wins the notification war hands down with a whopping score of 69 per cent. BlackBerry is a very distant second with 36.9. For an OS that was, at one time, panned for not implementing a mature notification system to one-up every other Stock OS is quite a feat for iOS.

LOCK SCREEN

A lockscreen may not be an important feature, but you probably don't realise

Tolkien tales, or as a brick to throw at someone, but we're focussing on the rules here and not the exceptions.

Once we'd decided what we needed to look at (which basically covers over a thousand individual features or settings in each of the OSes), we then proceeded to list each and every setting / feature that came into each category.

With over a thousand unique values being noted, by at least two people per OS, this obviously became a massive exercise that took the entire month. Honestly, how you have anything else to read in this issue is still a mystery to us...

After noting down every single feature / setting possible – collating across OSes to ensure that even unique features that were available in any one OS were looked for in all of the others by at least two people – we then proceeded to list the fastest ways to enable / disable each feature / setting. Sometimes if it was just a question of whether the OS could achieve a certain feature, the answer was listed as either Yes or No, and at others we noted the amount of steps taken. From something as simple as changing your wallpaper to something as complicated as setting up parental controls on a child's phone, we looked at it all, across all the OSes.

Based on the prioritising we've listed above, we also awarded weights and scored each task, and then totalled it in what could only be called the biggest nightmare of all Google Spreadsheets, and arrived at the winner of round 1 of this test.



that a lock screen is the screen you most frequently encounter. With every second your eyeball is on your screen being valuable, it's imperative to be able to give you the right information at a glance, and then to be able to go from a lock screen directly to notifications, or to be able to easily get to frequently done tasks, quickly and easily.

Android, as we expected was the best at this, especially because you have full control over it. iOS was a close second and BlackBerry third.

SEARCH

Our phones are not just communication devices, they're hubs around which our lives revolve and they're little treasure troves of information and content; be it photos, contacts, apps and whatever else. It's imperative that you be able to find what you need, when you need it.

Surprisingly, Google isn't the master of search on your phone. That title goes to BlackBerry, with a whopping 85.3 per cent score! iOS is second with 75.3 and Windows a distant third with 54.7. Android is nowhere to be seen. Surprising.

SCORE SHEET

	Android 4.4 (Nexus 5)	iOS 7.1.2 (5S)	BlackBerry 10.2 (Z30)	Windows Phone 8.1 (Lumia 1520)	HTC Sense 6.0 (One M8)
Browser	66.28	61.8	40.00	50.47	68.33
Email	53.07	46.60	83.20	44.93	68.67
Messaging and IM	36.60	43.20	34.20	60.20	57.40
Settings & Customisation	55.48	40.09	53.21	45.13	57.00
Contact and dialler	51.25	40.33	62.33	58.28	46.56
Photography	43.90	47.24	55.13	54.05	63.70
Notifications	29.40	69.00	39.90	29.20	45.80
Lock screen	55.80	51.20	48.78	37.20	68.20
Search	35.00	75.30	85.30	54.70	38.00
Video	32.72	38.60	46.76	22.56	39.66
Final Score	**48.44**	**52.10**	**56.91**	**46.68**	**56.76**

VIDEO

Videos are as integral a part of our lives as photogrpahy and the ability to record, watch and share videos is an essential one.

BlackBerry, again, surprises us by winning this category handsomely. This was mainly due to the fact that it offers quite a bit of editing ability out of the box.

With all the OSes winning different aspects of our smartphone usage scenario, it all boils down to combining all the aspects and applying weightages to come to one overall winner. Although we've given you the breakup of each aspect so if only three of the ten aspects are really important to you, and all three were won

A HISTORY OF STEALING

Notifications: Stolen from > webOS

Your LED light blinks up when you receive a new notification on your smartphone. It's a pretty neat feature that's been adopted by all the mobile operating systems out there, but the Palm smartphones running webOS were the ones who brought this feature first.

To get instant access to important toggles and functions like switching on your WiFi, Bluetooth or Airplane Mode, checking your battery percentage, different platforms have their own variations of handling them, but this feature has always been available in the webOS right from the start.

Multi-tasking: Stolen from > webOS

Running multiple apps at the same time, where you could pause and jump from one application to another using a 'Card' design principle, without closing the previous application, and closing them with just a swipe, has now become the way to multi-task in mobile platforms. Said to be one of Apple's biggest features in their release of iOS 7, this feature has been available in webOS right from the start.

Touch to Share: Stolen from > webOS

Near-Field Communication (NFC) has become popular off late, but initially the Touch to Share concept was brought in by webOS, where you could share websites, emails and photos between two devices through Bluetooth by simply tapping the devices together.

Creating Folders: Stolen from > iOS

To reduce the clutter among applications you have installed in your phone who follow the app drawer paradigm, categorizing them by creating different folders has been adopted. This feature was introduced with iOS 4. Apple nailed some originality here.

Camera Buttons: Stolen from > Windows

You can access the your camera right from the lockscreen camera button without having to unlock your phone and then open the camera app. Also, you can click pictures with the volume up hardware button so that you don't have to always rely on the camera app button. Both features, brought in by Windows Phone 7.

by, say, Android, then it's obvious that, for you, an Android phone is probably best.

However, in order to be unbiased, and not be trying to justify weights after we knew the results of each category, we arrived at a weightage consensus for each category way before we even started the test.

Of the four stock OSes we're comparing, the world's best mobile OS out of the box, is BlackBerry OS 10 with a score of 56.91 on 100!

Second place was claimed by iOS 7 with a score of 52.10 a surprisingly disappointing third went to Android KitKat at 48.44. Windows Phone 8.1 was close behind with a final score of 46.68.

Interestingly, our control OS, HTC's Sense, was actually just a hair's breadth behind BlackBerry, with a score of 56.76 (just 0.15 on 100 behind!). It's an obvious indicator of the power of customization that Android offers.

For now, congratulations to BlackBerry, now please excuse us as we faint after losing sleep for over a week with this comparison. Enjoy the table that follows.



Speech Recognition: Stolen from > Google

Personal assistants and speech recognition applications are getting smarter where there are many players including Google Now in Android, Siri in iOS, Cortana in Windows Phone and BlackBerry Assistant in, you guessed it right, BlackBerry. Speech recognition was initially brought in by Google so that users didn't need to type.

With the Moto X, Google Now is seen running on a Always Listening Mode where one doesn't need to open up the application, and can be accessed by saying the hotwords 'Ok Google'. The same feature is being copied to iOS 8 where one can initiate Siri by saying 'Hey Siri'.

Copy Paste: Stolen from > Palm OS

The cut, copy and paste function is a very necessary feature which is supposed to be present by default. It's been a Palm OS for a while, but it took other OSes a while to wake up. Android had it right from the start but was very limited and took a couple of years to patch a better version. Symbian andWindows Phone added this feature as an update, sparking rage as to why wasn't it included from the beginning. Apple introduced the copy paste feature in iPhone OS 3 which was pretty late aswell, claiming to have been developing a different UI for the feature because they didn't like the existing one. Oh, and they went on to patent the design.

Flat Design: Stolen from > Windows

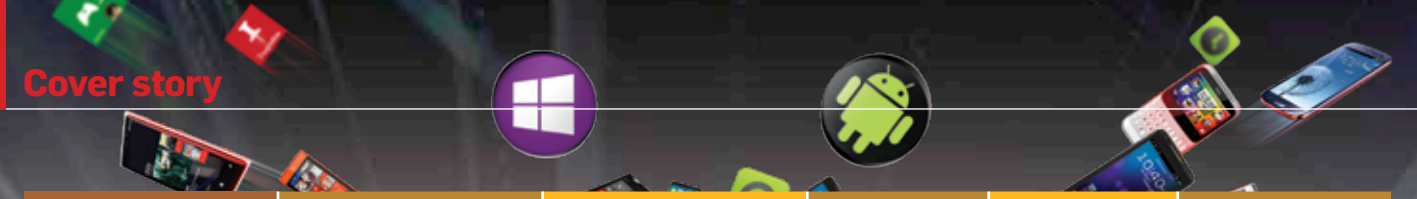
The flat design color palette that was introduced in iOS 7 and then later on in Android Jellybean has been the design principle for Windows Phone. Almost all the platforms seem to be headed to flat design.

Turn-by-turn Navigation: Stolen from > Google

Turn-by-turn navigation was a pretty impressive feature where initially one had to pay for the services by other parties. It was first spotted on Android 2.0 though.

Find and Disable: Stolen from > BlackBerry

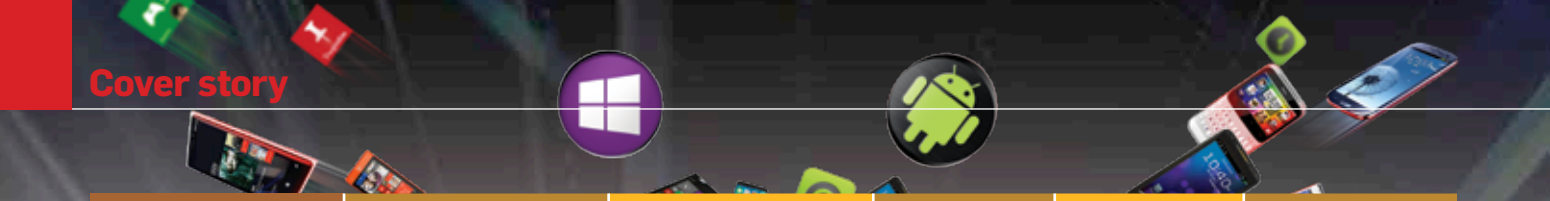
Stolen phones are a big pain and stolen data can be more terrifying. BlackBerry has had the 'Find and Disable' function for more than a decade now and all the other platforms have adopted similar functions to find phones and wipe data remotely. Good going BlackBerry.



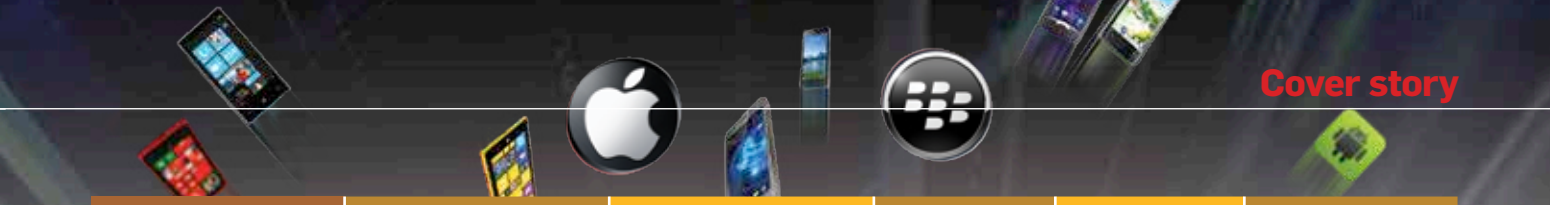
Mobile OS comparison	Android 4.4.4	iOS 7	BlackBerry 10.2 (Z30)	Windows Phone 8.1	HTC Sense
PHOTOGRAPHY					
Shooting					
Taking The Photo					
Focus	Tap	Tap	Swipe	Yes	Tap
Touch To Focus And Capture	Yes	No	Yes	Yes	Yes
Tap Button To Capture	Yes	Yes	No	Yes	Yes
Customize Above Options	Yes	No	No	Yes	Yes
Access To Camera					
From Home					
Default	Camera	Camera	Camera	Swipe>Camera	Camera
Shortcut 1	NA	NA	NA	Press And Hold Camera Button	NA
Shortcut 2	NA	NA	NA	Pin Camera To Home	NA
Shortcut 3	NA	NA	NA	NA	NA
From Lock	Swipe	Swipe Up From Right Bottom Corner	Hold Icon For 2 Seconds	Home>Swipe>Camera	Swipe
From Browser	Home>Camera	Swipe Up>Camera Button	Swipe Up>Camera	Home>Swipe>Camera	Home>Camera
From Fullscreen App	Home>Camera	Swipe Up>Camera Button	Swipe Up>Camera	Home>Swipe>Camera	Home>Camera
From Youtube Video	Tap>Home>Camera	Swipe Edge>Swipe Up>Camera Button	Swipe Up>Camera	Home>Swipe>Camera	Tap>Home>Camera
Misc	NA	Swipe Edge>Swipe Up>Camera Button	No	Press And Hold Camera Button	When Phone Off, Turn To Landscape>Press Volume Button
Quick Launch Settings	Yes	NA	Yes	Yes	NA
Only Launch Camera	NA	NA	NA	NA	NA
Launch And Take Pic	NA	NA	NA	NA	NA
Launch And Record Video	NA	NA	NA	NA	NA
Disable Quick Launch	NA	NA	NA	NA	NA
Ae/Af Lock	No	Press And Hold	NA	NA	Press And Hold
Volume Key Reassignment	No	No	No	NA	Menu>Settings>Volume Button Options>Pick
Zoom	No	NA	NA	NA	Y
Volume	No	NA	NA	NA	Y
Shutter Speed	No	NA	Y	NA	Y
Flash	Tap To Hold>Swipe Up For Flash Settings>Select Option	Flash>Select Mode	More>Select Mode	Tap Flash	
Auto	Yes	Yes	Yes	Yes	Yes
Fill	NA	NA	NA	NA	NA
Red-Eye	NA	NA	NA	NA	NA
On	Yes	Yes	Yes	Yes	Yes
Off	Yes	Yes	Yes	Yes	Yes
Timer	Tap>Select Timer	NA	NA	NA	Menu>Settings>Timer
2 Sec	NA	NA	NA	NA	Yes
10 Sec	Yes	NA	NA	NA	Yes
Custom	No	NA	NA	NA	No
Smile Detection	NA	NA	NA	NA	Menu>Settings>Scroll To And Tap Camera Options>Tap To Enable
Image Settings					
Adjust Contrast	No	No	No	NA	Yes
Saturation	No	No	No	NA	Yes
Sharpness	No	No	No	NA	Yes
White Balance	NA	NA	NA	More>Photo Settings>White Balance>Pick	Menu>AWB>Pick
Auto	NA	NA	NA	Yes	Yes
Incendecent	NA	NA	NA	Yes	Yes
Fluorescent	NA	NA	NA	Yes	Yes
Sunny	NA	NA	NA	Yes	Yes
Cloudy	NA	NA	NA	Yes	Yes



Mobile OS comparison	Android 4.4.4	iOS 7	BlackBerry 10.2 (Z30)	Windows Phone 8.1	HTC Sense
Exposure Control	Swipe>Settings>Advanced>Manual Exposure	No	No	More>Photo Settings>Exposure>Pick	Menu>Exposure>Pick
Adjustment Range	2	NA	NA	2	2
Adjustment Steps	1	NA	NA	0.3	0.5
Focus Modes	No		No	No	
Face Detection	No	NA	NA	NA	Menu>Auto>Portrait
Single-Point	No	Yes	NA	NA	N
Multi-Point	No	NA	NA	NA	N
Touch Focus	Yes	Yes	Yes	Yes	N
Tracking Focus	No	NA	NA	NA	N
Digital IS	No	No	More>Shooting Mode>Stabilisation	NA	Menu>Auto>Shake Mode
Metering Modes	NA	NA	NA	NA	NA
Centre-Weighted	No	NA	NA	NA	NA
Spot	No	NA	NA	NA	NA
Average	No	NA	NA	NA	NA
Grid Overlay	Yes	Yes	Yes	NA	Yes
Steps?	Tap>Grid Overlay	Home>Settings>Photos And Camera>Grid	Swipe Down>Settings>Display Grid Lines (On/Off)	NA	Menu>Settings>Grid
Full Manual Mode	No	No	No	No	Menu>Auto>Manual
Shutter Speed	No	NA	NA	NA	Slider
ISO	No	NA	NA	Settings>Photo Settings>ISO>Pick From List	Slider
Manual Focus	No	NA	NA	NA	Slider
Changing Image Res?	Swipe>Settings>Change Resolution	No	No	NA	No
Sharing					
From Camera After Clicking					
Gmail	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick Mail App>Choose Mail Account> Share	Tap To Open Image, Tap Share>Choose Gmail	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Outlook	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	NA	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Yahoo Mail	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	Tap To Open Image, Share>Choose Mail Account	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Instagram	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	NA	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Twitter	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	Tap To Open Image, Share>Choose Twitter	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Flickr	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	NA	NA	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Misc.	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	Tap To Open Image, Share>Choose App	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Whatsapp	Tap To Open Image>Tap Share>Scroll To App>Tap	Home>Whatsapp>Enter Conversation>Share Button>Chose Existing Photo>Select Image>Send	Tap To Open Image, Share>Choose App	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Evernote	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	Tap To Open Image, Share>Choose App	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap
Facebook	Tap To Open Image>Tap Share>Scroll To App>Tap	Tap To Open Image>Tap Share Button>Pick App>Share	Tap To Open Image, Share>Choose App	Tap To Open Image>Tap Share>Pick From List	Tap To Open Image>Tap For Menu>Tap Share>Tap "More">Scroll To App>Tap



Mobile OS comparison	Android 4.4.4	iOS 7	BlackBerry 10.2 (Z30)	Windows Phone 8.1	HTC Sense
Shortcut To Most Frequently Used App?	NA	NA	Yes	Yes	NA
Shortcut To Frequently Used Apps?	NA	NA	Yes	Yes	NA
Editing	Open Image>Tap To Edit	Tap To Open Image>Tap Edit	Open Image>Tap Edit	Tap To Open Image>Tap To Edit	Open Image>Tap For Menu>Tap To Edit
In Edit Menu					
Filters	10	8	10	NA	11 (+Custom)
Crop	2 Taps	1 Tap	1 Tap	1 Tap	2 Taps
Rotate	2 Taps	1 Tap	1 Tap	1 Tap	2 Taps
Mirror	2 Taps	NA	NA	NA	2 Taps
Straighten	2 Taps	NA	1 Tap	NA	2 Taps
Picture Frames	2 Taps	NA	1 Tap	NA	2 Taps
Sharpness	4 Taps	NA	Tap Enhance>Swipe To See Sharpeness>Tap Sharpness	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Sharpness>Use Slider To Adjust
Curves	4 Taps	NA	NA	NA	NA
Hue	4 Taps	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To White Balance>Use Slider To Adjust
Saturation	NA	NA	3 Taps	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Saturation>Use Slider To Adjust
B/W Filter	4 Taps	2 Taps	2 Taps	NA	Tap Filter>Choose From Two
Exposure	1 Swipe + 3 Taps	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Exposure>Use Slider To Adjust
Auto-Enhance By Deafult?	Yes	Yes	Yes	NA	Yes
Levels	NA	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Tap Levels>Use Slider To Adjust
White Balance	NA	NA	3 Taps	NA	Tap Filter>Scroll To End>Tap Custom>Tap White Balance>Use Slider To Adjust
Colour Temperature	NA	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To White Balance>Use Temp. Slider To Adjust
Contrast	NA	NA	2 Taps	NA	Tap Filter>Scroll To End>Tap Custom>Tap Contrast>Use Slider To Adjust
Brightness	NA	NA	2 Taps	NA	Tap Filter>Scroll To End>Tap Custom>Tap Brightness>Use Slider To Adjust
Grain	NA	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Grain>Use Slider To Adjust
Vignette	4 Taps	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Vignette>Use Slider To Adjust
Fine Tuning	NA	NA	NA	NA	Tap Filter>Scroll To End>Tap Custom>Scroll To Vignette>Use Slider To Adjust
Auto-Enhance By Deafult?	4 Taps	1 Tap	2 Taps	1 Tap	Tap Filter>Scroll To End>Tap Custom>Tap Auto-Enhance
Red-Eye Removal	NA	1 Tap	2 Taps		



Mobile OS comparison	Android 4.4.4	iOS 7	BlackBerry 10.2 (Z30)	Windows Phone 8.1	HTC Sense
Selfies	Yes	Yes	Yes	Yes	Yes
Steps To Take	Tap To Switch	Tap To Switch	Tap More>Switch Camera	Tap Icon To Switch	Swipe To Switch
Portrait Mode Switch	NA	NA	NA	NA	Menu>Auto>Portrait
Timer		NA	NA	NA	Menu>Timer>Portrait
Photo Management And Backup					
Geo-Tagging	Yes	Yes	Yes	Yes	Yes
Steps?	Swipe>Settings>Turn Location On Or Off	Home>Settings>Privacy>Location Settings>Tap Camera App	Swipe Down>Settings>Geotag Pictures (On/Off)	Photos App>Settings>Use Location Info	Menu>Settings>Geo-Tag
Auto Cloud Backup	Yes	Yes	No	Yes	Yes
Steps?	Configured With Google+	Settings>iCloud>Tap Photos Option	NA	Via Onedrive	Configured With Google+
Delete Single Image (From Default Photo App)	Album>Tap To Open>Delete	Tap On Photo>Tap Delete	Tap Photo>More>Delete	Tap Photo>Delete	Gallery>Select Album>Delete>Select Image>Delete
Delete Multiple Images	Album>Press To Hold>Select Images>Delete	Tap On Gallery > Camera Roll > Select > Select Images > Tap Delete	Album>More>Select Items>Select Images>Delete	Photos>Select>Tap To Select Images>Delete	Gallery>Select Album>Delete>Select Images>Delete
Image Details	Open Image>Tap For Menu>Tap Settings>Details	NA	Hold Down On Image (In Gallery)>Properties	NA	Open Image>Tap For Menu>Tap Settings>Details
Access To Gallery From Camera	Tap Image Thumbnail	Tap Thumbnail	Swipe For Home>Swipe To App Screen>Photos	Home>Photos	Tap Image Thumbnail
Access To Gallery From Home	Tap Menu>Click On Gallery	Tap Gallery Icon	Tap Pictures	Tap Pictures	Tap Icon On Home
Filters And Shooting Modes					
Best Shot	NA	NA	Tap Mode Button>Best Shot	NA	Shoot 20 Frames Continuous>Select "Best Shot" Option
Hdr	Yes	Yes	Yes	NA	Yes
Steps?	Tap>HDR	Tap HDR Mode	More>Shooting Mode>HDR	NA	Menu>Auto>HDR
Panorama	Yes	Yes	NA	NA	Yes
Steps?	Menu>Camera>Swipe>Tap On Panorama	Swipe Right>Swipe Right	NA	NA	Menu>Auto>Panorama
Lens Blur	Yes	No	NA	NA	Yes, Via Separate App
Steps?	Swipe>Lens Blur	NA	NA	NA	NA
Photosphere / 3D Panorama	Yes	NA	NA	NA	Yes
Steps?	Swipe>Click	NA	NA	NA	Mode>Pan 360
1:1 Aspect Ratio	Yes	Yes	Yes	NA	Yes
Steps?	Tap	Swipe Right	More>Ratio	NA	Menu>Crop>Pick
16:9 Aspect	Yes	No	Yes	Yes	Yes
Steps?	Tap>Tap	NA	More>Ratio	More>Photo Settings>Aspect Ratio>Pick	Menu>Crop>Pick
4:3 Aspect	Yes	Yes	Yes	Yes	Yes
Steps?	Tap>Tap>Tap	Default	More>Ratio	More>Photo Settings>Aspect Ratio>Pick	Menu>Crop>Pick
Filters	Tap To Edit>Choose Photo Editor>Select Filter		NA	NA	Menu>Filter>Pick
No. Of Filters	9	8	NA	NA	16
Scene Modes	No	No	Yes	Yes	Yes
Steps?	No	NA	More>Scene>Pick	More>Photo Settings>Scene Modes>Pick	Menu>Auto>Pick
Burst Mode	No	Yes	Yes	Yes	Yes
Enable/Disable	No	Default	More>Shooting Mode>Burst	Tap Burst	Menu>Continuous Shooting>
Take Burst	No	Hold Down	Hold Down	Hold Down	Hold Down
Adjust Burst Duration	No	No	No	No	Yes (20 Frames Or Infinite)



digit Writer's Club

We're starting an exclusive club, and there's only one way to get in – become a writer. In case you're already one (or think you are) you can sign up immediately, and the Editor will screen your application himself.

Why join the Club?

Digit is the most reputed tech media brand in India, and as a writer you will get:

- A million dollars*
- An author profile page on our site
- An introduction in the magazine
- A free subscription to our e-mag
- Digit branded goodies
- A certificate of membership to showoff
- A warm fuzzy feeling inside
- Fame and the adulation of your peers

* We don't guarantee this, but hey, if you happen to get a million, remember, half is ours!

What we expect from you

Club members need to submit at least one article a month to keep their membership alive. You even get to choose your own topic– the only constraint is it should be technology related (obviously!).

Interested? Visit digit.in/writers_club to register

Meet the first few trailblazers



Ammar Tinwala

An IT professional in Infosys Ltd, and I have a passion towards writing, reading and watching movies.

Article submitted: Easy way to use Google's two-step authentication

"Most of us have very simple passwords for our account and we might use the same password for different accounts, which is a human tendency"



Sarang Khanna

As a technology-thinker, he often finds himself thinking about the major ongoings in IT on a daily basis

Article submitted: How future computers will tell the future

"Attempts have already been surprisingly successful to predict future events out by feeding a lot of past years' news to a supercomputer"



Tanmay Nautiyal

A student in Class 10 at The Doon School, Dehradun, who considers himself extremely tech-savvy.

Article submitted: MYO smartband.

"One day, MYO will allow us to control everything, from all our appliances to all our gadgets."



Kushal Parikh

Kaushal Parikh is a blogger who writes on innovation in our daily life.

Article submitted: The changing course of technology

"In last 200 years the paradigm has shifted from the hard core manufacturing industry to more of a Digital World. But where is the Digital World leading us to?"



Joey Pinto

A computer engineering student at IIIT Kota, Joey likes to write basics usage guides for software such as Android Studio, Audacity, Vegas Pro, VirtualDJ8 and so on.

Article submitted: Virtualbox is not an idiot box!

"VirtualBox is packed with a huge variety of features we often spare at the mercy of our just-what's-necessary attitude or what others call patience. So here are some things you can find in Oracle VirtualBox"



Rajesh V. Nair

An Electrical and Electronics Engineeing (EEE) student currently in the 5th semester, he is a geek by nature and believes that technology is the closest thing to a magic trick.

Article submitted: Shuffling the mobile industry

"Companies all over the world focus and put all their revenue and energy into their flagship models forgetting the mass market."

To read these six articles and connect with this first batch of inductees of the Writers Club visit:
digit.in/writers-club

Dysfunctional USB ports, weird hard drive and erratic monitors

Computers have been acting weird ever since they were invented and we've been solving such problems ever since we came into the picture

Q Need a Full-HD display

Hello Sir,

My problem is that I want to buy a 21 to 23-inch Full HD monitor. I want an IPS panel solution and despite seeing Digit's top five monitors page but I'm still confused. I do office work so it has to have good readability and I also play games occasionally. My budget is up to ₹10,000. Please do reply via email as I am now using a borrowed monitor.

–Dilip Pandey

A Hey Dilip,

We tested out quite a few monitors back in May 2014 and the BenQ GW2255HM won the Best Buy award in the sub-₹10,000 category. However, with a rated response time (G-t-G) of six seconds you can expect a little bit of ghosting in fast paced games but the magnitude of ghosting that one is comfortable with varies from person to person. If you do find it to be unappealing then you may want to consider the GL2250HM, also from BenQ. This one has a rated response time of two seconds which makes it ideal for gaming. However, its contrast ratio is 390:1 compared to the GW2255HM's 1081:1 so the difference between the level of detail is considerable but it won't affect day to day office work. If you are fine with the six second response time then go for the BenQ GW2255HM, otherwise go for the GL2250HM.

Q Laptop isn't starting

Hi Digit,

Well my laptop isn't starting. It's around four years old.

Configuration:

- Dell Inspiron 15R N5010
- Intel Core i5 @ 2.53 GHz
- 4 GB RAM @ 1333 MHz
- 500 GB HDD @ 5400 RPM
- 1 GB ATI RADEON HD 550v Graphics

The laptop isn't starting at all. As soon as I switch it on, only the power button glows, nothing else happens. Can't even hear the fans running. When the same problem occurred earlier, the laptop's screen used to shake up, flicker and act weird. Once it



Clean your laptop before it conks off due to heat

even threw up a BSOD. After that it hasn't started. A year ago, I replaced my HDD with a new WD Blue. Even the screen was replaced 3 years ago by Dell. I want to know whether is it an HDD problem, screen problem, or something else? Please help me out with a solution at the soonest because my work has come to a halt due to my non-functional laptop.

–Sagar Bakre

A Hey Sagar,

There could be a plethora of reasons as to why your laptop conked off and isn't starting. If you recall what error message was displayed on the Blue Screen of Death then you can Google the same and throw more light on the situation. If the HDD had crashed the computer should have completed POST. Have you tried a different battery or a compatible charger? It seems to us that this is most likely a heating problem. Often the cooling fan gets clogged with dirt and the cooling efficiency drops. Over time the excess heat starts affecting all the components near the affected area. If your graphics chipset used the same heatsink as the CPU then that gets affected as well. If left unchecked it leads to permanent damage to these individual components. And since these are onboard components the only solution would be to get those individual components replaced. An authorised service centre will replace the entire motherboard at a huge cost and if your laptop is still covered by Dell's warranty then call them up at the earliest. Or you can go to a local repair shop and they'll replace the affected component but they give little or no warranty for the replaced component.

Q Dysfunctional ports on a laptop; recovery solution

Hi there, I have a HP ProBook 445 and I am facing some issues.

1. The laptop has four USB ports equally distributed on both sides. Ports on the left side have stopped working.
2. My laptop had Ubuntu out of the box then I installed Windows 7. While installing I deleted the recovery partition. Is there any way to get it back? Thanks in advance.

–Vipul Yadav



The daughterboard (bottom-left) has USB and audio, clean the connector and re-attach

A Hey Vipul,

1. Did the USB ports stop functioning when you installed Windows 7? If so then those are probably running off a different chipset for which you'll have to install the appropriate drivers. Those ports which are running off the chipset will function without installing any extra drivers. If you still have Linux installed then do boot Ubuntu and then check if those affected ports are working or not. If not then you will have to open the chassis to locate the data cable for these USB ports. They're often part of the motherboard or they're situated on a small daughter board. If in your case, it is the latter then pluck the connector out and clean the contact points before putting it back in. If that doesn't work you'll have to take your laptop to a service centre.
2. When you boot your computer for the first time you are given the option to create recovery disks for your computer. If you'd created those then you can simply put the disk in and bring your computer back to its default configuration. Any extra applications that came with the laptop might not be there but you will get the OS and the recovery partition back. If you didn't make the recovery disc then you need to take it to a service centre to get the OEM OS installation. You can always download the HP drivers online and use open source software to create backups if that is all you need to achieve.

Q Windows on MacBook?

I have a MacBook Pro OS X Lion and I want to put Windows 7 in it through Boot Camp. I have Windows 7 in a folder downloaded but when I burn it to a disk and then insert it in the Mac and start Boot Camp it says, "Please insert the Windows 7 disk." But in Finder it shows the CD and the files. I tried to make it ISO file and also .dmg then burn it onto a CD but both of them didn't work out. Please let me know how to install it.

–Debasmith Mandal

A Hey Debasmith,

It seems that your disc is not bootable. You'll need to re-download the operating system installation image and try again. Often, if there is any glitch during the download process then the integrity of the image is affected. Also, pirated operating systems won't work since most of them have some sort of modification which affects the integrity hash. If the hash verification fails then the disc is considered as non-usable.

Q Drive unreachable

Dear Sir,

My PC configuration is given below:

- OS - Win XP Service Pack 2
- CPU - G2010 @ 2.80GHz
- RAM - 2 GB
- HDD - 500 GB

Please find the attached screen shot.

Why this problem is showing every time I try to access the said drive.

–Premananda Moirangthem



Often caused due to virus infections

A Hey Premananda,

It seems that your file associations have been corrupted. This can be due to OS crashes or due to malicious software that weren't properly removed or was too entrenched in the system to be removed properly by any means. There are easy fixes for all your file extensions. Simply head over to this website (http://dgit.in/XPAssoFix), download the individual registry fixes and execute them with an administrator account. This should fix all your problems.

Q Erratic monitor behaviour

Hello guys,

I have been a long time reader of Digit and it has always helped me in many tech problems I have had. Here's a problem that has been bugging me for a few weeks. I had done a clean install of my system after 3 years to dual boot Windows 7 Ultimate and Linux Mint 16 (Earlier I used Windows 7 Home Premium). After that I installed all the drivers provided in my motherboard CD. All of them got installed fine except the NVIDIA display driver which gave errors during installation. So I downloaded it from the motherboard's website and installed it again after uninstalling the previous one. The downloaded drivers got installed perfectly but still my monitor is not detected in display properties and I can't set the highest resolution.. It says 'Default Monitor'. And everything appears a bit blurry and ugly on it. Videos appear weird and games are not running (except really old ones). Also a thin black band resides on the right side of the screen. However, in Linux Mint, my monitor is perfectly detected and everything runs fine. I tried to look in my monitor's website too but I got no help. Could you please help me out of this headache? Here are the required details of my config:

- Motherboard - ASUS M4N68T-M-LE-V2 (AM3)
- Monitor - Dell IN2020M
- CPU - AMD Athlon II X3 445
- OS - Microsoft Windows 7 Ultimate 32-bit

Your help will be greatly appreciated.

Thank You and Keep Up The Great Work!

–Bishal Dey



Yes, monitors have drivers too!

A Try installing the driver for the monitor. Yes, monitors have drivers too! You can either let Windows download on its own through the Windows Update feature or get it from Dell's website which we've hyperlinked here. http://dgit.in/IN2020MDriver Let us know how it works out.



Freshen clothes in 10 minutes
Proctor & Gamble and Whirlpool have come up with Swash, that could freshen up your clothes in just 10 minutes. **http://dgit.in/SwashClothes**

Google Glass for sports
Recon had already announced about their variant of Google Glass last year and now they have a finalized design right before launch **http://dgit.in/ReconGlass**

Do the Tap!

Make tappable stories

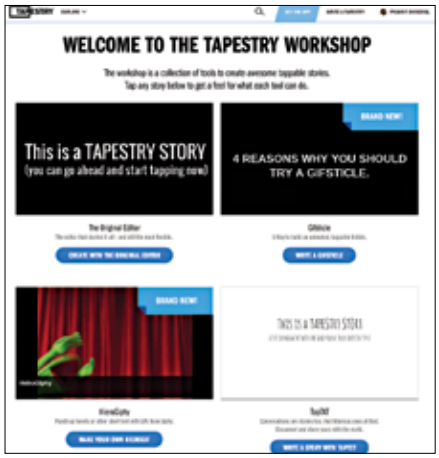
Prakrit Dhondiyal
readersletters@digit.in

Creativity is a funny thing. People always suggest 'thinking out of the box' but there's nothing like parameters and restrictions for someone to get their creative juices flowing. Readtapestry.com is that kind of tool. It is the product of taking

TAPESTRY BEAUTIFUL STORYTELLING.

something essentially very simple and making it an outlet for creativity. Think about good old PowerPoint presentations. Now add a few more options to the mix. And you have Tapestry. It's an online presentation editor for people to use in whichever way they wish. Most of the members on tapestry have found their own unique way to use this website to tell stories in different ways. They are called 'tappable stories'.

The Tapestry editor (called the Tapestry workshop) is easy to use, and has yet to explore its full potential. There are several features that could be adapted to make tapestry making easier for the users. But we'll cover that later. The way it currently is, the tapestry editor is simple to use and each tapestry comes with its own little training tapestry.



The Tapestry workshop is where you begin

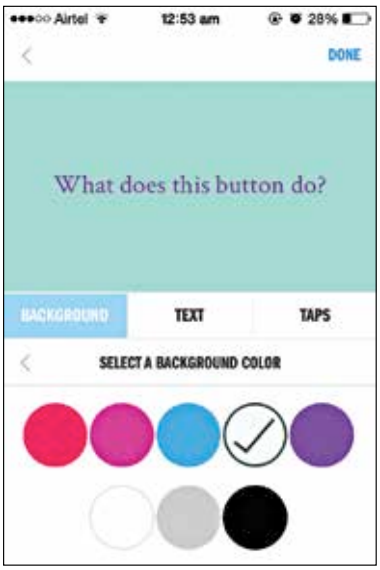
There are four kind of Tapestries:

The Original Tapestry

The original tapestry editor lets you make a basic tapestry. Right off the drawing board. You start off with blank slides which you can populate with images and text. Sounds easy, and it is. But making something out of the ordinary with an easy tool is where the skill and practice come in. For example, the first tapestry to be uploaded (the one that started it all) is a tapestry called 'FISH' by Robin Sloan. The tapestry is primarily text-based, but the key is in the pauses and breaks. Instead of it being a page long article that you scroll to read, Sloan has used the tapping effect along with cleverly formatted words to keep the reader engaged. Take a look at it here: http://dgit.in/sloanfish

The Gifsticle and HieroGiphy

These two kinds of Tapestries incorporate the use of GIFs to present your story. It's an interesting medium, and people online have used it rather well (to be specific, refrained from OVER-using it). Tapestry comes integrated with an option to search the Gify database for GIFs tagged with it. The only downside to this is that the website doesn't let you create your own GIFs. You can, of course, use Photoshop. Or if you're feeling too lazy to go through the hassle of Gizmodo's easy four-step process of GIFing in Photoshop (http://dgit.in/gizmogif), you can always use online GIF creators like GIFMaker.me, makeagif.com and picasion.com to get it done. It would have, however, been nice to see an in-built GIF making option on Tapestry's own website. An example of a GIF-related tapestry can be found at http://dgit.in/fyndyoo



The App interface is simplistic as well

TapTXT

Sometimes, a text conversation between you and a friend (or friends) tends to take a turn towards the readable. The texting tapestry is a tapestry format ideal for stories like this. It presents your story as a in-text conversation to and fro between two people. Each click presents the next line of conversation. Subtle and effective. And immensely fun.

The Tapestry App

The Tapestry app is the true reason for the website's name and tagline. 'Tappable stories' are meant to be viewed on your smartphone. Although the app's main purpose is for you to browse others' stories on-the-go, it also gives you access to the Tapestry workshop, allowing you to create tapestries right off your smartphone. The app is available for free on the App Store as well as the Google Play Store. However, for some reason, the Android App does not allow for Tapestry creation. Possibly because of the OS not being able to support the feature, since the app was originally designed for the iPhone. It's a small bug that we're sure the people at Tapestry will fix soon (or risk alienating all Android phone users).

All in all, Tapestry is beautifully designed. From the website to the mobile application, everything is either easily usable or explained by the designers. It's a great way to express your feelings and story ideas in a simple, visual way.

OS X MAVERICKS

Apple unveiled OS X Mavericks last year with various improvements to Snow Leopard. In addition to the couple of features announced and showcased by Apple, many lesser known and secret features are hiding under the hood of this operating system. Here are some of our favourite tips and tricks related to the 10th major release of OS X.



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TeamViewer.....39
Instagram.....40

Tips & Tricks has its own page numbers, and does not follow the rest of the magazine's page numbers. This is done to ensure that you can cut out and save T&T in a separate folder for later reference.

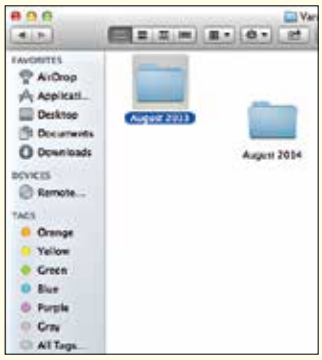
Block individual iMessage contacts

If you use Apple's iMessage service on your Mac, you probably know that there's no way to block individual contacts. You can only block contacts from sending you iMessages on your iOS device, but even despite blocking the messages you could still receive them on your Mac. Mavericks has come up with a neat feature that fixes the issue and lets you block individual contacts.

You can block contacts by opening the Messages app > Messages (in the menu bar) > Preferences > 'Accounts' tab > 'Blocked' tab > Click on the '+' icon > Select the contact you want to block.

Duplicate a folder and add ascending year

Another new option that the OS is offering is the ability to duplicate folder names with ascending year. While this isn't exactly a hidden feature, it's only known by very few Mac users. Suppose you want to duplicate a folder named 'August 2013', just hold down the (Option) key while dragging the folder and a new folder named 'August 2014' will be created.



Drag and drop the folder while holding the Option key

Use Finder tabs instead of new Finder windows

Finder is completely revamped with a new tabbed UI in Mavericks. Earlier, a new Finder would open in a separate window creating a clutter on the desktop. To reduce this mess, press [⌘] + [T], which will open a new Finder tab inside the same Finder window.

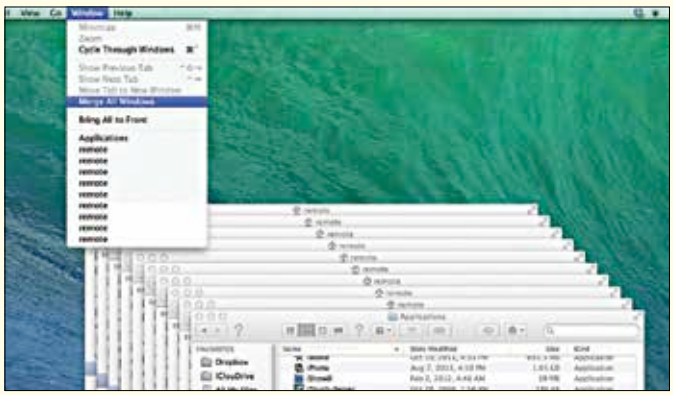
Merge all Finder windows

The tabbed view interface, which resembles Safari's interface, also lets you merge already opened windows.

To do this, click on any Finder window > Window (in the menu bar) > Merge All Windows.

Screenshot specific window only

This is a very useful screenshot-taking tip that isn't a part of Mavericks, but should be known by every Mac user. Taking screenshots in OS X is as easy as dragging and selecting the portion of your screen to be saved. However, there's an even easier way to do it using a keyboard shortcut. If you want to screenshot a particular window, you don't have to drag and select the exact window portion. Instead, press [⌘] + [⇧] (Shift) + [4] + [Space bar] and select the window that you want to save.



Click on any Finder window and choose 'Merge All Windows from Window' in menu bar

Quickly disable notifications for the rest of the day

Mavericks introduced the 'Do not disturb' feature of iOS in Macs. The newly added feature lets you disable notifications for the rest of the day. While you can find it under 'Notifications' in 'Preferences', there's a quick way to manually enable or disable 'Do not disturb'.

To do it, press the (Option) key and click on the small notification centre icon located on the top-right corner of the menu bar.

Put your Mac to sleep with the power button

In the earlier versions of OS X, whenever you pressed the power button a dialogue box with options to restart, sleep or shut down would appear. However, Apple entirely changed the behaviour of the power button in Mavericks. Now, pressing the power button for one second will turn off the display and lock your Mac. Pressing the power button for 2-3 seconds will bring up the same old dialogue box. Pressing the button for 10 seconds will turn off your Mac entirely.

Quickly scroll up in OS X Mail

Like with iOS in which you can quickly scroll up in any list by tapping the status bar, you can do the same in OS X Mail on your Mac as well. If you've gone deep down into the mail list and need to return to the top without much hassle, then in Mail app just click the 'Sort by' bar located above the list of your mails. You'll be navigated back to the top of the list without having to scroll.

Print out directions in Maps

Smartphones with map applications and GPS always benefit us on road turns and that's why we don't rely on printed maps anymore. However, if you prefer the old-fashioned way, Mavericks will let you print out Apple Maps with directions.

To do it, `open the Maps app > click on 'Directions' in the upper left-hand side of the window > Enter start and end points > Pick the route > Press [⌘] + [P] > Choose 'Printer' > Click on 'Print'.`

Disable auto app updating

Apple has brought App Store automatic updates to the desktop platform with Mavericks. It's a very helpful feature that will ease the task of manually checking for app updates and downloading them. However, some power users or those with low bandwidth may want to disable it. If you're one of them, `click on  on the menu bar > System Preferences > App Store > Uncheck 'Automatically check for updates'.`

Access Emoji in any app

You can now use Emoji in any app that takes text as input since Apple brings system-wide Emoji support to Mavericks. To access it, go to any such app and press [⌘]+ [Control] + [Space bar]. A little pallet will open displaying all the Emojis



Get Emojis in Notes, TextEdit or even in Spotlight

present. Further, if you drag the pallet it will tear off from where you were entering text and become its own window.

Create a PDF of your contacts

With Mavericks, you can create a PDF file of all the contacts saved in your contacts app. You can email it or print it out to make a perfect printable contact sheet. To do it, `open the Contacts app > Click on 'File' in the menu bar > Export as PDF > Save.`

Change volume and brightness by quarter increments

You can reduce or increase the volume and brightness on your Mac using the volume up/down and brightness buttons on your keyboard by increments or decrements of one unit. However, you can also change it by quarter increments by pressing [⌥](Option) + [⇧](Shift) + [Volume Up/Down] or [Brightness Up/Down].

Make use of Enhanced Dictation

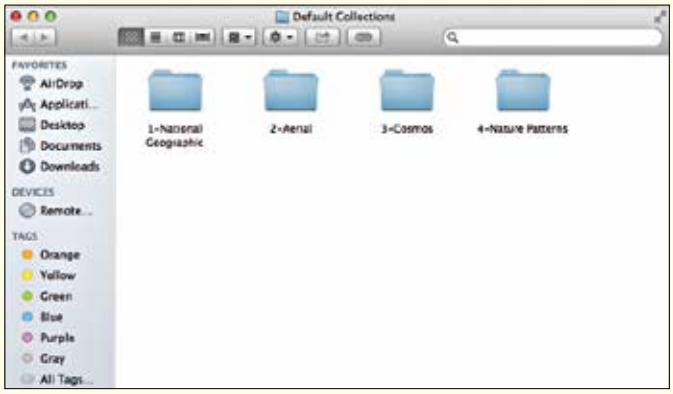
The dictation feature in Apple uses its Siri service over the Internet to type whatever you dictate. However, if there's no Internet connectivity available it won't work. To deal with this, Mavericks introduced the 'Enhanced Dictation' feature that works offline as well.

To enable it, `click on  on the menu bar > System Preferences > Dictation & Speech > Turn on the Dictation and check 'Use Enhanced Dictation'.`

Note: This will download a 785MB file.

Access hidden Mavericks wallpapers

Mavericks comes bundled with a pack of beautiful wallpapers that can be accessed readily. Apart from these, however, there are many more beautiful wallpapers hidden inside the system. To get them, `go to Spotlight search and type "Default Collection".` You'll get four additional packs of wallpapers.



Hit the top result, 'Default Collection' folder in Spotlight

Hide icons in System Preferences

In Mavericks, you can hide icons to prevent others from accessing and modifying some of your system's elements. To do this, `click on  > System Preferences > Click on 'View' (on the menu bar) > Customise > Uncheck the icons that you want to hide and click on 'Done'.`

Align the dock to any corner of your screen

By default, you can align the dock only to the left, right or bottom, and only with middle orientation. However, you can now align the dock to any corner of the screen by typing a simple command into the terminal.

To align the horizontal dock to the top corners and vertical dock to the left of the screen, enter the following command in the terminal.

```
defaults write com.apple.dock pinning -string start
```

To align horizontal docks to the bottom corners and the vertical dock to the right of the screen, enter this command in the terminal.

```
defaults write com.apple.dock pinning -string end
```

To return to the default middle alignment, enter this command in the terminal.

```
defaults write com.apple.dock pinning -string middle
```

Note that the command won't take effect until you reset the dock. So after entering any of the above commands, reset the dock with this command,

```
killall Dock
```

TEAMVIEWER

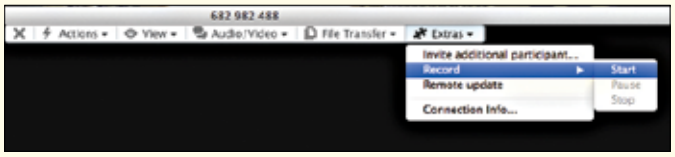
TeamViewer is one of the best software for remote access of computers. Not just restricted

to remote control, TeamViewer can perform a variety of tasks that many are not aware of. If you're a TeamViewer power user, here are some tricks to enhance your experience.

Record a set of steps

Say you're accessing a client's PC and want to show him how to do something, you don't have to repeatedly do the same step again and again until he understands it. Instead, put to work a handy feature offered by TeamViewer that lets you record whatever you're doing on the client's PC. You can perform the steps while recording them and show the recorded video to the client. It will also help you remember how you did something.

To record the steps, start the remote session with your client > Click on 'Extras' on the top menu bar > Record > Start. To stop the recording, go to Extras > Record > Stop. This will be followed by advice to save the video.



Recording will give you a copy of your activity from your TeamViewer session

Take advantage of the partner list

Partner list is for you if you frequently connect with the same clients. It's a list that gives you quick access to your clients so that you don't have to remember their TeamViewer IDs. In order to use this feature, you'll have to sign up for a TeamViewer account, which is free. We suggest asking your clients to retain their passwords so that you won't have to remember their passwords as well. Just select the client and you're good to access their PCs.

Create a VPN tunnel between two machines

With TeamViewer, you can also access the other machine's network and network hardware. This can be done with the built-in VPN feature that creates a VPN tunnel between two machines. This is a neat feature for those who want to access a client's network hardware for setting up or troubleshooting routers, printers and other network hardware.

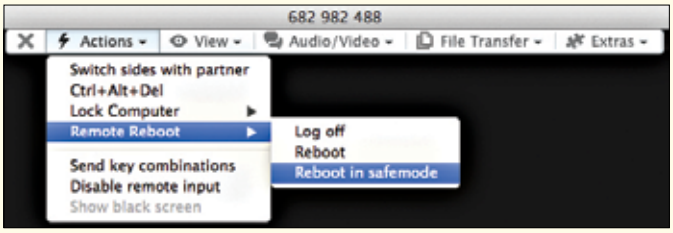
To create a VPN tunnel, first remotely connect with the client > Click on 'Extras' in the top menu bar > VPN > Start. To stop the connection, again go to 'Extras' > VPN > Stop.

Reboot remote machines

You can't reboot remote machines in the same way as you would your own machine. Doing so will disconnect the client and you won't be able to retrieve the connection without the user manually reconnecting. A Remote Reboot feature helps overcome this problem.

To reboot remote machines, set up a remote session with the machine > Go to 'Action' > Remote Reboot > Reboot. In this way, you can also reboot in Safe mode.

Note: Make sure the remote computer doesn't require user login to get to the Windows desktop, otherwise the machine will halt until the user logs on.



Rebooting in safe mode will take you to safe mode without losing the connection

Optimise speed or quality for smoother access

You can enhance your remote login experience even on a low-bandwidth network by optimising speed or quality. If you have low-bandwidth network then we suggest choosing 'Optimize Speed', which will improve performance, but downgrade video quality. High-bandwidth users should choose 'Optimize Quality', which will improve the video quality but eat into your bandwidth.

You can find these options by navigating to View > 'Quality' located on the top menu bar.

Set up unattended access

If the remote computer's password is constantly changed, we suggest setting up unattended access on that computer. While doing that, you must define a permanent password that will never change. Going forward, you can access that computer with the newly defined password at anytime.

To do it, open TeamViewer > Go to 'Connection' tab > Set up unattended access > Enter Password.

Make the most of the presentation toolbar

The presentation toolbar provided by TeamViewer will not only let you control your presentation's flow, but also allow you to remove the wallpaper (that will improve the performance), and adjust frames per second and color depth.

Use drawing palette to modify your current presentations

The presentation interface in TeamViewer offers a variety of great presentation tools. You can use drawing palette tools such as markers and erasers to draw and modify your current presentations just as you would on a blackboard.

Control your PC from your smartphone

If you're away from your workstation and urgently need to access your PC you can do so using your iPad, iPhone, Windows Phone or any Android device. TeamViewer offers official smartphone apps for iOS, Android and Windows Phone platforms. Called 'TeamViewer', this app is available for free in the respective applications' stores.

INSTAGRAM

Instagram has become the most popular photo-sharing application where millions of images are uploaded every day. The platform plays host to everyone, right from cat lovers posting images of their cherished pets to huge brands announcing product launches on the site. And then there are those who upload pics in an attempt to show off their photography

skills, build followers and gain a number of bragging rights. Below are a few tips and tricks you may not yet know about. We hope they help you tell a better story with your photographs.

Use Rule of Thirds feature to take better pictures

While clicking pictures, amateur photographers are usually at their wit's end about where in the frame to place the subject so as to get the most aesthetically pleasing photo. To help you with the positioning of your subject, the Rule of Thirds toggle button comes in handy. The button shows up when you open the camera. Pressing the button will give you a grid. Let this grid



guide you in placing important compositional elements along these lines or their intersections. A little research on the photography principle of "rule of thirds" will go a long way in helping you take amazing pictures of any object, scenery or person.

Create collages

Multiple images strewn about in one picture look interesting, but Instagram doesn't give you any default options to create collages. For this, you'll need to install third-party apps such as PicsArt, Photo Grid and Pic Stitch. These apps will help you create photo montages using different layouts and grids. Once you're satisfied with the results, you can then upload your collages to Instagram.

Get more followers

Every time you upload pictures, be it of every single food you eat or the hordes of selfies you take, you may be loath to admit that it was an attempt to gain more followers. A healthy way to get more followers would be to engage with other Instagrammers with similar interests by commenting on and/or liking their photos. Click the Explore tab to find others like you.

Also, don't forget to write a descriptive bio in your profile to



intrigue users into following you back. You can also score more viewers by sharing your images on other social networks.

Save photos without having to upload

Say you want to add the Instagram filters to your photos, but don't want to upload them to your profile. Once you're done editing and adding the desired filters, move on to the next section where you're asked to add a caption and upload the image. At this point after the image has



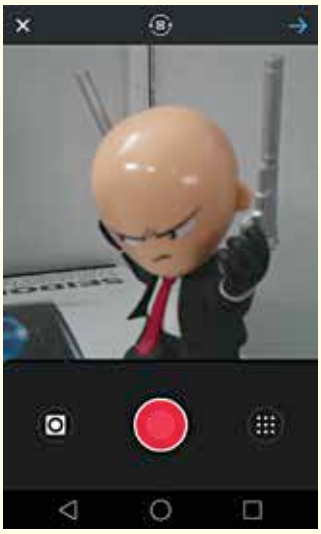
finished processing, you can rest assured that it has been saved in a separate folder. Alternatively, you could do the whole uploading process with the Airplane Mode switched on. Since the mode switches off Internet, you'll get a failed notification after uploading. Your edited image can be found in your album.

Go beyond Instagram's editing capabilities

Sometimes, even the current 20 filters and editing options in Instagram fall short of the desired effect we're looking for. So to overcome the limitation, we could use other photo editing apps such as Snapseed and Pixlr Express to add much more effects like textures and patterns, and even text to your pictures. Apps like InstaSize give you the option of resizing your image if it doesn't meet Instagram's 1:1 aspect ratio limit.

Record "stop motion" videos

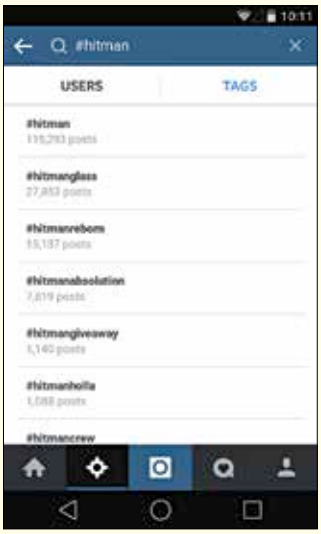
You can record up to 15 seconds of video by pressing and holding the record button. An amazing feature is the ability to record videos in segments under different frames. Leaving the record button pauses the video, so you could move on to a different frame. The final video would



include several scenes stitched together and some play-pause video magic right from your smartphone. Technically, this isn't stop motion, but close to the effect we're aiming for.

Use hashtags correctly

Many users of hashtags either don't know how to use them or simply love flooding their photos



with unnecessary tags. Hashtags actually increase the discoverability of your photo. Relevant and meaningful tags give it more visibility, comments and likes. Take a look at the most popular hashtags trending at http://web.stagram.com/hot/. Note that Instagram limits the number of hashtags to 30.

digit KILLER RIGS

Everything you'll ever need to build your own PC. Whatever your budget.

Basic rig = ₹25,409 | HTPC = ₹28,679 | Entry-level gaming = ₹45,268 | Mid-range gaming = ₹61,605 | Ultra high-end = ₹2,81,396 | Optional Accessories= ₹40,779

BASIC RIG

Processor	Intel Pentium G3220	3,300
Motherboard	Gigabyte GA-H61M-D2H	3,570
RAM	Corsair 2GB DDR3 1333MHz	1,600
HDD	Toshiba 500GB	3,200
Monitor	Dell IN1914H	6,000
Graphics Card	None	0
Cabinet	NZXT Gamma	2,490
PSU	Corsair VS450	2,175
Speaker (2.1)	Creative SBS A120	1,500
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Amkette Ash Black (Bundle)	525
Keyboard	Amkette Ash Black (Bundle)	0
Sound Card	None	0
Total		**₹25,409**

HTPC

Processor	AMD A8-5600K	6,950
Motherboard	MSI FM2-A75MA-P33	4,423
RAM	Kingston HyperX Blu DDR3 4 GB	3,000
HDD	Western Digital WD20EZRX 2TB	5,900
Monitor	None (your TV)	0
Graphics Card	None (HD7560D onboard)	0
Cabinet	Cooler Master Elite 120 Advanced	2,977
PSU	Cooler Master Thunder 450W	2,550
Speaker	None	0
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Microsoft Desktop 2000 wireless combo	1,830
Keyboard	Bundled	0
Sound Card	None	0
Total		**₹28,679**

ENTRY-LEVEL GAMING

Processor	AMD FX6300	7,399
Motherboard	Gigabyte GA-970A-DS3P	5,805
RAM	G-skill F3-10600CL9S-4GBNT	2,800
HDD	Seagate Barracuda 1TB	3,600
Monitor	Dell S2240L	8,300
Graphics Card	Sapphire HD7770 1 GB DDR5	7,750
Cabinet	NZXT Gamma	2,490
PSU	Cooler Master Thunder 450W	2,550
Speaker	F&D F680	3,000
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Amkette Ash Black (Bundle)	525
Keyboard	Amkette Ash Black (Bundle)	0
Sound Card	None	0
Total		**₹45,268**

MID-RANGE GAMING

Processor	Intel Core i5-4440	12,190
Motherboard	Asus B85M-G	5,940
RAM	Kingston HyperX 8GB (KHX1600C10D3B1/8G)	4,900
HDD	Toshiba 1TB DT01ACA100	3,998
Monitor	Dell S2240L	8,300
Graphics Card	ZOTAC GTX 750 Ti 2GB	10,600
Cabinet	Thermaltake Versa H21	2,998
PSU	Seasonic S12II 620 Watts	5,750
Speaker	F&D F680	3,000
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	CM Storm Devastator (Bundle)	2,880
Keyboard	CM Storm Devastator (Bundle)	0
Sound Card	None	0
Total		**₹61,605**

ULTRA HIGH-END GAMING

Processor	Intel Core i7-4770K	21,350
Motherboard	ASRock Z87 Extreme4	13,816
RAM	ADATA XPG 2 x 4GB (2 Kits)	13,500
HDD	WD WD30EZRX 3TB + Samsung 840 Pro 256 GB	22,100
Monitor	BenQ BL3200	75,000
Graphics Card	ZOTAC GTX 780 Ti	51,999
Cabinet	NZXT Phantom 820	16,836
PSU	Cooler Master V1000	15,000
Speaker	Logitech Z906 5.1	24,900
Optical Drive	LG Blu-ray WH16NS40 RW	5,845
Mouse	Roccat Kone XTD	5,250
Keyboard	Ttesports Poseidon	5,300
Sound Card	ASUS Xonar Phoebus	10,500
Total		**₹2,81,396**

OPTIONAL ACCESSORIES

Surge Protecter	Belkin 8 Socket Surge Protector	1,084
Controller	Xbox 360 Controller (wired)	2,049
UPS	APC 1000VA - BR1000G-IN	8,200
Webcam	Logitech HD Pro C920	6,270
Headphones	Sennheiser PX 100-II	3,817
Mousepad	Roccat Taito	625
Wireless Router	TP-LINK TD-W8968	1,799
Sound Card	ASUS Xonar Essence STX	9,540
External DVD-Writer	Lite-On eUAU108	1,650
Thermal Paste	Arctic Silver 5 (3.5 grams)	600
CPU Cooler	Cooler Master Hyper 212X	2,750
Fan Controller	Deepcool Rock Master V3	1,695
Case Fan	Corsair AF120	700
Total		**₹40,779**

88 **Price watch**
Were you thinking of buying an AIO or a Mini-PC? Then head over to the Price watch section

Music and Fitness Tracking
Using the FreeWavz, your music and fitness tracking needs would be fulfilled with just one device **http://dgit.in/FreeWavzBud**

Hybrids or Good old Laptops?

Take a step back and analyse the hype. Should you really go gaga over hybrid laptops?

Agent 001
agent001@digit.in



The writing's on the wall for quite some time. Smartphones and tablets are the new kings of the consumer tech world, while traditional laptops are getting filed in the "not so cool" cabinet. It's a post-PC world, smart is sexy, yada yada yada. To reverse the trend of dipping laptop sales, OEMs are blending them with "desirable" tablet features, hoping against hope you'd opt for it rather than spend your money on a touch-only slate sans keyboard.

After all, why not? Hybrids are the stuff of industrial designers', marketers' and consumers' combined wet dreams. Epic drool worthy stuff. An evolutionary convergence of two product lines that seem a match made in tech heaven. What's not to like? Hey, don't give me dirty looks, I'm all for them – All Day I Dream About Gadgets, too. But I won't go to a store and buy one without thinking of the following things first:

Am I confused?

Believe it or not, it's a very important question. With hybrids launching all around, it's difficult not to contemplate purchasing one. But my advice to you in this case is something I observed very clearly about the so-called phablets. A smartphone ends at about 5-inches and a tablet starts at 7-inches – it is known. Anything in between is neither this or that (although it promises to be both). It's for consumers who are either ill-informed or a bit confused over what they want from a device, at least as far as phablets are concerned. Sure, it reduces the number of devices you have to carry, but it also involves a steep learning curve and the potential to make you look ridiculous – try speaking on a 7-inch phablet held against your ear or typing on it single-handedly.

It's the same with hybrids and 2-in-1 laptops, at the moment. Everyone's making a lot of noise about them, trying hard to out-innovate the competition, and ensure their hybrid is filled with features (doesn't matter if some of them are ridiculous) so that customers are bedazzled by their capabilities. It seems great trying to justify these features at the moment of purchase, but as the novelty value of the device and the experience fades, I've seen regret replace exuberance far too many times. Let that not be your hybrid purchase story. Therefore, re-evaluate whether you definitely need all the Optimus Prime-esque features advertised for the hybrid you wish to buy for yourself or gift to someone.

What's wrong with laptops and tablets being separate?

Seriously, why do they need to be moulded into one? This point becomes even more important when you consider the following. Cheap hybrids or 2-in-1 laptops are mostly just tablets with extended keyboards (and battery) – you can't really create much on them, can you now? They're consumption devices. On the flip side, powerful hybrids are more laptops than the slim, trim, ergonomic and easy-to-carry tablets they (also) claim to be – you can't really use it as a tablet when it comes with a 13 / 14 or 15-inch screen now, can you? If that's the case, conventional wisdom needs to be challenged or even redefined. Plus all great hybrids are



Better Baby Monitor
Onni Smart Care is a baby monitoring system which helps parents monitor their babies through web and mobile apps **http://dgit.in/OnniSmartCare**



Spiked drink alert
The pd.id is a device that provides you with an alert if your drink has been spiked with drugs **http://dgit.in/pdidAlert**

so expensively priced that you can easily buy a mainstream laptop and a budget tablet without spending more. So when I look at the hybrid as a laptop-tablet convergence story right now, I still remain unconvinced because I think there's a lot that still needs to be done. There's plenty of scope for improvement.

Final thoughts...

What I'm trying to say here is that when you're trying to purchase a hybrid device as something that offers the best of both worlds as far as tablets and laptops are concerned, then be prepared to purchase the creme-de-la-creme of the hybrid world. Because anything less, and I fear that you'd be left with a disappointing after-taste from the whole experience. Otherwise, don't be over enamoured by hybrids or 2-in-1 laptops just yet – if you want a laptop, hunt for a laptop first; if you want a tablet, that's what you should look for foremost. The hybrid laptop story is still in its infancy and far from being written in its entirety.

Sony or HTC?

Hi Agent 001! Can you please tell me the best smartphone between Sony or HTC within a budget of ₹20k? Thanks.

--Rakesh D Chaudhary

A What I've seen is that Sony offers a slightly better portfolio of products at the price range you're requesting than HTC. Check out the Sony Xperia C or Xperia ZR, whereas in the HTC there's nothing better than a few Desire handsets. Problem is that the HTC Desire 816 is a nice device for you to own, but it's slightly out of your budget. If you absolutely cannot extend your budget, my advice for you would be to pick up the Sony Xperia ZR. At ₹19,990, it offers a very good feature set with the promise of good performance and great bang for the buck.

Needed: Good cheap earphones

Hi Guys, I am using a Nokia Lumia 525 without Windows Phone 8.1 upgrade. Its bundled earphone is useless and really cheap. I am a music lover and planning to buy a good pair of earphone for my handset and my budget is between ₹700 to ₹800. A pleasant music experience is what I am expecting and a microphone would be real bonus, but of good quality. I need your assistance on this.

--Bikash Krishna

A Hey Bikash! You're not alone in this request. A lot of our readers request us to suggest a good pair of earphones than what they usually get bundled with their smartphones. To all such readers, here's my common answer. If you need a really nice pair of earphones under ₹1,000, close your eyes and purchase the Cowon EM1. If you need an in-built microphone, the



Cowon EM1

EM1 variant which supports this feature costs slightly more – about 1.1k. Totally worth the money. Just go ahead and buy one already.

Which smartwatch to buy?

Hello, I am looking to buy a smartwatch but little confused as many of the Smart brands have introduced their SmartWatches all together. Below are the points that I mainly focus on:
1.My top priority will be price. 2) Look and feel of the watch. 3) Hardware configuration. 4) Number of features supported. 5) Battery life. 6) Should be Water and Dust resistant. Thanks.

--Siddharth Vyas

A The Sony SmartBand SWR10 is a really comfortable health monitoring band and has a nice minimalistic design and form factor. For the price, it offers a decent set of features and does its job of tracking your activity quite well. Since there aren't a lot of wearable devices in the market, we can't say if it is THE health / fitness band to buy, but I can tell you that it definitely provides the base for future wearable devices that would be offering better and more innovating functionality. It's also waterproof, one of the features requested by you.

The only other smartwatch to consider, and which is officially selling in India right now, is the Samsung Galaxy Gear. Do check it out as well, if you feel like.



Sony Smartwatch

My next pair of IEMS?

Hi, I am a regular reader of Digit magazine. I love the book very much. I've also suggested many of my friends to read the book. I always trust what is written in the magazine. Whenever I want to buy a gadget, I refer the book and then buy, so simple. I brought the June magazine to know about the earphones and suprisingly there wasn't enough info about earphones, so I decided to write to you. I need a pair of earphones with good bass around the price range of ₹2000-5000. The last IEMs I used was the Sennheiser CX180, I liked it very much. Hope you give me a very good suggestion to buy. Eagerly waiting for reply.
Sincerely DIGIT LOVER.

--Sowmith Renumakula

A Hey Sowmith, if you prefer IEMs with more bass then in the price range you've mentioned you can either go for the Cretive HITZ MA-350 which costs ₹2,299 or if you'd like to spend more and then Audio-Technica's ATH-CKX9 which comes in at ₹4,699. Both of these are pretty good given the price point that they are sold at. Hope you write in to us again.



Dell allows Bitcoin payment
In a recent announcement, Dell would now let you buy their laptops using Bitcoins **http://dgit.in/DellBitcoin**



Selfie on your toast
Vermont Novelty Toaster Corporation lets you print your selfie on a toaster with custom designed toasters **http://dgit.in/ToastSelfie**

SPEND SMART

We cover AIOs across a wide price segment and also throw in a few mini-PCs while we are at it



ALL-IN-ONE DESKTOPS (₹17,000 TO ₹35,000)

Brand	Model	Processor	Processor Clock Speed	Memory (in GB)	Graphics	Storage Capacity	Display Size (in inches)	Webcam (Yes/ No)	Operating System	Price in ₹
AOC	Smart A2258 PWH	ARM Cortex A9 Dual Core	1GHz	1GB DDR3	NA	4 GB (expandable upto 32 GB)	21.5	No	Android 4.0.4 ICS	17,500
HP	Slate 21-k100	NVIDIA Tegra Quad-Core T40S	1.66GHz	1GB DDR3	NVIDIA integrated	8 GB	21.5	Yes	Android 4.2.2 JB	18,807
Lenovo	C240	Intel Celeron Dual Core 847	1.1GHz	2GB DDR3	Intel HD	500 GB	18.5	Yes	DOS	22,890
Lenovo	C260	Intel Celeron Dual Core J1800	2.41GHz	2GB DDR3	Intel HD	500 GB	19.5	Yes	Windows 8.1	25,380
HP	18-1315ix	AMD Zacate APU E1-1500	1.48GHz	2GB DDR3	AMD Radeon HD 7310	500 GB	18.5	Yes	Windows 8.1	28,499
Dell	Inspiron ONE 2020	Intel Pentium Dual Core	NA	2GB DDR3	Intel HD	500 GB	20	Yes	DOS	29,786
HP	18-1206in	AMD Zacate APU E1-1500	1.48GHz	2GB DDR3	AMD Radeon HD 7310	500 GB	18.5	Yes	Windows 8.1	30,494
HP	18-5017in	Intel Pentium J2900	2.41GHz	2GB DDR3	Intel HD	500 GB	18.5	Yes	Windows 8.1	31,011
Dell	OptiPlex 3011	Intel Core i3 3240	3.4GHz	4GB DDR3	Intel HD	500 GB	20	Yes	Ubuntu	33,690



ALL-IN-ONE DESKTOPS (₹35,001 TO ₹50,000)

Brand	Model	Processor	Processor Clock Speed	Memory (in GB)	Graphics	Storage Capacity	Display Size (in inches)	Webcam (Yes/No)	Operating System	Price in ₹
Dell	Inspiron 20 3000 (3048)	Intel Pentium G3220T	2.6GHz	4GB DDR3	NA	500 GB	19.5 (Non-touch)	NA	Windows 8.1	35,390
Lenovo	B340 (57-317781)	Intel Pentium Dual Core G2020	2.9GHz	2GB DDR3	Intel HD	500 GB	21.5	Yes	Windows 8.1	37,490
Lenovo	C360 - 57323210	Intel Pentium Dual Core G3220T	2.6GHz	4GB DDR3	NVIDIA GF 705M	500 GB	19.5	Yes	Windows 8.1	38,340
HP	20-a251ix	Intel Core i3 3240	3.4GHz	2GB DDR3	Intel HD	500 GB	20	Yes	Ubuntu	39,282
Lenovo	C360 - 57322349	Intel Core i3 4130T	2.9GHz	2GB DDR3	Intel HD	500 GB	19.5	Yes	Windows 8.1	41,040
Lenovo	ThinkCentre Edge 72Z (72z-3574KSq)	Intel Core i3 3220	3.3GHz	2GB DDR3	NA	500 GB	20	Yes	DOS	41,800
HP	Pavilion 20-a240IN	Intel Core i3 3240	3.4GHz	4GB DDR3	Intel HD	500 GB	20	Yes	Windows 8.1	43,323
Dell	Inspiron 20 3000	Intel Core i3 4130T	2.9GHz	4GB DDR3	NA	1 TB	19.5	NA	Windows 8.1	44,590
Lenovo	C360 - 57322348	Intel Core i3 4130T	2.9GHz	4GB DDR3	NVIDIA GF 705M	500 GB	19.5	Yes	Windows 8.1	45,763
HP	Pavilion TouchSmart 23-f200in	Intel Pentium G2030	3.0GHz	4GB DDR3	Intel HD	500 GB	23	Yes	Windows 8.1	46,390



Apollo 11 landing site
With this new 3D video, you can actually see where the Apollo 11 has landed on the moon **http://dgit.in/ApolloLandSite**



Diagnose Diabetes Instantly
Researchers have developed a microship that could detect diabetes more accurately in a fraction of time **http://dgit.in/DiabetesChip**



ALL-IN-ONE DESKTOPS (₹50,001 TO ₹75,000)

Brand	Model	Processor	Processor Clock Speed	Memory (in GB)	Graphics	Storage Capacity	Display Size (in inches)	Webcam (Yes/No)	Operating System	Price in ₹
Lenovo	C460 - 57327901	Intel Core i5 4570T	2.9GHz	4GB DDR3	Intel HD	500 GB	21.5	Yes	Windows 8.1	51,710
ASUS	ET2013IUTI-B033M	Intel Core i5 3450S	3.5GHz	4GB DDR3	NA	500 GB	20	Yes	DOS	54,320
HP	Rove 20 - E4X48PA	Intel Core i3 4010U	1.7GHz	4GB DDR3	Intel HD	1 TB	20	Yes	Windows 8.1	54,990
Sony	Vaio J20236	Intel Core i5 3337U	1.90GHz	4GB DDR3	Intel HD	500 GB	20	Yes	Windows 8.1	58,685
Lenovo	C460 - 57324983	Intel Core i3 4130T	2.9GHz	4GB DDR3	Intel HD	1 TB	21.5	Yes	Windows 8.1	59,308
HP	23-h011in - E9U67AA	Intel Core i5 4570T	2.9GHz	4GB DDR3	NVIDIA GeForce GT 710A	1 TB	23	Yes	Windows 8.1	68,699
Dell	Inspiron 23 5000 (5348)	Intel Core i5 4440s	3.2GHz	8GB DDR3	AMD Radeon R7 A265 2GB DDR3	1 TB	23	Yes	Windows 8.1	71,490



ALL-IN-ONE DESKTOPS (ABOVE ₹75,001)

Brand	Model	Processor	Processor Clock Speed	Memory (in GB)	Graphics	Storage Capacity	Display Size (in inches)	Webcam (Yes/No)	Operating System	Price in ₹
Apple	iMac MC812HN/A	Intel Core i5	2.7GHz	4GB DDR3	AMD Radeon HD 6770M	1 TB	21.5	Yes	Mac OS X	78,900
HP	Envy TouchSmart 23-k000in	Intel Core i5 4570T	2.9GHz	2GB DDR3	NVIDIA GeForce GT 730	1 TB + 16GB SSD	23	Yes	Windows 8.1	92,000
Lenovo	A520 - 57317539	Intel Core i5 3210M	2.5GHz	4GB DDR3	NVIDIA N13M	1 TB	23	Yes	Windows 8.1	93,420
ASUS	Transformer P1801/ P1801-B144K	Intel Core i5 3350P	3.1GHz	6GB DDR3	NVIDIA GT730M	1 TB	18.4	Yes	Windows 8.1	1,07,391
Apple	iMac MD088HN/A	Intel Core i5	3.2GHz	8GB DDR3	NVIDIA GeForce GT 755M	1 TB	27	Yes	Mac OS X	1,26,900
Lenovo	A730 - 57320834	Intel Core i7 4700MQ	2.4GHz	8GB DDR3	NVIDIA GT745A	1 TB (8 GB SSHD)	27	Yes	Windows 8.1	1,27,008
Apple	iMac 27-inch	Intel Core i5	3.4GHz	8GB DDR3	NVIDIA GeForce GTX 775M	1 TB	27	Yes	Mac OS X	1,40,200



MINI-PC'S

Brand	Model	Processor	Processor Clock Speed	Memory (in GB)	Graphics	Storage Capacity	Operating System	Price in ₹
G1Thin	PCS Mini PC (Thick Client)	AMD	NA	1GB	Integrated	8 GB Flash	Windows	8,609
Intel	N2820 NUC Kit DN2820FYKH	Intel Celeron N2820	2.4GHz	NA	Intel HD	NA	Windows 8.1	9,594
Dell	OptiPlex FX170	Intel Atom n270	1.6GHz	NA	Integrated	4 GB Flash	Embedded Windows 7	14,000
Intel	NUC Kit DN2820FYKH	Intel Celeron Dual Core	2.39GHz	2GB	Intel HD	500 GB	Ubuntu	16,800
RDP	XL-700	Intel Core i3	NA	2GB	Intel HD	500 GB	Ubuntu	20,500
ZOTAC	ZBOX NANO-ID63-U	Intel Core i3 3227U	1.9GHz	up to 8GB	Intel HD	NA	Windows	24,652
ZOTAC	ZBOX-AD03BR ODD Series	AMD E-350 APU	1.6GHz	up to 8GB	AMD Radeon HD 6310	NA	Windows	28,391
Lenovo	Thinkcentre M73 (Base model)	Upto Intel Core-i7	NA	up to 16GB	Intel HD	up to 1TB	Windows 8.1	28,500
ZOTAC	ZBOX-ID88-U	Intel Core i3 3220T	2.8GHz	up to 16GB	Intel HD	NA	Windows	29,740
Apple	Mac Mini-MD387HN-A	Intel Core i5	2.5GHz	4GB	Intel HD	500 GB	Mac OS X	35,490
Apple	Mac Mini-MD388HN-A	Intel Core i7	2.3GHz	4GB	Intel HD	1 TB	Mac OS X	49,290
ZOTAC	ZBOX EI730	Intel Core i5 4570R	2.7GHz	up to 16GB	Iris Pro 5200	500 GB	Windows 8.1	58,575
Apple	Mac Mini-MD389HN-A	Intel Core i7	2.3GHz	4GB	Intel HD	1 TB	Mac OS X Server	64,490

On the wings of dragons



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"With the help of technology, not only asking exciting questions but also achieving the extraordinary is within the realms of possibility"

Many of us scoff at the fact that India's space program isn't something to boast about. To give you a cricket analogy, if NASA and the ESA are two star batsmen at the crease, throwing the stadium's crowd and television audiences all over in raptures, then India's equivalent space program is like the 12th man running towards the two players with refreshments. We're good, but not great. That we're still busy engaged in a commercial satellite launch race whereas NASA, Russia, ESA and other elite space agencies of the world are capable of greater feats and embarking upon full-scale solar space exploration, is worth a thought.

One reason for this dichotomy is ISRO's focus, not counting the fact that we entered the space race much later than other more established players. India's space program has traditionally focused on technological, scientific and social development issues through enhancing space capabilities. For e.g., we have one of the largest satellite communication networks in the world; we largely use satellites for applications such as national resource management, weather forecasting, communications and defense. Only recently have we shown any foresight in launching space exploration missions, like Mangalyaan, which isn't the same as NASA's Curiosity, and still en route to Mars. Chandrayaan-1 is a good example of Indian space innovation, but even this giant leap in space is only meant for better understanding the origin of our planet's moon, not to search for extraterrestrial life.

Not to say that better understanding the moon is of any less importance. It's a logical first step towards soft-landing unmanned rovers in the near future, and using the moon as a launchpad for deeper space exploration. It's just that the rhetoric around exploring the moon isn't new and definitely not at the same level as the much more thought-provoking and inspiring quest towards the search of extraterrestrial life. Ask yourself what sounds more exciting: Exploring the moon or searching for life beyond our planet? If the same question was asked in a classroom full of school students, which answer has the greater capacity to excite? The search for ET may be a fool's hope in the vast emptiness of interstellar space, but that's far from the point. It's about asking the right questions to unlock the imagination of a generation that ultimately matters. And with the help of technology, not only asking exciting questions but also achieving the extraordinary is within the realms of possibility.

I'm only taking the case of ISRO because it recently launched five foreign satellites from Sriharikota via PSLV-C23 rocket. If ISRO shows the appetite, it too can play a role similar to that of NASA in ushering a technological age in the US after WWII. It's all about asking tough questions, unlocking imagination by giving flight to dreams like we've never experienced here in India. It's not about treating waste water as it enters the sea but about building floating or submerged cities (Rapture from Bioshock, anyone?). We can build a humanoid robot but can it truly be sentient? When can we truly become immortal? (www.2045.com)

Can we turn our backs on some of our country's pressing problems like poverty, social inequality, unemployment, etc? Of course not. But I also think that somehow radical innovations in technology (spurred on by breakthrough feats) is connected to alleviating some of these problems faster and better. After all what is technology if not a means to an end? That is ultimately what lights the blue touch paper, in a matter of saying.

A wiser man once said to me that "Wings can't save you from your plight; it is conviction that gives you flight!" Technology is disrupting almost every aspect of our life – shopping, entertainment, communication, etc. If that disruptive force of technology can't be channeled for the greater good through our educational system and centers of cutting edge research, to inspire people by undertaking challenging feats, and ask truly thought-provoking questions with long-term ramifications, it will all be a big shame.



99 **Bazaar**
The latest and greatest product reviews for an informed buying decision



Nanotech Sniffers
Team at UC Berkeley have discovered a way to sniff out minute concentrations of explosives with nanotech sensors **http://dgit.in/NanoSniffer**

DROID ON A BUDGET

Here is an extensive comparison of some of the major Android smartphones that one can get within a budget of ₹10,000



IMAGING: BAIJU NV

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If we go back a few years, buying a smartphone meant shelling out a lot of money and affordable smartphones sounded like a far-fetched idea. But today a smartphone has not only become a necessity but has also become much more affordable than what it was a couple of years ago. The Indian smartphone market has drastically changed and OEMs have acknowledged the low-price strategy and are drawing in more customers. This is not limited just to the Indian brands, International smartphones makers especially Chinese, are starting to bring in some really affordable smartphones which not only look good, but also have the hardware to work wonders.

So if you are low on budget or are probably planning to invest in your first Android smartphone, then this is the only article you'll need. We have taken some of the most popular smartphones that are available in the Indian market, all of which can be picked up at a street price of under ₹10,000, and we compared them head to head. Thanks to the wide range of handsets in the market, for this test we have smartphones



Wi-Fi in Uber Car
Uber and Google have come together to create uberWIFI for their Black Card in Philadelphia **http://dgit.in/uberWIFI**

Digital Art on Wall
The Framed 2.0 is a display screen in which you could have a digital art store on your wall controlled by hand gestures **http://dgit.in/Framed2**



Motorola Moto E

HOW WE TESTED

Since we have only considered Android smartphones in the same price segment, we applied a straightforward method on all the devices. 20 smartphones from different brands varying in different sizes and specifications were taken for this comparison.

Firstly, we updated all of these devices including the firmware and all the apps so that we get the best performance. Next we test out the capability of the hardware by running benchmarks apps including 3D Mark, Antutu, Quadrant Standard and Smartbench 2012. This isn't the best process to determine the capability of the hardware but it does give us a calculative score to compare with other devices.

Next we charge each smartphone to a full 100 per cent and then play a full HD video at full display brightness and the smartphone connected to Wi-Fi. After one hour we see the drop in the amount of battery to determine how much battery life the smartphone can churn out. To get a fair idea of the graphics capabilities, we play a few games to see if the GPU has enough power to provide a stutter free experience.

Other than the performance capabilities of the smartphones we also carry out day-to-day tasks on them including playing games, listening to music, taking pictures, browsing the internet and more. This also makes us familiar with the UI and helps us determine the stability of the OS.

Last but not least, we check out the design and build quality of every smartphone. We check how good the hardware keys are, the placement of the camera, materials used in the body, how comfortable it is to hold and so on.

Scoring of all the smartphones is done in three sections; performance, specifications and design. All the scores are calculated, some formulas and tech wizardry is applied to produce three winners, the best of the lot, an editor's pick and the one with the best value for money.

sporting 4-to-5–inch displays and even one with a physical QWERTY keyboard.

Almost half of the smartphones in the test run on Android KitKat and while this is a good thing, it will be quite interesting to see the competition react when Google officially rolls out Android One, which ensures direct support from the company to Indian smartphone makers for manufacturing handsets with the latest updates . All of this to be priced at just ₹6,000.



Karbonn Titanium S1 Plus

BUILD AND DESIGN

When it comes to affordable smartphones, the build and design quality are very crucial factors as every OEM cuts down the cost of its smartphone by using low-grade materials. However, since the competition has become really tough, handset makers are forced to bring in some really good and sturdy looking devices to attract customers.

We looked at the overall design of all the smartphones and rated them on various factors including the build quality, touchscreen response, placement, usability and sturdiness of the physical buttons.

The Sony Xperia E1 Dual lives up to our expectations and yet again proves that Sony can make some really attractive looking smartphones. It has a small and chic design with a 4-inch display and slim bezels to make the smartphone fit perfectly in your palm. The plastic body has a textured matte finish which gives a good grip. Sony has also brought back its old charm of music oriented handsets by adding a large loudspeaker and a dedicated key on the top to launch the Walkman app. Overall, the Xperia E1 Dual is a smart looking smartphone and worth the money.

Asus shook us when it launched the ZenFone 5 at a low price point of ₹9,999. The smartphone has an elegant looking design and the plastics used do not look or feel cheap. The best thing about the ZenFone 5 is that it has a 5-inch 720p IPS display which offers decent brightness and contrast levels. Also, there is a textured metal plate underneath the display which enhances its looks. The handset is said to be 5.5mm thick but since it has a curved back it essentially makes the overall thickness go up to about 8mm.


Karbonn Titanium S99

It does fit well in the palm and for an under-10K smartphone; it is definitely one of the most well-built devices.

A lot of people might not fancy indigenous brands but we have noticed a healthy change in the way these brands are making their smartphones. For instance, the iBall Andi 5T Cobalt 2 offers



Intex Aqua Curve Mini

an attractive design thanks to its cobalt-coloured body and a bright 5-inch 720p display. The overall finish of the handset is worth the money and we were happy to see iBall bringing in something attractive for the consumers.

The Micromax Unite 2 has a surprisingly smart looking design with a rubberized plastic back and a full glass plate on the front. Under the protective glass, we have a 4.7-inch display with an 800x480 pixel resolution. The display is an IPS panel and the protective glass over the display gathers a lot of fingerprints and smudges which means you end up cleaning the display once every hour or so. Viewing angles are pretty average, with slight wash in colours when viewed from the sides and frankly speaking, a 720p resolution would have been perfect. The size of the device fits perfectly well in the hand, although, it does feel slightly heavy. The rubberized back gives a nice grip and one hand operations are easy.

For the ones who love to have a physical keyboard, we have added the Spice Stellar 360 which is a touch and type Android smartphone with a full QWERTY keyboard and a 3.5-inch display. The build quality is, however, not that good and the plastics are very glossy. The keyboard does take time to get used to (since we have become accustomed to the touchscreen) and when it comes to practical usage it works well. This could have been a very attractive smartphone if Spice had used better quality of materials.

Taiwan based handset maker HTC has also plunged into the affordable smartphone game by bringing in handsets that don't hurt your pocket all that much. In doing so, the company has compromised on features as well as build quality. The Desire 310 is one of the cheaper options available from HTC and for a budget handset it doesn't look very shabby. The display is a 4.5-inch panel with an 854x480 pixels resolution but surprisingly you don't get



HTC Desire 310 Dual SIM



Lava Iris X1

a light sensor so there is no automatic brightness setting, neither do you get a flash with the primary 5MP camera. HTC has saved its costs by missing out some of the small things that do matter.

For under ₹10,000 the Q1000 Opus looks quite sturdy. It has a very average design and build quality. The back is made out of glossy plastic and a chrome plated edge surrounds the handset. The display offers decent brightness levels although the resolution at 854x480, means pixel density is just 196 ppi, which is quite low for a 5-inch display panel. The touchscreen response is smooth and the hardware keys work perfectly well. The weight and dimensions of the Q1000 Opus seem slightly greater than most of the 5-inch devices out there. But the overall build quality of the smartphone, however, is not so bad in terms of product finish and quality of material.

The looks are quite similar to the Moto G, featuring a plastic design and a curved back with rubberized finish. The back panels are changeable and one can choose from a variety of colours. There is a 4.3-inch LCD with a 960x540 resolution. For the ones who crave a 720p display, you won't be disappointed as the sharpness of the display is quite good. One hand operations are much easier and the handset fits pretty well in the hand. The design and form factor of the Moto E is good for the price it comes at, although it is a bit on the heavy side.

PERFORMANCE

Before jumping onto the hardware performance, let's talk about something that we have been asked about a number of times, "how good is the battery backup?" To determine the capability of the battery and the efficiency of the OS to utilise that battery, we have a simple battery test.

Every smartphone is charged to a full 100 per cent and then we play a full HD video for one hour on the smartphone. The brightness of the display is kept at high and we also keep the smartphone connected to Wi-Fi. Once that is complete, we check the amount of battery that has



Lava Iris 405+



Mi Arm Band by Xiaomi
The Chinese company has revealed its own health-tracking arm band with a 30-day battery life **http://dgit.in/MiArmBand**



Computerised Exoskeleton
ReWalk, a computerized exoskeleton would be able to let paralyzed people walk again **http://dgit.in/ExoReWalk**

FOR THE ONES WHO DON'T FANCY THE DROID

Android has the biggest share of the smartphone market, but there are a number of consumers who find Android a bit cumbersome. Under 10K one can go for the Nokia Lumia 630 (Single SIM) which runs the latest Windows Phone 8.1 update. The Lumia 630 runs on a 1.2GHz quad-core Snapdragon 400 processor with 512MB RAM and also features a 4.5-inch display protected with Gorilla Glass 3 and a 5MP camera. Other good options in the WP bandwagon include smartphones from the newly announced partners Micromax (Win W092 and Win W121) and Xolo (Q900s) which are actually some highly recommended smartphones that don't burn a hole in your pocket. Smartphones running Windows Phone are not only stable, but thanks to the new update, it offers better functionality and a large support of apps.

If you love the old-school physical keyboards, then there is still some hope for you as BlackBerry is still selling the Curve 9320 for under the ₹10,000 price mark. The only major concern with the smartphone is that it is running on the older BB OS 7 which is quite poor in performance.



ASUS Zenfone 5

dropped and determine which smartphone offers the best battery backup.

As you can see, the graph clearly shows that the Asus ZenFone 5 provides the best battery backup thanks to its 2110mAh battery. The smartphone only saw a drop of 12% which in the Android segment is quite good.

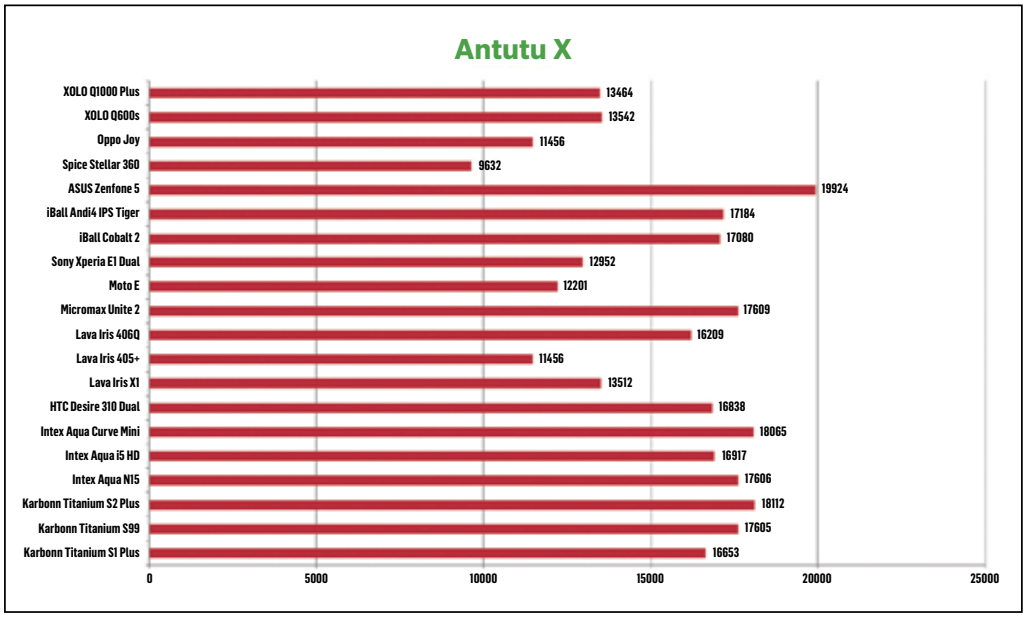
The Lava Iris 406q runs on a Snapdragon 200 quad-core processor coupled with 1 GB of RAM and an Adreno 302 GPU. In the software department, the smartphone runs on Android 4.3 Jelly Bean and is said to get the latest KitKat update as well. The UI is mostly stock with slight customizations here and there including a launcher with customizable settings. The handset comes with pre-loaded apps like flashlight, Snapdragon Battery Guru, a video player, WhatsApp, a bunch of themes and so on. The UI is fairly smooth and everything works quite well. Day to day applications including email, social networking, internet browsing, watching videos, etc. didn't show any signs of slowing down and everything responded well.



Xolo Q600S

The Moto E runs on Android 4.4.2 KitKat which has a stock UI. The smartphone is powered by a Snapdragon 200 dual-core processor clocked at 1.2GHz coupled with 1 GB of RAM and an Adreno 302 GPU. We love the fact that Motorola offers a stock UI and doesn't add any bloat-ware apps. The OS is quite stable and doesn't show signs of slow response. There are no fancy apps or features pre-loaded but you can always get them from the app store. The benchmark results showed that the Moto E isn't a showstopper, however, the 1 GB of RAM allows you to do your daily tasks easily including checking mails, browsing the internet, surfing social media networks, listening to music, etc. Software which have a high graphics processing requirement like high-end games and watching full HD videos work well enough but do put a stress on the hardware.

The Asus ZenFone 5 is a new entrant in the market and runs on Android 4.3 Jelly Bean with ZenUI from Asus. It is fresh looking UI with a bunch of transparent widgets, custom icons, colourful toggles in the notification bar and menus and so on. The lockscreen is also different and allows you quick access to three apps (phone,



camera and messaging) and also adds the calendar app which shows you upcoming events. The good news is Asus has confirmed that the handset will get the new Android KitKat update. Thankfully, the UI is not very heavy and retains most of the basic stock features. It is quite colourful and gave us a fresh change from usual stock UI. Apps work smoothly and even multitasking is done efficiently thanks to the 2GB of RAM that it has. Day-to-day usage is fairly good and we didn't notice any app crashes or anything out of the ordinary. We were quite eager to test the raw capability of the hardware as we wanted to know what kind of performance level the Intel Atom SoC can deliver. The SoC proved to be better than all of the other smartphones that were tested in this comparison as the ZenFone 5 got the highest scores in all the benchmarks, battery test as well as specifications.

The Lava Iris X1 is powered by a 1.2GHz quad-core Broadcom processor with a Videocore GPU IV and 1GB of RAM. The performance on the smartphone is not very super slick and it just suffices for the price even after getting the latest Android 4.4 update. The UI is a bit sluggish and clearly the hardware doesn't provide enough power. Overall, the performance is decent and we really hoped that Lava would've used a better SoC and improved on the stability of the UI.



Sony Xperia E1 Dual

The Xolo Q1000 Opus runs on stock Android 4.2 with nothing special out of the box. The UI runs smooth and multitasking didn't show any hiccups. Xolo has added its own anti-theft and battery management app which can be quite handy. For normal daily usage the smartphone is a good option if you want an affordable Android device. Gaming experience on the Q1000 Opus was surprisingly good. We played Real Racing 3 for some time and we were amazed to see the smartphone handle the heavy graphics well.

Running on a stripped down version of Sense UI on top of Android 4.2.2, the Desire 310 is powered by a 1.3GHz quad-core MediaTek processor with just 512MB of RAM. The UI is


Xolo Q1000 Opus

WHAT MAKES A GOOD BUDGET SMARTPHONE?

So you have saved up enough money to go in for your first smartphone and if you're thinking of buying a smartphone within a budget then there are some points that you should consider before finalising on your device. Since we are talking about budget smartphones, there are some things that you might have to compromise on, but since the competition is getting stiff, the smartphones are getting better and much more affordable.

- **A good-quality display:** Smartphones in the entry level used to be limited to 3.5-4-inch devices, but now one can easily get one with a 5-inch display without having to pay a lot of money. Remember, size is not the only thing that matters, a good resolution is required so that everything looks crisp. Most of the smartphones today offer a minimum of 800x480 resolution but there are also some brands who have brought in 720p displays which is perfect for handheld devices. Another thing to consider is the quality of protective glass over the display, make sure it is strong and doesn't attract a lot of fingerprints.
- **Powerful SoC:** Gone are the days when cheap handsets meant compromising on the power of the hardware. An efficient processor, a good GPU and a substantial amount of RAM is a pre-requisite for any smartphone. A number of OEMs are selling quad-core equipped smartphones with one or even 2GB of RAM on board which not only provides a smooth experience but also improves on multitasking.
- **Avoid old version of OS:** A lot of affordable smartphones run on older software. So be it Android or Windows Phone, try to get a handset that is running on the latest OS update. If you go for a smartphone running on a very old update, there are chances that the device might not get future firmware and app updates. Updates keep your smartphone running smooth and efficient.
- **Good battery pack:** A good battery backup is important especially if you are planning to buy an Android device as it uses a lot of battery. Battery capacity is calculated in milliampere hours and somewhere around the 2000mAH mark should be excellent.
- **Camera:** A good camera has become a necessity and smartphones, even in the budget category, have decent, if not amazing camera modules. Look for a smartphone that offers good low-light capabilities and probably an LED flash to shoot in pitch dark conditions. Also, a smartphone with a front camera is advisable which is useful for making videos calls or the occasional selfie.
- **After sale service:** Invest in something that is offering a good and reliable after sale services. You don't want to invest in something that doesn't offer any support in case you damage your device.
- **Running costs:** While you do save some money on buying a budget smartphone, there are other costs that come into the picture. Remember that smartphones constantly utilise a lot of data, so make sure that you have a proper data plan or better a good Wi-Fi connection.

In the end, it is you who decides what kind of smartphone fits your needs. One might need a smartphone as a tool for communication, while one sees it as a source of entertainment, what your requirement be, do consider these points before you commit to a smartphone.



Track your sleep
Sense is a glowing polycarbonate orb that monitors your sleeping patterns **http://dgit.in/SenseOrb**



10 Best Sniffers
Check out this gallery of ten species of the animal kingdom with the best sense of smell **http://dgit.in/BestSniffers**

BEST BUY digit AUGUST 2014

	 Karbonn Titanium S1 Plus	 Karbonn Titanium S99	 Karbonn Titanium S2 Plus	 Intex Aqua N15	 Intex Aqua i5 HD	 Intex Aqua Curve Mini	 HTC Desire 310 Dual	 Lava Iris X1	 Lava Iris 405+
Price (₹)	**6,490**	**5,990**	**6,990**	**6,090**	**10,990**	**7,290**	**11,700**	**7,999**	**6,999**
HARDWARE									
Rear camera	5 MP	5 MP	8 MP	8 MP	13 MP	8 MP	5 MP	8 MP	5 MP
Front camera	VGA	2 MP	1.3 MP	2 MP	5 MP	2 MP	VGA	2 MP	1 MP
Built-in Flash	Y	Y	Y	Y	Y	Y	N	Y	Y
CPU speed	1.2 GHz	1.3 GHz	1.3 GHz	1.3 GHz	1.3 GHz	1.3 GHz	1.3 GHz	1.2 GHz	1.3 GHz
CPU cores	4	4	4	4	4	4	4	4	2
Operating System	Android 4.3	Android 4.4.2	Android 4.4.2	Android 4.4	Android 4.2	Android 4.4.2	Android 4.2.2	Android 4.4.2	Android 4.2
MicroSD card expansion	Y	Y	Y	Y	Y	Y	Y	Y	Y
RAM	1 GB	512 MB	512 MB	1 GB	1 GB	1 GB	512 MB	1 GB	512 MB
Display size	4-inch	4-inch	5-inch	4-inch	5-inch	4.5-inch	4.5-inch	4.5-inch	4-inch
Display resolution	480x800 pixels	800x480 pixels	480x854 pixels	480x854 pixels	1280x720 pixels	854x480 pixels	480x854 pixels	480x854 pixels	480x800 pixels
Display (PPI)	233	233	195	244	293	217	218	218	233
Battery capacity	1500mAh	1400mAh	1900mAh	1600mAh	2000mAh	2000mAh	2000mAh	1800mAh	1400mAh
Dual-SIM	Y	Y	Y	Y	Y	Y	Y	Y	Y
FM Radio	Y	Y	Y	Y	Y	Y	N	Y	Y
Built-in Storage	4 GB	4 GB	4 GB	1.2 GB	4 GB	4 GB	4 GB	4 GB	4 GB
PERFORMANCE									
Battery Percentage after one hour of video playback	63%	68%	65%	76%	68%	79%	82%	74%	68%
Antutu X	16,653	17,605	18,112	17,606	16,917	18,065	16,838	13,512	11,456
Quadrant Standard	8,423	8,735	8,855	8,839	5,841	7,200	5,983	3,549	3,140
Smart Bench (Productivity)	5,326	4,414	4,314	4,520	4,158	4,120	4,143	3,326	2,171
Smart Bench (Productivity)	3,390	3,199	3,146	2,989	8,192	3,057	3,089	2,147	2,135
3D Mark Ice Storm	4,633	3,252	3,251	3,246	2,965	3,264	3,080	4,429	1,879

all stock with a custom HTC launcher which is loaded with BlinkFeed and some icons with a familiar HTC top to bottom scrolling menu drawer. The performance on the Desire 310 is average and the low amount of RAM makes the OS buggy if you run a lot of apps at the same time.

The Unite 2 from Micromax runs on Android 4.4.2 KitKat and has a stock UI with some customized colourful icons. The handset comes pre-loaded with apps like Kingsoft Office, few games, Micromax's very own app store, and the MAD app which allows you to earn recharge credit by just watching adverts. The handset also supports 20 regional languages which makes it quite useful for folks who like chatting in their regional language. It also comes loaded with all the Google apps and of course Google Now. The UI is light, thus, every-

	Lava Iris 406Q	Micromax Unite 2	Motorola Moto E	Sony Xperia E1 Dual	iball Cobalt 2	iball Andi4 IPS Tiger	Asus ZenFone 5	Spice Stellar 360	Oppo Joy	Xolo Q600s	Xolo Q1000 Opus
											
	7,499	**6,999**	**6,999**	**8,490**	**10,999**	**6,049**	**9,999**	**5,999**	**8,990**	**7,999**	**9,999**
	5 MP	5 MP	5 MP	3.2 MP	12 MP	5 MP	8 MP	3.2 MP	3 MP	5 MP	5MP
	0.8 MP	2 MP	N	N	2 MP	2 MP	2 MP	1.3 MP	VGA	VGA	VGA
	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
	1.2 GHz	1.3 GHz	1.2 GHz	1.2 GHz	1.3 GHz	1.3 GHz	1.6 GHz	1.3 GHz	1.3 GHz	1.2 GHz	1.2 GHz
	4	4	2	2	4	4	2	2	2	4	4
	Android 4.3	Android 4.4.2	Android 4.4.4	Android 4.3	Android 4.4.2	Android 4.2.2	Android 4.3	Android 4.2	Android 4.2.2	Android 4.4.2	Android 4.2
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	1 GB	1 GB	1 GB	512 MB	1 GB	512 MB	2 GB	512 MB	512 MB	1 GB	1 GB
	4-inch	4.7-inch	4.3-inch	4-inch	5-inch	4-inch	5-inch	3.5-inch	4-inch	4.5-inch	5-inch
	480x800 pixels	480x800 pixels	540x960 pixels	480x800 pixels	1280x720 pixels	800x480 pixels	1280x720 pixels	320x480 pixels	800x480 pixels	540x960 pixels	480x854 pixels
	233	199	256	233	293	233	294	164	233	244	196
	1700mAh	2000mAh	1980mAh	1750mAh	1750mAh	1300mAh	2110mAh	1500mAh	1700mAh	2000mAh	2000mAh
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	8 GB	4 GB	4 GB	4 GB	4 GB
	73%	73%	76%	78%	78%	70%	88%	76%	79%	78%	82%
	16,209	17,609	12,201	12,952	17,080	17,184	19,924	9,632	11,456	13,542	13,464
	8,182	8,757	5,090	5,621	5,865	7,193	8,831	2,629	3,188	3,275	3,395
	5,193	4330	2,567	2,739	4,184	4,186	3,827	1,201	2,091	3,015	3,286
	2,487	2,997	2,507	2,706	2,134	3,088	4,342	3,724	2,181	1,991	2,170
	4,627	2,877	4,095	4,150	2,930	2,079	6,528	1,565	2,109	4,336	4,239

thing seems quite smooth and scrolling through the menus and even multitasking was lag-free. However, we weren't fully satisfied with the UI as we think it needs to be a bit more refined. The Sony Xperia E1 packs in a dual core 1.2GHz processor along with a mere 512MB of RAM. The UI, however, is one of the most attractive points of the smartphone as it brings in the elegant Xperia UI on top of Android 4.3. It isn't surprisingly heavy on the hardware and the handset works pretty smooth. Yes, there are minor lags and glitches which is probably due to the low-end hardware. It isn't the best performer but it certainly offers a good looking UI and a hardware which is powerful enough for daily tasks.

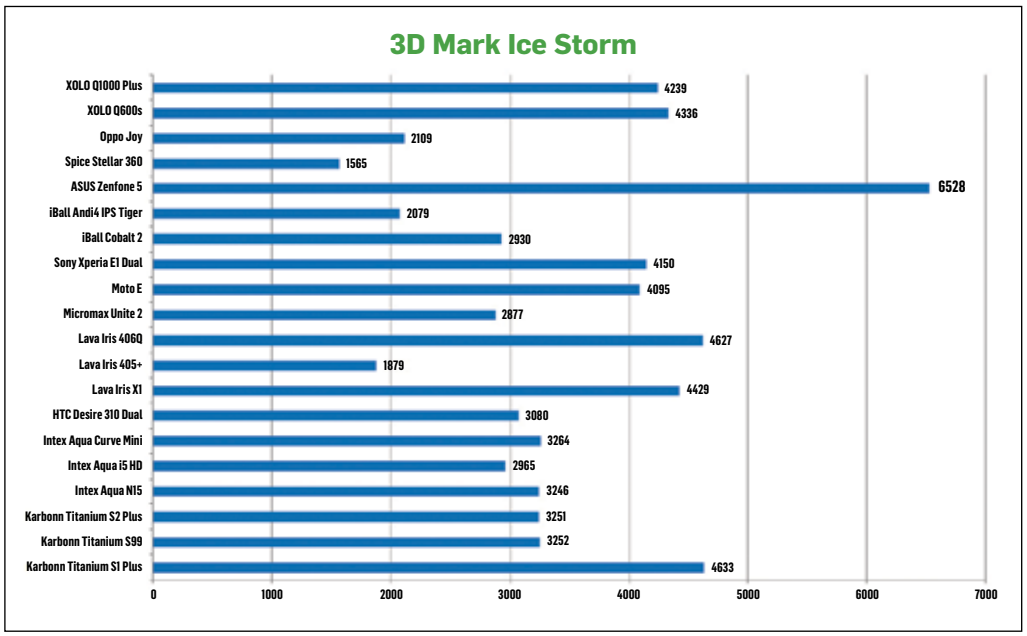
CAMERA

Another crucial feature of a smartphone these days is its capability to shoot pictures.



Detecting drones in network
AirMagnet Enterprises have released a software update which can detect the Parrot AR Drone in WiFi networks **http://dgit.in/AirMagnetWiFi**

Cheap thermoelectric material
Alphabet Energy are planning to sell a new type of thermoelectric material which is abundant, cheap and non-toxic **http://dgit.in/ThermoElec**





Micromax Unite 2 A106



Oppo Joy

While a 5MP camera has become a standard feature, smartphone makers are improving on hardware as well as camera software. A lot of factors come into the picture when we test the camera on a smartphone. There include – how fast the camera software is, whether there is any shutter lag, the quality of the images, the sharpness, the white balance, and low light performance.

The ZenFone 5 comes with an 8MP camera that has an f/2 aperture, an LED flash and also a front 2MP snapper. In the video department you can shoot full HD videos at 30 FPS. Now the primary camera was a bit slow but it does the job well. The camera can handle low light, and even asks you to turn on night mode if there is less light. The camera app UI is fairly simple and includes a number of features and tweaks to enhance your pictures. Overall, the snapper on the ZenFone 5 is well worth the price and probably the best in its class.

The Intex Aqua i5 HD's camera offers a resolution of 13MP which is the highest among all the smartphone that we compared. It manages to get some good shots when shooting outdoors and fairly decent when shooting in low light. The camera can also shoot videos at 1080p which come out to be quite good if you like to shoot videos on occasions. You don't get a lot of settings or tweaks in the camera app but overall the camera on the Aqua i5 does a good job.

The iBall Cobalt 2 comes very close to the performance levels of the ZenFone 5 by providing a 12MP camera sensor. Pictures come out vivid and sharp and focusing is accurate and quick. The only issue we faced was that there is a slight shutter delay when taking pictures. Other than that the camera is quite good. The camera also gives you an option to shoot videos at 1080p as well.


Lava Iris 406Q

WINNERS

After all the thorough testing and tinkering with all the phones we have finalised our three winners.

All the tests made it quite clear that the Asus ZenFone 5 is the Best Performer, it has the best specs with a good design and an equally good build. So the undisputed winner is the ZenFone 5. For the Best Buy Award it was a close call between the Karbonn Titanium S1 Plus and the Intex i5 HD, but we think the Titanium S1 Plus deserves this award as it performed slightly better and the UI seems much more fluid.

For the Editor's Pick award we picked the Motorola Moto E because it disrupted the market and created the whole buzz of affordable smartphones. Also, the brand value of smartphone makes a big impact as consumers tend to go for a reliable company.

Bazaar

THE LATEST PRODUCTS REVIEWED FOR YOU

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

- 10 to 30 **Extremely poor product.** Keep away!
- 31 to 50 **Strictly OK.** Not recommended
- 51 to 70 **Decent product.** Go for it, but there may be better products out there.
- 71 to 90 **Very good product.** Highly recommended.
- 91 to 100 **Ground-breaking product.** We've never seen anything like it before. A definite must buy!



INSIDE


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PLUS

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105 | Corsair H105
106 | Lenovo ThinkPad S1 Yoga



Contact Lens Potential
Other than health tracking, contact lens could also enable night vision and augmented reality
http://dgit.in/ConLens



Bulletproof web tracker
A new method of tracking on the web called Canvas Fingerprinting is almost impossible to prevent **http://dgit.in/CanvasFinPrint**

Zoook Musicana ZM-SP5100

Great budget 2.1 speakers for your PC



For a long time we've been looking for a pair of speakers that would finally manage to dislodge the old faithful F&D F680 as our go-to recommendation for the budget 2.1 segment. The Zoook ZM-SP5100 doesn't really achieve this dream but comes very close to doing it.

The Zoook ZM-SP5100 comprises a boxy subwoofer with a blue LED ring around its front firing driver and two satellite speakers housing 3-inch full range drivers. The satellites are huge compared to the elegant pedestal design ones that come with the F680. A small dome tweeter can be seen in behind the grilles but is only for aesthetic value, we suspect.

The audio signature is bright with the highs slightly enhanced. The bass is a little boomy at times but for the most part what you'd revel in its abundance – great for thumpy dance numbers. The sound quality is ever so slightly less refined compared to the F&D F680. This is most apparent in tracks with high instrument density and in our bass tests we noticed a slight burring of the diaphragm.

Where the Zoook ZM-SP5100 nudges ahead of the F&D F680 is the features department. It comes with a wireless remote that works without needing you to do any yogic gymnastics to point precisely at the receiver. The FM which too works better than most speakers we've seen. It also has USB and SD card as additional sources. With these features and decent performance the SP5100 makes for a great value purchase, its street price likely being even lower.

Siddharth Parwatay



Features 80
Performance 75
Build Quality 75
Value for Money 70

Specifications

Driver: 5.25 in subwoofer, 3-inch satellite; **Power:** 30 W subwoofer, 15 W satellite; **Frequency Response:** 40Hz–20kHz; **Separation:** >= 45dB (1KHz); **S/N Ratio:** >= 80dB; **Input:** 3.5mm, USB, SD, FM

Contact

Zoook
Phone: 011 30890000
Email: sales@zoook.com
Website: http://dgit.in/1oh8Qq3

Lenovo ThinkCentre M73

A tiny, space-saving desktop born for office use



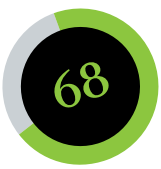
The Lenovo ThinkCentre M73 is a really tiny form factor PC primarily meant for business use. Its dimensions are extremely small, thinner than a golf ball and almost similar to the Mac mini, with a volume of just 1 litre. Of course, it isn't as cute as the Mac mini, but the ThinkCentre M723 is built quite well and feels rugged. It comes with VESA mount support, which lets you fix it on the back panel or stand of any compatible monitor.

The ThinkCentre M73 packs an assortment of connectivity ports on its tiny frame: Two USB 3.0 ports and audio jack on the front; three additional USB 2.0 ports, Ethernet, VGA, DisplayPort, and an optional USB port are available on its rear panel. There's built-in Wi-Fi and a detachable DVD drive which latches on to the chassis' frame, adding two more USB ports. Like the ThinkCentre M72e before it the M73, too, lacks an HDMI port, which is disappointing.

The M73's performance is above average. Everyday multitasking with several apps is a breeze, so is watching the occasional HD movie. The ThinkCentre also consumes lesser power than traditional desktops, helping you save on your electricity bill. The PC comes pre-installed with Lenovo ThinkVantage suite, which is a great tool to simplify managing the PC.

Even though it's sold as a business machine, there's nothing stopping you from buying one of these for your home. Yes, assembling a rig will cost lower, but it won't be as tiny as the M73.

Jayesh Shinde



Features 70
Performance 65
Build Quality 75
Value for Money 60

Specifications

Dimensions: 7.22 x 7.16 x 2.5 inch; **CPU:** Intel Core i5-4570T 3.3 GHz; **RAM:** 4 GB DDR3; **HDD:** 500 GB, 7200 RPM; **GPU:** Intel HD Graphics 4600; **OS:** Windows 8 Pro 64-bit; **Weight:** 1.5 kg; **Accessories:** Wired keyboard and mouse

Contact

Lenovo India
Contact: 1-800-3000-9990
Website: www.lenovo.com/in



Facial Recognition for Cats
New smart cat feeder Bistro helps cat owners monitor their cats eating habits
http://dgit.in/BistroCatFeeder



No Man's Sky Trailer
Check out the announcement trailer for No Man's Sky, which is an impressive exploration game for the PlayStation 4 **http://dgit.in/NoMansSkyVid**

Epson EH-TW8200

A great choice for your home entertainment needs



81

Features 75
Performance 88
Build Quality 85
Value for Money 75

Specifications

Resolution: Full HD; **Native Aspect Ratio:** 16:9; **Color Light Output:** 2400 Lumens; **Connectivity:** RCA, Component, VGA, 2 x HDMI, RS232c; **Power consumption:** 334W (Lamp on); **3D:** Yes, Glasses included; **Speakers:** None; **Weight:** 8.4 kg; **Warranty:** 2 years

Contact

Epson India Pvt. Ltd.
Phone: 1800 425 0011
Email: think@eid.epson.co.in
Website: www.epson.co.in

The EH-TW8200 home entertainment projector from Epson isn't a budget product like the TW5200. It is hands down one of the best projectors we've tested in recent times, with stellar performance and feature tweaks that elevates the TW8200 above most multimedia entertainment projectors out there.

Price ₹2,54,999

The EH-TW8200 isn't really portable at 8.4 kg but it's well-built and its white enamel shell makes it appealing on the eye. The projector's plastic exterior feels well put together, right from its front stands to its heat dissipating grilles. Adjusting its lens for zoom, focus and tilt is intuitive and on-body menu controls are also easy to navigate, no problems whatsoever. Performance is the name of the game on the TW8200, as it's easily one of the brightest projectors we've encountered. It offers a range of viewing modes (and customizations) for getting the best output, no matter what the scenario – gaming, Full HD movie playback, stills, or text. Forget ghosting or lag, this projector has close to exceptional colour range, as per DisplayMate's test results. It's 3D ready and the accompanying glasses make for a nice 3D viewing experience. That's not all, as the Epson EH-TW8200 has an abundance of features hidden in its menu, which goes on and on.

The bundled remote control lets you access a lot of one-click features conveniently. We wish the projector came with in-built speakers, but that's about the only complaint we have from it.

Jayesh Shinde

NVIDIA Battlebox TITAN SR

The biggest and baddest Battlebox in the country

78

Features 80
Build 75

Specifications

CPU: Intel Core i7 4770K; **Motherboard:** ASUS Z87 Pro; **RAM:** ADATA 1600 MHz 16GB; **Graphics card:** ASUS GTX 780Ti DC2OC 3GD5; **Cooler:** Cooler Master Nepton 280L; **Cabinet:** Cooler Master Stryker; **Power Supply:** Cooler Master V1000; **HDD:** Seagate 1 TB ST2000DM001; **ODD:** ASUS BW-16D1HT Blu-Ray; **Warranty:** Acc. to individual products

Contact

Cassette World
Phone: 022 23872034
Email: cassetteworld@aol.in

The Battlebox program is NVIDIA's way of saying that all machines that come with the Battlebox branding are going to be 4K ready and be capable of running the latest AAA titles with all the settings turned up.

We're looking at the TITAN SR in this review. The configuration is quite beefy and given the price, it better be. For its price you get just the components – monitor, keyboard, mouse and audio peripherals are sold separately. Comparing this to the ASUS TYTAN which came out a few years back we see that this doesn't have a separate audio card or a front panel card-reader. The lack of freebies seems to be an unfortunate oversight, too.



Price ₹1,69,450

To get an idea of its performance we ran Tomb Raider, Hitman Absolution and Bioshock Infinite at max settings on Full HD and they clocked 73.7, 53.4 and 132.91 FPS, respectively.

As far as build goes, this is a pretty good configuration that's been put together. The Cooler Master Stryker is a good cabinet, the ASUS Z87 Pro motherboard has support for two-way SLI and three-way crossfire, built-in Wi-Fi and eight SATA ports. Moreover, you always have the option of modifying the components inside since the warranty is honoured for the components individually. If you can afford this, go for it!

Mithun Mohandas



DIY Smart Home Builder
LittleBits have come up with CloutBit which is a module to get internet connectivity on anything **http://dgit.in/CloudBit**



Device to overcome paralysis
A collaborative project to develop a device named Neurobridge was successful that could be a boon to paralysis patients **http://dgit.in/Neurobridge**

Panasonic P81

Just short of the line

Panasonic's first octa core smartphone surprised us in some areas, while being disappointing in others. The phone has the now age old slab-like design, which with the 5.5-inch screen makes it too big. We didn't like how it felt in our hand and neither would it fit nicely in the pocket. Moreover, the Gesture Play lock screen quickly got frustrating when trying to unlock the phone in a hurry. The feature requires you to draw a pattern in order to unlock the phone. Thankfully, this can be turned off.



Price ₹18,990

Panasonic's strength in this phone lies in its camera and performance. The camera took some of the sharpest pictures we have seen, better than competitors like the Micromax Canvas Knight and Karbonn Titanium Octane Plus. Further, the device beat most others in its segment in performance, even outdoing the much higher priced Moto X smartphone. In our tests, it came out with flying colours. The only downside was its 1GB RAM, which sometimes fell short, as games and other apps would crash because of it. Its stellar battery supports extended gaming sessions quite admirably, and without heating up easily as well.

Despite all that, we wouldn't readily recommend that Panasonic P81. Why you ask? Apart from the negatives mentioned above, the UI is not very impressive and takes a long time to get used to. Moreover, at nearly ₹19k, the price seems to be a bit too high. Neither is Panasonic well known for its smartphones, nor is it giving you Android KitKat out of the box, which its competitors do. All these lapses makes this phone hard to recommend, although it is definitely one of the better octa core smartphones available out there. The choice is yours.

Prasid Banerjee



Features 70
Performance 73
Value 70
Design 60

Specifications

OS: Android 4.2.2 Jelly Bean; **Display:** 5.5 inch IPS, 720x1080 res; **CPU:** 1.7GHz MediaTek MT6592 octa-core; **Memory:** 8GB internal, 1GB RAM; **Camera:** 13MP rear with LED flash, 2MP front; **Battery:** 2500mAh

Contact

Panasonic India
Phone: 1800 103 1333
Email: helpline@in.panasonic.com
Website: http://dgit.in/1kXOUnx

Sony SmartBand SWR10

Nifty health buddy

The SmartBand is essentially a health and fitness tracker, which doubles up as a notification tool and media controller. Here is a closer look at the SmartBand SWR10.



Price ₹5,990

The Sony SmartBand has two parts, the core and the band itself. Sony bundles two sizes of the band (small and large), which is a made out of rubber and has a simple clamp to lock the band on your wrist. The band is quite soft and comfortable and fits easily onto any wrist size.

The SmartBand is IP58 water proof and for now the band is only available in black, but Sony has confirmed that new colors will be coming soon. It has a day mode and also a night mode, which can be enabled automatically by either setting a time period in the Smart Connect app or by just long pressing the standalone button. The night mode enables the band to calculate your sleep patterns. You can also customize and control functions on your smartphone by adding Smart extensions to your smartphone. For instance, you can control your music player, shoot pictures, find your phone in case you lose it, all from the SmartBand. This feature is quite handy but takes some time to get used to.

The SmartBand is responsible for providing data for physical activity and works quite well. The best part is that you can use the band when you don't want to take your smartphone. The battery on the core is claimed to last 5 days and it charges completely in just about an hour or so. On usage we found that you can get at least 3-4 days of full battery backup.

If you love to keep a check on your health and love to have an analysis of your daily routine, then the SmartBand is a great companion.

Kunal Khullar



Features 80
Performance 65
Value 85
Design 75

Specifications

Connection: Bluetooth 4.0, NFC, Micro USB (charging only); **Weight:** 21 gm; **Waterproof:** IP58; **Indicators:** 3 LED; **Compatibility:** LG Nexus 5, LG Nexus 4, Samsung Galaxy Note III, Samsung Galaxy S4, Samsung Galaxy S5, HTC One, HTC One M8

Contact

Sony India
Phone: 1800 103 7799
Website: www.sony.co.in



What is Dolby Vision?
The recent advances in displays are nothing compared to Dolby Vision where they are building a brighter and better pixel **http://dgit.in/DolbyVision**



Candle-powered Speakers
Using thermoelectric effect, this bluetooth speaker can run on nothing but burning candles **http://dgit.in/CandleSpeakers**

MSI Z97 Gaming 3

The youngest in the Z97 Gaming series packs quite a punch

66

Features 56
Build 75

Specifications

Chipset: Intel Z97; **Memory support:** 4x3300(OC)MHz upto 32GB; **LAN:** Killer E2205 Gigabit Ethernet; **Audio:** ALC1150 7.1; **SATA:** 6x SATA III; **Expansion:** 2x PCIe X16(x16+x4); **Dimensions (LxWxD):** 305 mm x 244 mm; **Warranty:** 3 years

Contact

Acro Engineering Company
Phone: 11-40525645
Email: saini@amigointernational.biz
Website: http://www.acrotechindia.com

The board has support for 4 DDR3 RAM DIMMs which can be rated at 3300 MHz when overclocked. On a side-note, the H97 Gaming 3 only supports memory modules up to 1600 MHz which is sort of the optimal frequency when considering price-performance gains.



Price ₹12,500 (+Tax)

There are two PCIe x16 slots of which one runs at x16 and the other at x4. So what we end up losing is the ability to use two NVIDIA cards in SLI since NVIDIA mandates a minimum of 8 lanes per card. CrossFire is not a problem since AMD is more accommodating.

We see that this board has six SATA 6 GB/s ports of which two ports share bandwidth with the M.2 port.

There are 4 USB 3.0 ports on the back panel and 2 USB 2.0 ports. A header in the usual place near the motherboard ATX power connector allows for two more USB 3.0 ports. All the audio I/O ports seem to have gold plated contacts though the spec sheets mentions these to be oxygen-free copper.

The audio portion on this board has an isolated power supply but it's up to the user to make use of this feature. The Killer E2205 Ethernet chip which has become a staple on MSI's gaming motherboards makes an appearance on this board as well. The usual buffet of black solid state capacitors, high quality ferrite chokes, big heat sinks etc, does ensure that the baseline is at par with other manufacturers.

Mithun Mohandas

Sony Xperia M2 Dual

Too expensive to like, hit and a miss

65

Features 60
Performance 65
Value 70
Design 65

Specifications

Operating System: Android 4.3 Jelly Bean; **Display:** 4.8 inch TFT with 540x960 pixel resolution; **Processor:** 1.2GHz Qualcomm Snapdragon 400 quad-core processor; **Memory:** 8GB internal storage, 1GB RAM; **Camera:** 8MP rear with LED flash, VGA front; **Battery:** 2300mAh

Contact

Sony India
Phone: 1800 103 7799
Email: NA
Website: www.sony.co.in

This smartphone has a 4.8-inch TFT screen capacitive display, with the trademark Xperia glass finish on the front and back. The Xperia M2 Dual also has rubberised sides in order to provide better grip to the user. Overall, it is an ergonomically built and a nice looking smartphone.

If only that was enough though, since Sony has made some major blunders with this smartphone. To start with, the camera, which is usually the Japanese company's strong area, is way below par on this one. The 8MP shooter provides a lot of colour noise in the pictures even in proper light conditions.

Under low light conditions, the camera is even more disappointing. Considering the fact that many users buy Sony simply for its cameras, this is a major shortcoming. Add to that the fact that the front camera is of VGA quality and you do have to wonder how this device justifies its price tag.



Price ₹19,370

Another hit and miss feature here is the sluggish UI on the Android 4.3 Jelly Bean OS. Now why would you do that, especially after pricing the phone at nearly ₹19k? We don't know, but we do know that at ₹5k lesser, the Moto G offers much better specs and value for money.

The redeeming thing about the Xperia M2 Dual though is that it has a long battery life. It can easily give you a full day under regular usage. People who want better-than-average battery life and good looks can still consider this one, although better alternatives exist.

Prasid Banerjee



Real time lightning strikes
Blitzortung gives the real time lightning strikes all around the world by calculating electromagnetic discharges **http://dgit.in/LiveLightningStrikes**



Flight around the world
Teen finishes flight around the world and might have become the youngest one to fly solo in the 29,000-mile journey **http://dgit.in/YoungFlyer**

Mercury Mifi 3G Router

Well built but needs more work



The product comes out looking good, it's got support for HSPA+ which allows for decent transfer speeds (14.4 Mbps download and 5.76 Mbps upload), if you don't have a SIM enabled device then you can use the USB port for a 3G dongle as well, also you can stick an Ethernet cable in it to make it into a Wi-Fi hotspot, then there is a memory card slot for microSD cards of up to 32GB and lastly the device comes with a 3,000 mAh battery which acts as a powerbank.

The build quality of the device is good, the device as a whole feels solid and has plenty of ventilation holes around the sides to help keep it cool if kept on for extended periods of time. The LED indicator panel on the top had one LED that wasn't bright enough in the model that we had received. To keep the controls simple you have just one button on the entire device to switch between different modes.

The software that comes with the device isn't that great, and that goes for nearly all 3G dongles in the market. But it is functional and it does not come with pre-loaded APN settings for Indian telecom providers but you can find all of those online anyways and the software does allow you to set new profiles. Thus, the setup isn't simple for those who've never used a 3G router before. There is a microSD card slot in the rear right next to the SIM card slot which makes the device a USB storage device. We'd prefer a product to have some customisation for the market that it's going to be sold in and not be shipped straight from the OEM's assembly line.

Mithun Mohandas



Features 50
Build Quality 60

Specifications

HSPA+ 14.4 Mbps DL and 5.76Mbps UL speed; **Micro SD Card Slot** (32GB max); **Supports** 3G HSPA, HSPA+ SIM Card and USB dongles; **Ethernet Support** (RJ45); **Battery:** 3000 mAh; **Warranty:** 1 Year

Contact

Kaizen Infoserve Pvt Ltd
Phone: 80 3243 0234
Email: support_in@kaizeninfoserve.com
Website: http://www.kaizeninfoserve.com

Thermaltake Versa H21

A good case on a budget



The Versa H21 is a simple mid-tower case from Thermaltake and its side-panels are what add a nice look to it. Its build quality is not great but it's just enough for regular builds. What the Versa H21 doesn't have in looks, it makes up for it with ample space. You can easily install a full length graphics card. Dust filters are present everywhere, installation and removal of components is fairly simple. We recorded 47°C, which is high. Buy this case if you're building a low-budget rig but add a fan or two to improve air-flow.

Siddhant Sharma



Features 67
Performance 65
Build Quality 63
Value for money 75

Specifications

Dimension: 429(H) x 209(W) x 480(L) mm; **Motherboard:** ATX, micro ATX, mini-ITX; **Expansion Slots:** 7; **Form Factor:** Mid-tower; **Drive Bays:** (x3) 5.25", (x3) 2.5"; **Cooling:** Rear 1x120mm, Front: 2x120mm optional; **Front I/O:** (x1) USB 3.0, (x1) USB 2.0, Audio jacks; **Weight:** 4.2kg; **Warranty:** 3 Years

Contact

Savera Marketing Agency Co., Ltd
Phone: 9830866800
Email: samit.ghosh@savera.co.in

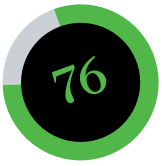
Cooler Master Seidon 120V Plus

Good for liquid cooling



The 120V Plus seems like a refresh of the older 120M which was a decent cooler for its price. Compared to its older brother, the 120V Plus has a pump that draws 3.6W as opposed to the 1.8W drawn by the 120M's pump. There isn't much of a performance difference overall between the 120V Plus and the 120M at all. The only improvement is in the form of the CM JetFlo series 120mm fan that adds a bit of bling with LED lighting and being quieter than the fans CM used previously. Go get it if you want to liquid cool your rig.

Siddhant Sharma



Features 85
Performance 75
Build Quality 80
Value for money 65

Specifications

CPU Support: Intel LGA 2011 / 1366 / 1150 /1155 / 1156 / 775, AMD Socket FM2 / FM1 / AM3+ / AM3 / AM2; **Fan:** Cooler Master JetFlo 120mm Blue LED; **Fan Speed**: 800 - 2000 RPM (PWM) ± 10%; **Radiator dimensions:** 154 x 119 x 27 mm

Contact

Cooler Master Co. Ltd.
Phone: 9820207871
Email: sanket_naik@coolermaster.com.tw



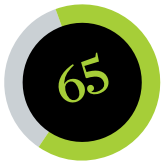
Swiss made fitness tracker
No one creates stylish watches like the Swiss do and now they have added a fitness tracker to one of them **http://dgit.in/SwissFitnessTracker**



Robot speech
Some researchers are trying to develop methods for robots to understand commands through speech **http://dgit.in/RobotSpeak**

Canon MG3570

An excellent photo printer for its price



Cost of Ownership 36
Features 75
Performance..... 84

Specifications

Print resolution: 4800x1200dpi; **Ink droplet size:** 2pl; **Paper Size:** A4, A5, B5, LTR, LGL, 4 x 6", 5 x 7", 8 x 10", Envelopes (DL, COM10), Custum size (width 89mm - 215.9mm, length 127mm - 676mm); **Scan resolution:** 1200x2400dpi

Contact

Canon India Pvt Ltd.
Phone: 1800 180 3366
Email: NA
Website: www.canon.co.in

For someone who just wants to print colour documents at home, ₹6,000 might seem to be a lot. However, if you're even a little bit picky about the quality of your print-outs, then the Canon MG3570 is one that will grab your fancy.



The printer has impressed us with its performance, printing pages of quite excellent quality. The text and mixed document prints were among the best in this class and photo prints were stellar. There are printers that do as good a job, but many of them are more expensive. We did find the photo print time to be painfully long at 300 seconds (full page, A4 on glossy photo paper at best quality), but this is still quite average in this category and we can't really complain.

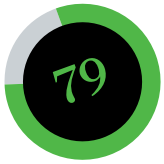
The one thing that's lacking on this printer is a colour screen or display of any sort. It's not a major issue, but it's definitely more convenient to have one on the device, especially if you like to use the device independent of a PC. Coming to the cartridges, the printer requires two, a black and a colour cartridge, as is standard on most home printers. We really wish more manufacturers provided individual colour cartridges but at the moment, there isn't much option. The black and white cartridge will set you back around ₹900 and the colour one by about ₹1300. It's a little high, but the print quality is good and we'd say it's worth it.

If you need a good colour/photo printer, you need not look any further than this.

Anirudh Regidi

Corsair H105

New but not all that different to be honest



Features 85
Performance..... 84
Build Quality 80
Value for money..... 65

Specifications

CPU Support: Intel Socket LGA 2011 / 1366 / 1156 / 1155 / 1150 AMD Socket FM1 / FM2 / AM3 / AM2; **Fan Speed:** 2700 +- 10 %; **Cold Plate Material:** Copper; **Radiator Material:** Aluminium; **Radiator dimensions:** 270 mm x 120 mm x 38 mm; **Warranty:** 5 years

Contact

Corsair Memory
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Website: www.corsair.com

The H105 follows in the footsteps of other all-in-one liquid coolers from Corsair and belongs to the 240mm radiator based category. As far as its design is concerned, Corsair hasn't tweaked much except for the look of the pump and water block combo unit with it now sporting replaceable colour rings around the Corsair logo. Using these rings, you can select from among silver, blue or red colour combinations to match your system's internal colour scheme. Since the H105 doesn't have the i-suffix in its model name, this tells us that it isn't compatible with Corsair's LINK control software which was seen with the H80i and the H100i previously and provided control of the cooling unit via software. The fans supplied with the H105 are of Corsair's Static Pressure or SP120L series and as our experience with using them goes, they're quite loud at full load. Performance results on our test bed pegged the H105 exactly next to the H100i and we saw idle and load temperatures of 29°C and 48°C respectively. Even if you discount the fact that the fans are noisy, there's still a price tag which is very close to 280mm radiator based AIO coolers. As the science behind cooling goes, more surface area equals better heat dissipation, it makes more sense to go for the Corsair H110 available for a couple hundred bucks more, considering performance is all that matters when it comes to cooling.



Siddhant Sharma

Apple Smartwatch Patent
A new patent filed by Apple "iTime" has been spotted about upcoming its smartwatch
http://dgit.in/iTimePatent

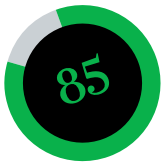


New Steam Controller Design
The Steam Controller announced last year gets a new design with an added thumbstick, nears release
http://dgit.in/SteamCont

Lenovo ThinkPad S1 Yoga

Probably the ultimate business hybrid that balances form vs function nicely





Features 85
Performance..... 85
Build & Design..... 90
Value for money..... 80

Specifications

Display: 12.5-inch, 1920x1080 res IPS panel; **CPU:** Intel Core i5-4200U @ 1.6GHz; **RAM:** 4GB; **HDD:** 1TB, 5400rpm; **GPU:** Intel HD440; **Connectivity:** 2xUSB 3.0, HDMI, SD Card slot, Wi-Fi 802.11ac, Bluetooth; **Stylus:** Yes; **Weight:** 1.6 kg

Contact

Lenovo India
Phone: 1800 3000 9990
Website: www.lenovo.com

Lenovo's Yoga series of laptops has always been held in high regard, as far as tablet-laptop hybrids go. The ThinkPad S1 Yoga is an attempt to convince business users (and common ThinkPad fans) that these two converging product lines can actually merge like a charm, and the result is in front of your eyes.

In terms of looks and design, the S1 Yoga is every inch a ThinkPad. It's not a glamorous, drop-dead gorgeous looking device, but its industrial dark gray look with a matte finish all around works for the people it's targeted at. What's more, it's functional design that's both rugged and innovative. Its unique 360° hinge design is the Yoga's crowning glory, giving the ThinkPad laptop the ability to morph into a tablet. What's interesting to note is the fine attention to detail given to the Yoga's overall metal exterior. For e.g., when you seamlessly tilt the screen all the way back to use the machine in tablet mode, the keyboard's raised keys are pulled in so that they merge into the same plane of the deck. As far as expensive business laptops go we thought the Toshiba Portege Z30t was very well built, but the ThinkPad S1 Yoga easily trumps that experience. The S1 Yoga is slightly heavier at 1.6 kg, but in every other department, it shines right through and exudes great confidence in its build and design.

The ThinkPad S1 Yoga is primarily a business laptop, and to that effect it's great, similar to ThinkPad X-series ultraportables we've seen in the past. But we like the enhanced changes it sports, the raised tiled keyboard and the single-slab touchpad with a nice haptic feedback. In the tablet mode, the keyboard switches off, and you interact with the device like a regular tablet. You can either touch and feel the screen with your fingers or use the smart stylus (which snugly slides into the chassis) to either write notes or point and click. Both ways work very well, due to Windows 8's native touch-input support, on the S1 Yoga, and the stylus is especially one of the better ones we've used.

The spill-resistant keyboard with island-styled raised keys is a joy to type on, not to mention the trackpoint stick addictive as ever once you get to used to it, and the palmrest is much improved in terms of response, texture and performance.

The ThinkPad S1 Yoga comes all the bells and whistles of Lenovo's proprietary software. Lenovo ThinkVantage is a great tool to manage the various software and services installed on the device. Attention is also paid to the video-calling capabilities on the S1 Yoga with a 720p HD webcam and dual-array mic for clearer audio recording to ensure you get good quality business calls on Skype or any other solution you use.

In terms of pure performance, the Lenovo ThinkPad S1 Yoga provides good overall performance. It has a low-voltage CPU which can multitask with 4-5 apps at once, but can't really set the stage on fire. The onboard GPU is capable of casual browser games, if you're waiting for your room, nothing more. But this machine isn't meant for anything more in terms of raw, number-crunching performance.

Where it does surprise is its nice screen quality and brightness, very good for watching movies and reading text (anti-glare coating works like a charm under bright lights, too). The in-built speakers are good for personal entertainment, as they're both loud and largely distortion-free at high volume. But most importantly, the ThinkPad S1 Yoga's battery life is among the best we've pegged in a business laptop, lasting over 200 minutes in our tests, and we think it should last at least over 6 hours of standard use on a single charge.

The ThinkPad S1 Yoga is a very good attempt to mould an iconic laptop into a functional tablet, one that comes with our full recommendation.

Jayesh Shinde

110 **Industry connect**
We speak to McAfee and Yahoo to sense the direction of their respective industry segments



Cloud-based iPhone remote
QBlinks is a cloud-based notification center and multi-use remote controller for your iPhone
http://dgit.in/QBlinks

Alchemists of the Data Era

A new breed of data superhero has arrived, and their numbers are growing by the day. We tell you all about them and how to become one.

Daniel Dmello
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New scientific data techniques are revolutionising how the world works

Imagine you are travelling to work. Your car's navigation unit tells you what route to take based on where everyone else is going. You need to pay your insurance deposit this month. Little do you know that your insurance provider has already predicted the likelihood of a claim based on user and vehicle characteristics. You catch up with email and social media updates on the way. The ads you see have been designed to get the highest clicks based on preferences of million of people. You read though travel reviews for a trip you are planning, and wonder how the most inspiring photos seem to always make it to the top of a review website. You think about work. Your company has to decide how much to bid on a new project, and you need data that will tell you what your competitors are likely to bid. You have a doctor's appointment first, but your doctor has already predicted the probability of you getting sick. Your local government health organisation can tell who is more at risk based on Google searches. You need to visit the grocery store after work. Luckily your supermarket has predicted what customers are going to visit on a particular day and have stocked their aisles accordingly.

This is the era of Big Data, where petabytes of data are being generated because of the scale of tools available to generate them, and because storage is cheaper than ever. Using all this data scientifically in complex ways to answer questions and improve services is what Data Science is all about. Data Science is essentially what moves the word around these days. It spans domains like the environmental and behavioural sciences, healthcare, insurance, genomics, marketing, finance, operations, and technology. Organisations rely on ever improving algorithms and computational models to predict trends and improve products and services. They use computational models to identify the components of a problem and the relationships between them. They use data analysis tools to understand patterns, boundaries, estimate hidden parameters, and predict and retrodict from data. These tools and techniques can also help examine the consequences of unexpected events, tell you when to intervene, which choice is best, what happens when you make a choice, and what happens if you do not.

What isn't Data Science?

Data Science has, too an extent, become an umbrella term for all activities that deal with data, but which are not necessarily scientific. This has led to a debate about what Data Science truly is. Not everyone who works with data is a Data Scientist.

Merely gathering or processing data does not count. So Database Administrators, Data Architects, Systems Engineers and Application Developers, who deal exclusively with tools like Hadoop and noSQL, are not automatically Data Scientists, though Data Scientists could make use of these tools as well. After all, you need to gather and clean data before you analyse it. Business Intelligence (BI) professionals who use tools like SAP are not Data Scientists either, as they merely create dashboards and reports based on pre-conceived notions of how their data is supposed to look. They do not investigate or ask any new questions of their data that require new modelling or analytical techniques.

A true Data Scientist, according to experts, is a cross between software engineer and statistician. It is someone who investigates hypotheses about a data set, and then uses advanced algorithms and applied statistical applications to verify these hypotheses and make inferences. To use these algorithms, they need knowledge of math and stats, combined with computer science and domain knowledge.



Invisible Optical Fibre
Scientists have reportedly found a new way to transmit and amplify light signals without using cables **http://dgit.in/NewOpFibre**



First Arab Mars Mission
The UAE plans to have a mars mission and build an Arab spaceship in 7 years **http://dgit.in/ArabSpaceship**

However, this is not an exact definition, as it encompasses many different jobs descriptions and skills that do not always overlap. For example, a Data Scientist might only run tests on data using enterprise software, another might write a new algorithm to analyse data. Yet another might make inferences based on results from these analyses and spend more time communicating with clients.

This has led to people questioning if we should even be using the term 'Data Science'? According to Ravi Mohan, a Machine Learning programmer based in Bangalore, "Data Science is a fancy name for applied statistics. It is a marketing buzzword...The meaning is too fuzzy to be of any real use." Perhaps it is best not to use the term Data Science at all, and merely use job titles that describe what people in the field do - Programmer, Software Engineer, Data Analyst. But some people find these terms outdated or vague, and Data Science is already a buzzword. For this reason, we will continue using it, but for the purpose of this article, make a distinction between different domains within data science.

Opportunities in Data Science

As mentioned earlier, there is a lot of data coming in, and we need to process and make sense of this. As such, more and more opportunities are being created in data science. In June 2014, NASSCOM projected returns of $7.5 billion dollars from the big data analytics market b 2020. Advisory company Gartner predicts Big Data related jobs to grow by 4.4 million worldwide by 2015.

In India, the job focus so far has centered on another buzzword – Analytics - and more recently, Big Data Analytics, which more often than not refers to a combination of Data Infrastructure, Business Intelligence and Data Science. Though the pay and career progression in Data Infrastructure and BI can be good in its own right, as discussed earlier, these are different fields of expertise.

Looking only at what can be considered Data Science, the majority of work opportunities available seem to target the low hanging fruit, outsourced work at BPOs and KPOS. Tools used here involve SAS and SPSS, and you can expect a starting salary of 5 lakhs a year. This is not bad, but you could be getting a lot more if you know how to code.

All the real data science, the cutting edge work, seems to be taking place at smaller organisations and startups that specialise in advanced analytics, like Fractal Analytics, Mu Sigma, AbsolutData, Manthan, Ananto Analytics and Imagna Analytics. The typical starting salary for someone using a combination of statistical, programming and business knowledge is around 10 lakhs a year. This goes up to 15 lakhs if for those with experience and really good at what they do. A few more years of experience as you grow to be a senior analyst and managing a team can net you 25 lakhs a year.

Desired Skills

Data Science broadly makes use of skills that involve collecting, storing and querying massive amounts of data, analysing it critically using complex computational statistical methods, creating visualisations, coming up with inferences and predictions, and communicating these to others. The two broad types of skills you need are statistical and computational. You need to be able to program better than a typical Statistician, and be able to understand statistics better than the average Computer Scientist.

The major hiring challenge right now for companies in India is finding candidates that posses all these skills. Software engineers are good with different data types and programming, but do not necessarily have detailed knowledge of statistical models, let alone their assumptions, and how to derive inferences from their results. Statisticians are brilliant at this, but their knowledge is highly theoretical; they lack advanced programming skills and have little experience working with different data types. Also, both Computer Scientists and Statisticians lack business domain knowledge that serves as context to understand a problem. For this reason, Indian analytics companies find it easier to hire people with engineering and MBA degrees who have some programming skills, and train them on statistical concepts.

Most companies in India accept a B.E or MSc in Math, Statistics or Economics, and a PhD would be a plus, though organisations abroad tend to be more flexible, letting in people from other fields as long as they have the requisite programming and statistical skills. And India being India, people with a MBA are preferred. Organisations here want people who understand how various business domains work, as this makes analysing data in a specific domain like Finance, Marketing and Operations easier. The communication skills gained during a MBA also makes client servicing easier.

Apart from formal education and degrees, what other skills and certifications are needed? At the lowest level of the data pipeline are the database administrators, people who work on gathering and maintaining data sets. Even though this is not really Data Science, this Data Infrastructure part, where you query data from the web, APIs, and other places, and build a database, comprises useful skills that every Data Scientist should be able to use. Tools needed to perform these tasks include Excel, Macros in VBA, SQL, noSQL, Hadoop, MapReduce, Mahout, Hive and Pig.

Once you have collected and cleaned your data, you will need to perform exploratory techniques on it, like running plots, descriptive statistics and other visualisations, to summarise your data. This helps inform your hypotheses and should be performed before more complex statistical modelling. Finally, you can create and use statistical software and algorithms to model your data so you can make inferences that answer your questions. The most common models used are summarisation tools used to develop concepts,

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It also helps to build a network of other Data Scientists to keep abreast of developments in the field. Some popular Data scientists to follow on Twitter are, @johnmyleswhite, @hmason, @pvanimpe and @DiegoKuonen.

like PCA and clustering, and correlational tools used to find relationships between concepts, like regressions and classifiers. Other popular techniques for more specific purposes are machine learning algorithms, which deal more with writing algorithms to allow computers to work on their own with big data, and decision trees, neural networks and deep learning.

To use these statistical models effectively, it is essential to know the assumptions underlying each one, along with knowledge of advanced Probability, both Frequentist and Bayesian, since this is what most predictive models are based on. Also, since these are computational models, you need to use software to run them, and in many cases improve them. While you could use SAS and SPSS for some of these models, these applications are more commonly used for broad enterprise and academic purposes respectively, and face constraints with respect to flexibility and customisation.

SAS is great for most statistical models, but like SPSS, its main strengths involve data mining, and using well defined run-of-the-mill statistical analyses. While these models meet most of an organisation's needs, they do not let you customise the source code in them, or help your write your own algorithms that make the models better. It assumes that you already know what you can expect from your data. This is fine for a Data Mining job in a BPO or KPO, but there is always scope for developing new models, or using existing models in new ways. For real problem solving, where you might have to come up with completely new and creative solutions and models, you will need to code.

The best coding tools you could use for advanced data modelling are programming languages like R and Python, both of which are free and open source. R is currently the most popular application used in statistical analysis. It has been around for ages and users can make use of its extensive library support, where statistical packages are just a click away. Python is gaining in popularity, but it will be some time before it amasses the library support that R has. However, being a high level language with more flexibility than R, it might be worth investing in for the long term if you are new to the field. But if you already program in R, there is no reason to switch to Python, unless you plan on developing other non-statistical applications. Matlab is popular as well, but requires purchasing a license.

Where to Study

A relevant Bachelor's/Masters degree from a good University is a must. The degree must equip you with skills in an understanding of statistics and ability to program. If not, you could always learn an open source programming language on your own, along with some ability to work with databases.



We are using increasingly complex tools to visualise data

Remember that simply mastering a tool does not make you a Data Scientist. A lot of private coaching institutes have mushroomed across the country feeding into the Big Data Analytics hype, and offering training on SAS, SQL, Hadoop, etc. However, none of these tools will make you a Data Scientist or lead to a career in Data Science without broader statistical, programming and business knowledge.

After formal education, the best place to polish your statistical and data modelling skills is online. A number of free college-level courses on Data Science are available on e-learning platforms like Coursera and EdX. Some of these are basic courses introducing you to the field, while others are advanced and require proficiency in a programming language.

Coursera -

- Duke University - Data Analysis and Statistical Inference - 2 months - http://dgit.in/DukeStat
- John Hopkins University - Data Science Specialisation - 9 months - http://dgit.in/JHopkins
- National Research University - Core Concepts in Data Analysis - 2 months - http://dgit.in/HSECore
- University of Washington - Introduction to Data Science - 2 months - http://dgit.in/WUIntro
- University of Washington - Computational Methods for Data Analysis - 2 months - http://dgit.in/WUComp.
- University of Toronto - Statistics: Making Sense of Data - 2 months - http://dgit.in/UTDataIntro
- University of Toronto - Neural Networks for Machine Learning - 2 months - http://dgit.in/UTNeural
- Princeton University - Algorithms - 4 months - http://dgit.in/PUAlg
- Stanford University - Algorithms: Design and Analysis - 4 months - http://dgit.in/SUAlgo
- Stanford University - Machine Learning - 2 months - http://dgit.in/StanUML
- Stanford University - Probabilistic Graphical models - 2 months - http://dgit.in/StanUPGM
- Columbia University - Natural language Processing - 2 months - http://dgit.in/UCNLP

EdX -

- Karolinska Institute - Explore Statistics with R - 2 months - http://dgit.in/KIExploRx
- Caltech - Learning from Data - 2.5 months - http://dgit.in/CalTechData
- University of Texas at Austin - Foundations of Data Analysis - 3 months - http://dgit.in/UTFounData
- University of California at Berkeley - Introduction to Statistics - 3 months - http://dgit.in/UBStats
- MIT - Introduction to Computational Thinking and Data Science - 2 months - http://dgit.in/MITDS

Display screens with sensors
Makers of Gorilla Glass along with researchers from Polytechnique Montreal are trying to build transparent sensors on display glasses **http://dgit.in/TransparentSensors**



World's first E-ink wall clock
E-ink which is usually used in e-book readers like the Kindle is being used on the Twelve24 ClockONE **http://dgit.in/eInkClock**

Security matters with McAfee

Our first interview with McAfee after they were bought over by Intel. On his maiden visit to India, we spoke with John Giamatteo, SVP and GM, Consumer Business, McAfee on all things related to security, including McAfee India, the fallibility of Android, Bitcoins and how rise of apps and devices is impacting the threat landscape.

Jayesh Shinde
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What's changed for McAfee after the Intel buyout? What's new and exciting as opposed to when you were operating independently?

John: For a period of time the company was operating as a standalone organization within the Intel family. There were a number of projects where we would collaborate, both in terms of software and hardware, and it was low-hanging fruit of collaboration. Towards the end of 2013, and starting Q1 2014, we're starting to see the two companies come together in a much more collaborative way. With the start of the Intel Security Group, that was the step in the right direction in bringing closer the leadership and the performance and the trust of the Intel products from a hardware perspective and bringing McAfee and the software leadership that we have in having security be a pillar of the overall solution and value proposition that Intel brings to the market. In this year, you'll see a much deeper level of collaboration, you'll probably see us launch some products together. At the CPU level, we've some products in the pipeline that share Intel and McAfee technologies.

Any comment on the kind of work McAfee India's doing and how it's contributing to the global vision?

John: The engineers here at McAfee India, working on projects across all parts of the business, are very instrumental to everything that we do as a company. McAfee has strong global partnerships all over the world; companies like HP and Dell on the PC side, Docomo and Vodafone on the mobile side, and relationships with ISPs like



John Giamatteo, SVP and GM, Consumer Business, McAfee

Airtel, Singtel. The team here in Bangalore provides an incredible amount of focus on ensuring that we build the best products and deliver them with our partners in a very comprehensive way that creates values for our partners, us and our consumers in providing protection around the world. The team here does all sorts of different works from partnership implementations to platform engineering and performance fine tuning. That's one of the reasons why we were able to achieve such a good rating on the most recent AV Test. We also do innovations here in McAfee India, coming up with new products and services. We're very excited about mobile, especially in markets like here in India. The team here is definitely the cornerstone and the centrepiece of a lot of that work that we do around the world.

Can you tell me about LiveSafe?

John: We ship it on a direct basis, we ship it with our partners. And we've received very good feedback from the usability standpoint. Since it's a multi-device product, consumers can not only protect their PCs but seamlessly add other devices to their protection. It's a very comprehensive product, and as more devices come online, a product like LiveSafe will be the centrepiece of a cross-device security solution for more and more consumers.

What are some of the unique capabilities of LiveSafe that elevate it above competitors?

John: I think there are a few things that it does really well. The biometrics file locker is a unique capability that really protects the consumer's data in a slightly different way from traditional security software. The other aspect is the ease with each consumers can extend security to other devices through LiveSafe. It literally takes a few clicks from extending security from a PC to an Android tablet or smartphone.

As a platform, has Android become the Windows of PC era when it comes to malware infections?

John: I think it's fair to say that the Android platform – while excellent in many ways – seems to be more susceptible for infections because of its inherently open nature. Which is why a lot of our products attract a lot of interest from Android users.

Do you think the whole concept of Bitcoin malignant in nature?

John: Absolutely. I think all of these things are avenues for some of the bad guys to get in there and do some damage or collect some information that they shouldn't have.

Demystifying the cool new Yahoo!

One of the oldest, most homely destinations on the Web, Yahoo has cleaned its cobwebs and turned a new leaf. Full of renewed vigour and dynamism, the company is starting to wow users once more, and win over new ones. We spoke to Hari Vasudevan, VP & Head, Yahoo India R&D, about how Yahoo's changing under Marissa Mayer, the innovative products it's building and the bold new direction it's headed. Excerpts:

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How have things changed under Marissa Mayer?

Hari: Overall, since Marissa's come on-board, we're treating this very much as a marathon with a combination of series of sprints. The momentum that Marissa's created, especially working with the leadership team to drive a cultural transformation across the company. From things like free smartphones to dramatically increasing the transparency within the company, from how employees work collaboratively with each other to redesigning the workplace for teams to work like startups, all geared towards quickly building and launching products. She's ensured on one hand that there's nothing standing between people being as productive as they can be, but on the other hand focusing on the culture and making Yahoo an innovative and fun place to work at.

How has Yahoo India contributed to Yahoo's recent global success?

Hari: We at Yahoo India R&D don't think ourselves as a separate entity from Yahoo global, for instance, and it's important to understand this difference. All of our teams are very tightly integrated across geographies, especially given the extremely collaborative nature of how we work together. All of our teams here in Bangalore are very tightly interwoven with global teams, and they have been heavily involved in a number of recent Yahoo product launches. To give you a couple of specific examples, with respect to the FIFA World Cup coverage, that's



Hari Vasudevan, VP & Head, Yahoo India R&D

something that our teams in Bangalore have been very actively working on. They've been instrumental in building a truly world class World Cup experience for users globally, not just in India. We also have teams working in areas as diverse as Yahoo Groups, and others working on Yahoo's platform products for content ingestion by helping Yahoo sites worldwide have the best content for display in a very personalized way. Point is that we've teams that span multiple initiatives, that work in very closed collaboration with their counterparts within rest of Yahoo – that can be anywhere from the US to our Taiwan hubs.

How's Yahoo attacking the mobile space?

Hari: If you look at some of the 40 odd acquisitions we've made since Marissa's come onboard, many of them have been with the view of building a very strong mobile talent base within the company. Even if you look at Tumblr, which is one of our biggest acquisitions, it has a strong young demographic that accesses the service through mobile channels. So clearly mobile is extremely important for us and it's critical.

To give you a couple of examples, we released Yahoo Weather last year, which was an absolutely kickass experience that worked in conjunction with Flickr, and it actually went on to win the Apple Design Award. This year we followed it up again with Yahoo News Digest release which also won the same award this year. We're definitely taking a mobile first approach and you're going to see that translated in many of our products. But the overall idea is not just to launch mobile apps but create much more holistic web experiences.

Is search still an important battleground for Yahoo?

Hari: If you look at Yahoo's overall business, we focus on four pillars: Search, Communications, Digital Magazines and Videos. Our approach has been to build the best products in the world across all these pillars. To that effect, search continues to be a critical priority for us, simply because it's the ultimate daily habit. We continue to work with Microsoft in terms of the backend of our search engines and we continue to innovate on the frontend of search very rapidly. Yes, there's tremendous opportunity to innovate on the frontend of search and we continue to experiment with those opportunities on a daily basis.

Read the full, unabridged interview online. Visit http://dgit.in/YahooDigit

114 **Community**
Other than desktop customisations and top picks for games, we have a new section in the community page this month

116 **Skoar!**
We review MotoGP 14, Murdered: Soul Suspect and FIFA World Cup 2014 this month for SKOAR!

Black magic shenanigans

We've all heard tales of Black Magic or as most of us know it, KALA JAADU! Little did we know the heights of ridiculousness humanity had achieved in this niche field. Here are some of the funniest incidences we've come across.



$300 romp gone wrong

In 2011, a woman in Brooklyn decided to acquire the services of a Voodoo practitioner to boost her professional career. The $300 voodoo "ritual" included an night-long romp replete with mumbo-jumbo spells and voodoo candles, one of which got knocked down during the "ritual" and set the entire building on fire.

Voodoo juju for $7.89

You don't have to travel all the way to Africa to get your Voodoo supplies or to consult a practitioner. eBay is where the magic happens, literally. Though eBay has stopped the sale of spells since 2012 you can still buy voodoo paraphernalia for every ritual / spell that doesn't call for animal sacrifices. $7.89 for a 10pc Cambodian curse? Put me down for two!





Got a Black magic Pandit

What happens when an atheist challenges a tantrik to demonstrate his "skills" on live TV? Hours of stupidity! Pandit Surinder Sharma tried to kill Sanal Edamaruku using a multitude of spells from his arsenal including "The Ultimate Death Ceremony" which involves a bout of sex, meat and alcohol followed by chanting the mantra **"Om lingalingalinalinga, kilikilikili..."**



Voodoo Slap!

If you felt that Indian Black Magic rituals were outright dumb then the Africans aren't that far behind. Check out this Voodoo ritual which has the witch doctor bitch-slap the bald head of his possessed patient. The ordeal ends with a grown man crying after receiving 14 slaps on his head from all angles that the demon spirit could've got in. **http://dgit.in/WhackABaldy**

Possessed prisoner

Copping the insanity plea to get off a major charge isn't a new trick. Prisoners have been doing it for many decades but this guy here takes the cake. There isn't much to this video other than the moronic expression that the guy has, which in his mind must've been the scariest thing anyone has ever done in court. http://dgit.in/DemonPrisoner





So what is true Voodoo?

It's a folkway that traces its roots back to West African Dahomeyan Vodun, an ancient set of practices closely associated with religion that has gone evolved into multiple branches. The three prominent ones are African, Haitian and Louisiana Voodoo. The commercialisation aspect only came into the picture in America in the 1930s.



Click with your mind

MindRDR, a Google Glass app, lets you click pictures through your thoughts by focussing on the subject **http://dgit.in/MindRDRGlass**



Sleep detecting car seats

Researchers at Nottingham Trent University are developing car seats which can detect when the driver is falling asleep **http://dgit.in/SleepDetect**

How we unwind



Smite!!

The old addiction is back much to Robert's dismay. Though only two people in the entire office play, the rest do partake is making fun of both Prakrit and Siddharth, who in their own minds are some of the top professional players that the MOBA scene has ever had the pleasure of birthing.

Sacred Games

Vikram Chandra's Sacred Games has not one but two of Digit's finest glued to their kindles flicking pages with bated breath as the suspense builds up. Both Siddharth and Jayesh have been taken in by the book which presents the age old cops-and-robbers theme in a new fashion that involves the 1947 partition and nuclear terrorism.





Mobile Warrior

Regidi went nuts over the month with all the high end mobiles he had to go through. An exercise that started out as exciting took a toll on the fragile mind of the poor soul. By the time we neared issue closing the Regidi's demeanour turned somewhat into that eccentric squirrel (Scrat) from the Ice Age movies.

digit DIARY

It's not so much what happens at Digit that is funny but how it happens that makes everything so much more rib-tickling. For instance this month thanks to Mithun's much despised (and much loved) snooping prowess, we discovered a side to our pudgy pahadi Prakrit that we never imagined existed. As it turns out, behind the rough beady-eyed exterior lies a sensitive bastardised mixture of Nicholas Sparks and Pablo Naruda. Mithun stumbled across the Pony's secret poetry blog and what followed was a loud recital of some of his most private and ostensibly "deep" thoughts. The entire office gathered around for this talk of shame, with the poor Pony wishing he'd practiced his powers of invisibility a bit more ardently as a kid. We won't be cruel and give you actual excerpts because we know how good you guys are at googling stuff. But we will give you what could've easily been part of the same repertoire we discovered:

Quiet is the grave, Consumed by the glow of eden;
Cast into the Elysian Fields, Reverberating wrath;
Ruminating contempt, The livid desire of an infidel.
– Pappu Pakya

The business end of the World Cup spilled over in the first half of last month, and it made for lots of sleepless nights (of the good kind, for a change). World Cup knockout games results were discussed with great enthusiasm between resident football experts, Robert and Jayesh. The others kept themselves entertained with World Cup memes – of which there were a fair number on the Web. Brazil's ignominious defeat at the hands of the mighty Germans shell-shocked Jayesh, while Robert chided the Brazil memes. With no football to look forward to for over a month, both can't wait for the new EPL season to kickoff.

In other news, Abhijit Dey, our new intern a.k.a. he-who-was-born-yesterday, the young eager to please lad that he is, tried really hard to impress us foggies. His attempts at showing off his limited wherewithal resulted in a disastrous stream of blurted spoilers much to the ire of the team and putting a hasty end to many of our YouTube sessions. The atmosphere cooled down (only for a bit) Siddhant "Intern of the Year" Sharma. A battle of wits between these two young padawans ensued, much to the amusement of all of us old cobwebs of the office. West Bengal vs. Rajasthan. Sondesh vs. Mewar Kulfi! Still neither could crack the mysteries of elementary mathematics and claim the crown. As a result, nubile intern blood was shed and yet the answer to eight times two and a half remained out of reach. It was a feeding frenzy unlike any our office rats had experienced in over a year.

Mithun found himself staring at three large-screen touch displays, from Panasonic, Hyundai and LG. As a result, he went about finding innovative ways to interact with these pain-in-the-arm, long-ass display screens. He could be seen from sleeping next to one display one day to striking a padmasana pose in front of another, all the while channeling his inner Pablo Picasso and trying his aching hand at some digital painting. We have pictures but spare the rest of the world to gaze upon and try unravelling the mad artistic genius.

After what seemed ages of constant pestering, Sid finally got himself an eye exam and glasses. Not only can he now thread a needle while keeping both his eyes open at the same time, he can shoot a rat in total darkness and kill hordes of creeps and rival heroes in SMITE thanks to Advanced Peripheral Vision 2.0. We might have exaggerated on the last bit.



Blackest Material created
UK scientists have developed a new kind of material which absorbs 99.96 percent of surface light **http://dgit.in/Vantablack**



World's Largest Dome
With a capacity of 55,000, the Singapore Sports Hub is the world's largest dome structure **http://dgit.in/SingaporeDome**

digit SQUAD

Every month we highlight some aspiring tech writers and their spirited attempt to get published in the magazine. Let's have more!

Groovy desktops and top 5 games



Praneet Sah

Make your desktop your own

Ever wondered that how aww-mazing your desktop could be? It can appear cool and be informative at the same time. If you've seen Iron Man's Jarvis and loved it then you can have your very own Jarvis, sans all the groovy lasers and suit building. You can make that happen as well if you spend enough time programming. Show off your wonderful desktop and elicit jealousy among your friends. The process is quite simple and all you need is a good computer (or else it might crash or slow down) and few minutes. Follow "the golden rule of fiddling with anything", i.e. and backup your files/system before starting out. The following set of software helps give your computer a whole new experience.

#1 Rainmeter: Presently, the best software out there to make your desktop more informative and interactive! Visit http://dgit.in/RainMeter and download the installer, also have look at the stock design that they provide. In a nutshell, Rainmeter is a software which runs other animations/HUDs which will be displayed on your desktop. So to get something better than a vanilla experience you need to customise and for that you can visit http://dgit.in/RMSkins. Here, you can download the desired skin and then run it with Rainmeter. Overall, the screen has multiple widgets and you may click and drag to change their individual positions. You can also draw inspiration from those who make their own skins (http://dgit.in/RMShare) and then give your own creativity a medium to make your desktop the best-in-class.

#2 ObjectDock: Developed by StarDock, they have a pretty amazing set of software to completely change your desktop experience. ObjectDock is basically a clone of the dock that you see in Apple's iMac/Macbook. ObjectDock allows you to put shortcuts for various applications in your dock, which acts as an alternate taskbar. You can get it from http://dgit.in/StarDock although it's not free and will cost you $9.99(₹600). Anyways you can try an alternate i.e. RocketDock which is available for free, although it's a bit old.

#3 WindowFX: It will definitely change your experience with windows. So much that you might spend an awful amount of time minimizing and maximizing windows unnecessarily just to ogle at the transitions. Basically, it animates the transition period when you minimize or close or do something with the app/window. It has got a good library of transitions and will definitely live up to your expectations. Again, this software also comes from StarDock with a price tag of $9.99 (₹600). You can get it from http://dgit.in/WindowFX.

#4 Dexpot: This is also a Mac inspired software, and it enables you to multi-task more efficiently. You can switch between multiple virtual desktops. Although you won't see this directly on your desktop but it definitely serves its purpose of enabling you to multi-task better. You can set the number of Desktops you want and then you can switch between them, and each one of them will give you a whole new desktop, so now you can manage your work in one desktop while gaming in another and entertainment in another; or whatsoever you want. The BIG thing is that, it's Free! Download it from http://dgit.in/Dexpot1

#5 Icon Packager: Bored of the current icon scheme presented by windows? Well you have a solution for that, try Icon Packager which allows you to change the icons for different applications. There is some risk involved in using this software but it works perfectly. And again this software comes from Stardock and you can grab it from http://dgit.in/IcoPack for $9.99. Although it's a good software the problem is that after sometime you'd like to revert to the basic scheme of windows but that's my opinion and not everyone may feel the same way.

If you plan on not taking much risk by installing these software (since they fiddle with your windows settings) or if your computer is not that fast to handle them all, then all you can do is simply have your desktop look neat and clean. First of all, enable auto-hide for your taskbar and place it on the left side of your screen. Secondly, go to desktop and right click > View > Un-tick Show Desktop Icons. All the icons would disappear and it's not as if most people would miss those anyways. Now pin your frequently used apps in your taskbar, which should be in the left side. Now pick few good collection of wallpapers (you can find them online or in the Digit DVDs which you get along with this magazine) and make them your wallpaper. Next you can try out Rainmeter because it won't harm your computer in any manner but it might slow it down; and then everything's done. Also try to have good computer habits like following a systematic pattern and sort all your files into directories that can be easily navigated. Trust me, this helps a lot in syncing your computer with other devices. So go ahead and give these software a go, especially Rainmeter.

Disclaimer The above topic is purely for educational purposes. Do keep in mind that you are modifying core visual components of the operating system and any malfunction could lead to a dysfunctional OS installation that might not book in certain select scenarios. Most of these software enjoy a wide user base and are quite safe. Digit and its parent company are not legally responsible for any outcome that may arise out of the implementation of the above articles in any and all ways.



USB Soldering Iron

Solderdoodle is a USB rechargeable soldering iron which can be charged as a regular USB device **http://dgit.in/Solderdoodle**



Most Powerful Muscle Car

Dodge claims that their Challenger SRT Hellcat is the most powerful muscle car ever **http://dgit.in/DodgeHellcat**

Digit Squad



Tarun Dhaam

Top 5 Upcoming PC Games

PC gaming has been around for a really long time and it really saves you a lot of money, since PC games are generally cheaper than their console counterparts. Also, there is the convenience of downloading them from online stores like Steam, and EA's Origin. PC gaming is also flexible with hardware since you can always upgrade your PC when you feel any sluggishness, that however is not possible in consoles at the moment.

Here are my top picks for Upcoming PC games



TOM CLANCY'S THE DIVISION: The story starts when a disease breaks out on a normal day and destroys the US in 5 days. Our task is to save what's left. The game runs on the brand new Snowdrop Engine from Ubisoft. The environments look very definitive and the whole destructive aspect now involves car windshields that now shatter.
Release Date - 2015



GTA V(PC): This game was a huge blockbuster and it broke some records earning a place in the Guinness book of world records for the most selling video game ever when it released for consoles. Overall, the series as a whole enjoys a huge chunk of the PC sandbox adventure market. The game also has some brilliant visual treats; the water and the clouds look like they are real. The game has 3 different playable characters, each with a unique personality.
Release Date – Nov 2014



CALL OF DUTY ADVANCED WARFARE: This game's development cycle has spanned across 3 years and they even roped in Kevin Spacey for the lead role. The game also boasts of a new exo-suit that will give the player new combat moves, better mobility and long jump distances. The game will also feature wall climbing abilities and an invisibility mode that makes it look like a sci-fi movie.
Release Date - Nov 2014



FAR CRY 4: The events of the game takes place in our very own Himalayas. In the game a country is ruled by a tyrannical king, and it is assumed that the player will be pitted against the same king and try to over throw him.
Release Date - Nov 2014

COMMUNITY CREATIONS

The diverse digit community has quite a few enterprising individuals who've created PC software, websites, extensions, artwork, games and apps. We feature one such enterprising individual each month along with their creation.



Prashant Singh

This 21-year old Instrumentation Engineer from IIT Kharagpur has a knack for figuring out how things work and this is one of the driving factors behind his passion for technology. The whole concept for BuyHatke arose out of frustration when a couple of friends decided to buy a birthday gift which ended up costing ₹600 more than usual.

Together with two other similar minded individuals, this enterprising Digit reader created BuyHatke.com with a mission to deliver the ultimate shopping experience. Currently, the CTO at BuyHatke.com this is one Digit reader we'll be keeping an eye on.

Creation: Compare Hatke

Buyhatke.com is a shopping research portal that gives you price comparison, coupons and related discounts all at one place. It is reportedly used by over 1.5 million people monthly and has also saved over 10 crore for their shoppers with their nifty browser plugin. The browser extension is available for Google Chrome and Mozilla Firefox and once installed it automatically pops into the browser window when you are looking at a particular item. The extension shows prices across multiple sites and also injects statistics into the webpage to show price history and later applies coupon codes automatically at the checkout page. Also, they've recently launched an ios app.





BATMAN ARKHAM KNIGHT: This game will be a sequel to Batman: Arkham Origins, and will probably be the last game in the storyline. In this game the supervillain Scarecrow comes back to Gotham City and gathers a team of villains to kill Batman. This game will have a few tweaks and improvements that Batman fans have always wanted. Batman can finally use gadgets such as Batrangs and the line launcher while flying. Also, a Batrang can be thrown in an area to know more about it, and last but definitely not the least, a drivable Bat mobile.
Release Date - Q1 2015



Siddharth "staticsid" Parwatay
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Murdered: Soul Suspect is a game rife with "what ifs" and "if onlys". What if they'd just utilised the game mechanics better? If only you could follow multiple paths? What if the mystery itself was more gripping? If only these (and many other) whatifs had been addressed the game would've made for much more compelling experience, but as it stands, not so much.



The prologue of Murdered serves to establish the setting of the game: you are a fedora wearing and downright badly dressed ex-con turned cop who is hot on the trail of a vicious serial killer. Following an anonymous tip you end up at an apartment building where the said suspect throws you out of a fourth floor window. For good measure he even pumps six bullets into your chest leaving you obviously dead. But the story doesn't end there, in fact that's where it begins. Following a few ghost movie cliches where you try to punch people and swing right through them, you realise you're now a ghost and hence jump headlong into an otherworldly investigation to discover the identity of your murderer.

The actual mystery solving process is rather unchallenging. You look around the crime scene like you would in any point-and-click thriller, discover objects that have an obvious glow around them (indicating that they're important), and add them to your cache of clues. To move the story forward you put together a handful of relevant clues to answer questions pertaining to the investigation. Now here's the kicker - you can do this any number of times; there's no penalty. So, by a process of trial, error and elimination you can eventually solve the question no matter what.

Game mechanics

The game does have a few interesting "firsts" so to say. For one thing the ability to influence people by possessing them is interesting. However, like most things in Soul Suspects, this too could've been used in a better way but we'll keep that crib aside for now. The ability to walk through walls also fits in well with the whole ghostly theme. As for enemies you have dementor like creatures who can potentially kill you. The only way to escape them is to hide in wisps of ghost residue. To kill them you need to creep up behind them and initiate an execute sequence – this bit does add an element of stealth to the game.

Verdict

The one overarching sentiment from playing Murdered: Soul Suspect is that it is inspiringly uninteresting. The game would only appeal to really young audiences who will perhaps be taken in by the insipid attempts at creating a spooky atmosphere. For us, it wasn't gripping enough to continue to the story's end. *



REVIEWED ON:

- Intel Core i7 2600K @ 3.40GHz
- Kingston Hyperx Beast 16GB Dual-Channel DDR3
- ASRock Z68 Extreme7 Gen3
- 2047MB NVIDIA GeForce GTX 560
- DELL S2740L (1920x1080@60Hz)
- 600GB WD Velociraptor
- 120 GB ADATA SSD
- ASUS Xonar Essence STX
- Windows 7 Ultimate 64-bit SP1

MOAR!

Developer: Airtight Games
Publisher: Square Enix
Platforms: PC, PS 3, PS 4, Xbox 360, Xbox One
Contact: info@expressgames.in
Price: ₹999 (PC)



Football frenzy unleashed

Jayesh "Big Daddy" Shinde
jayesh.shinde@digit.in

Cometh the World Cup, cometh the game. In EA's and FIFA's grand master plan of promoting the ultimate brand of football to fans all over the world, this game's a true ambassador to the cause. If you're going through World Cup withdrawal, there's no better fix than playing this virtual football simulation, a game that transports you back to Brazil in all its frenzy. Doesn't matter if Germany's already won the Cup, because there's no such thing as too many replays, right? And what if you disagreed with how it all went down? It's time to set the record straight.

First things first: EA's FIFA World Cup 2014 is neither FIFA 14, nor is it FIFA 15. If you're familiar with previous FIFA World Cup gaming titles, this one, too, is a one-off spectacle that builds on the experience of its immediate predecessor without changing too many things, and certainly giving no hints of what's to come in the next installment of the franchise. In terms of graphics, this game looks the same as FIFA 14, with the added bonus of new intro, in-game animations, focusing on the theatrical aspects of the game more than the actual gameplay. Having watched the sights and scenes of the World Cup games on the telly, this game does a great job of recapturing the atmosphere we experienced in all of these games.



The game has a nice game mode in Captain Your Country (a la FIFA's Career Mode), where you have to guide your team to the finals. Another interesting mode called Story of Qualifying transports you to real-life qualifying scenarios, making for some exciting matches that help you get familiarized with most of the good teams in the tournament. Road to the FIFA World Cup gives you access to all 203 officially recognised FIFA national teams and you can rewrite history by guiding a minnow (which didn't qualify for the finals) all the way to the crown. All these features are nice to explore, giving you much-needed World Cup lore to look back upon.



As for the gaming engine itself, we liked the subtle refinements made to taking penalty kicks and corners, where you can add more pressure on the keeper and customize team orders and tactics in greater detail. Thanks to subtle improvements to FIFA's Impact Engine, the speed and pace of this game seems to have been tightened ever so slightly to make it a nice experience, overall, and this game is definitely something that you need to play with friends or family who want to be in on the World Cup extravaganza.

Verdict

But at ₹3.5k, this is an expensive interactive entertainment option, one that's worth skipping if you aren't deeply invested in EA's FIFA franchise. But for everyone else, fans of the game and the virtual EA franchise, this is a great way to keep replaying the World Cup on your screens, on weekends, until the start of the new European football season or till the launch of FIFA 15. Nothing more, nothing less. *

MOAR!
Developer: EA Canada
Publisher: EA Sports
Platform: PlayStation 3, Xbox 360
Price: ₹3,499



MotoGP 14

One for the MotoGP loyalists

Siddhant "Ballistic Ant" Sharma
readersletters@digit.in

MOAR!
Developer: Milestone S.r.l;
Publisher: Milestone S.r.l;
Genre: Racing;
Platform: PC, PS3, PS4, PSVita, Xbox 360;
Mode: Single-player, Co-op; Online Multiplayer
Age Rating: PEGI 3 (Provisional)
Price (On Steam): ₹2,400

MotoGP has always been the window into Grand Prix motorcycle racing. With the advent of next-gen (or so they call it) hardware like the PS4, developers have started pushing things up a notch and MotoGP 14 is a result of that. MotoGP 14 includes all the real-world teams, riders and race circuits exactly as seen in the recent MotoGP World Championship 2014. Not only that, the game also incorporates Moto2 and Moto3 classes along with the premier MotoGP class. To say the truth, we didn't have any big expectations from



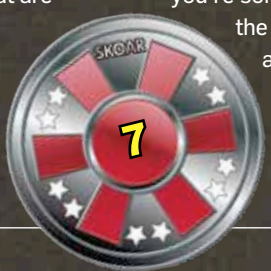
the game considering it was exactly based on the professional motorsport franchise but as it turns out, we were underestimating it, that too by quite a big margin.

Our experience with the racing genre of games has largely been with 4-wheeled vehicles and maybe this is why while playing MotoGP 14 we felt that we were trying to ride a two-wheeled missile and control it in the process on a race track. We say this because when we first tried out a quick race, it was really difficult to control a 1,000 CC bike while navigating a race course and we fell down at corners, were thrown into the air and slipped out to the sides plenty of times (more times than we would like to accept). But this is where the beauty of MotoGP 14 lies and what it tries to convey is that you need to maintain a great deal of control if you want to enjoy the game. It's only after firing up the career mode we noticed that we could take a grip of this game. The career mode puts you into Moto3 instead of directly putting you on MotoGP. And from here you progress into Moto2 and then finally into MotoGP. The bikes in Moto3 seem to provide better grip to the tarmac and the dynamics of understeer are hardly visible due to the fact that the bikes are slow and easy to control.

In terms of gameplay elements, the developers have thrown-in a "rewind" feature which is reminiscent of the "Dirt" series of games. Each race starts off in the garage or the pit where you can take help from your teams engineer and understand which part of your bike works how or tweak parts of your bike. You can also upgrade your bike with parts that are unlocked depending upon your performance on the track. But these turnout out to be a gimmick since they hardly ever realistically affected the bike's performance.

Since MotoGP 14 is essentially a racing simulator, we see an incredible amount of work done when it comes to the in-game physics. The graphics for instance including for the bikes and the circuits look really good but unfortunately these are let down by lacklustre environments which make the game look dated. The atmosphere inside the game simply isn't immersive enough to satiate the appetite of today's gamers. The in-game sound on the other hand, if put plainly is bad; so much so that you would feel all of it is purely made by amateurs using a bad synthesizer. Revving up the engine or braking doesn't sound natural at all which further ticks all the wrong boxes for the game for us.

Different race modes like "Real events", "Challenge the champions", "Time Attack" and "Safety Car" make things interesting but they're not quite enough to rid the game of monotony. If you're someone who gravitates towards the professional bike-racing genre and likes pro-style handling then MotoGP 14 is for you. Read the complete review of the game online here: http://dgit.in/motogp14review. *



A Beginner's Guide to Editing Wikipedia

Umang Raghuvanshi

Wikipedia, one of the first sources we look up while hunting for information on the internet, is community driven. There's only a team of a dozen members or so who manage the technical working of the site. If you're an expert in a certain field, or simply notice an error, it will help other readers if you correct it. Yes, anyone and everyone can edit a Wikipedia article. Quoting the free encyclopedia, "Everyone can edit Wikipedia, because it's Wikipedia"

Before you edit

- You'll need to create a user account on Wikipedia before editing (although it isn't compulsory, it will add credit).
- There are two types of edits possible – a minor edit and a major edit. A minor edit is only a superficial edit that won't change the meaning of the article and ideally shouldn't be cause for dispute. A major edit, on the other hand, changes the meaning of the entire article. We recommend discussing major edits on an article's talk page (accessible via the Talk or Discussion tab) before carrying out the change.
- Wikipedia suggests that authors be bold and imaginative, but should avoid false statements.
- Use references. Edits without them will be rejected.

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If you believe that an article must be formatted perfectly and want to have control over every aspect of its formatting, use the Standard Editor. If you aren't comfortable remembering the entire markup or want to make a small change as editing a full stop, use the Visual Editor.

The ideal article

It's recommended that all articles follow the Wikipedia Manual of Style (WP:MoS), which can be found at http://dgit.in/WPMoS. This is aimed at improving the readability and ensuring consistency. For a concise list of guidelines, you might want to refer to Wikipedia: Simplified Manual of Style at http://dgit.in/SimplifiedMOS. In a nutshell, use simple English, follow grammar rules, avoid flowery language or jargon, and aim to keep the article readable by the layman. A good (good enough to be featured) Wikipedia article usually includes the following parts:

1. **Lead:** The introduction, it needs to summarise the whole page within two-three paragraphs. References are not required here.
2. **Sections:** There can be any number of sections, but they must be titled. Sections form the principal content of an article. Everything written here must be verifiable by a published source. While non-commercial internet sites are allowed, reference books are better. Any fact that isn't widely known or accepted must be cited with the author's name, page number (or URL) and the name of the book/website.
3. **Conclusion:** This is optional, but it's recommended that you give a conclusion to wrap up the article without any loose ends.

Editing

1. Navigate to the article you wish to edit.
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3. Don't be dazed by what you see. It's in Wiki Markup language. This is the language you'll be using to edit. For an exhaustive list of syntax and keywords used, go to http://dgit.in/Wiki_markup.
4. Lastly, mark your edit as 'minor' (if it is), or else it will be considered a major edit. You may optionally choose to monitor the page. Check out the other options and save your edit.

Congratulations, you're now a proud Wikipedian. You've contributed to Wikipedia, the Internet and the world by improving the accuracy of the site and making Wikipedia a more trustworthy source of information. You've reinforced humanity's belief in Open Source and crowd-sourcing.

(The author is a 15-year-old die-hard Digit reader and aspiring writer.)



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QHM-DY70A1
ARRAY



QHM-TY70A1
ARRAY



QHM-TY70A2
ARRAY



600 TVL1/3 Sony CCD

QHM-DY60L2



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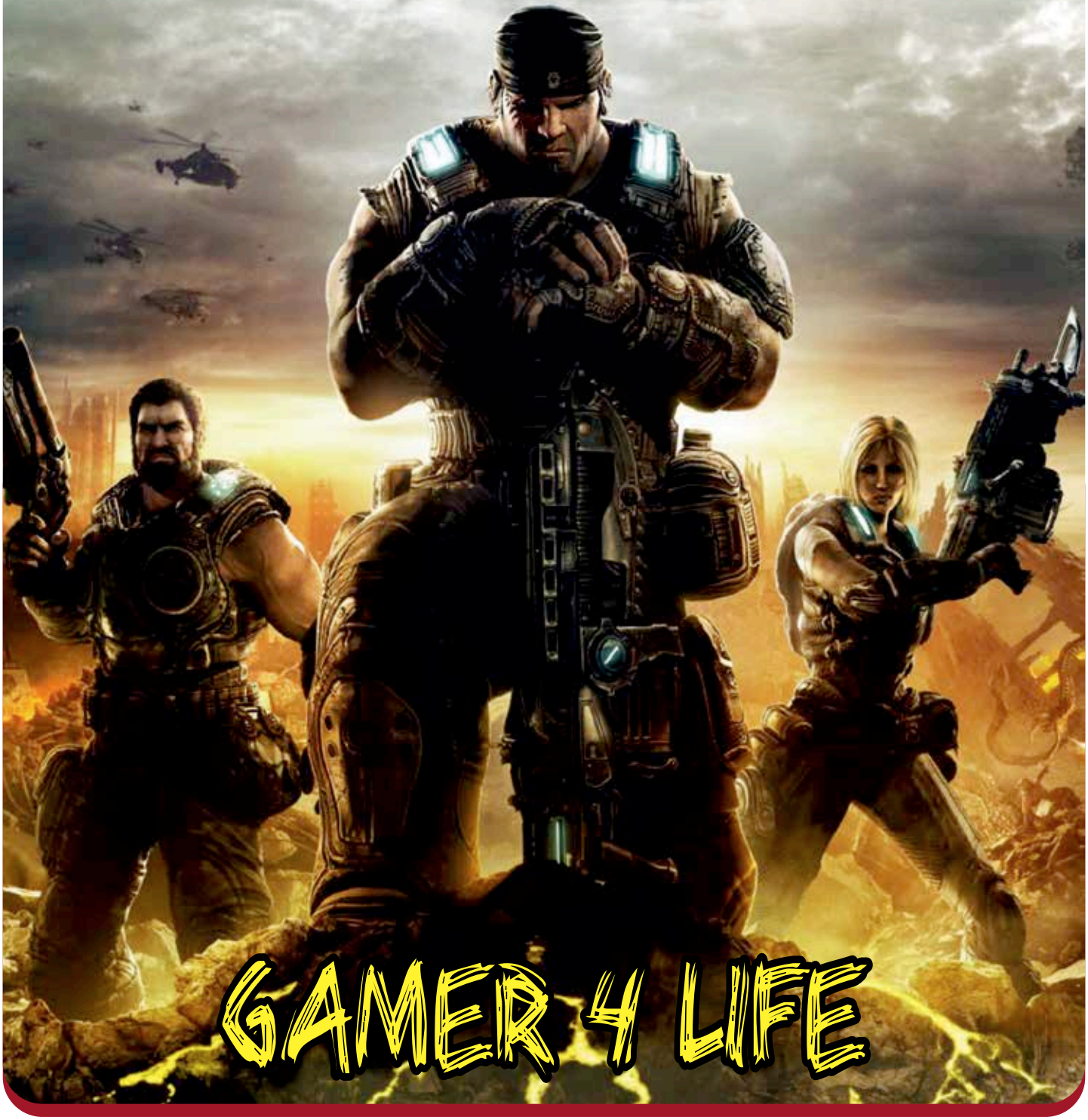
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