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Technology

NEW NETWORK TRENDS

FACULTY CORNER

BIG DATA SPATIAL

ANALYTICS

NEW @ IT

TRENDING NEW

TECHNOLOGIES

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ON CREATIVE DESK

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GERMANY'S 12TH MAN AT THE WORLD CUP TRIUMPH: BIG DATA & SPATIAL ANALYTICS

Binu A - Assistant Professor, DIT

Over the last decade, the football has seen a lot of alteration in the way it is played. At different football academy's, budding players were taught to place inch perfect passes at lightning pace and manage space on the pitch using specific formations and mathematically constructed movement. However, beside their quick mind, players now also benefit from another form of intelligence: big data & spatial analytics.

In preparation for the 2014 tournament, The German Football Association (DFB) and German multinational software corporation SAP developed a custom analysis application called Match Insights, based on SAP HANA technology. SAP HANA, short for "High-Performance Analytic Appliance" is an in-memory, column-oriented, relational database management system developed and marketed by SAP. It runs massively parallel, thus exploiting the maximum out of multi-core processors and subsequently enabling very fast query execution. It helps organizations to prepare Operational Reporting, Data Warehousing, Predictive and Text analysis on Big Data without any data preprocessing and customization.

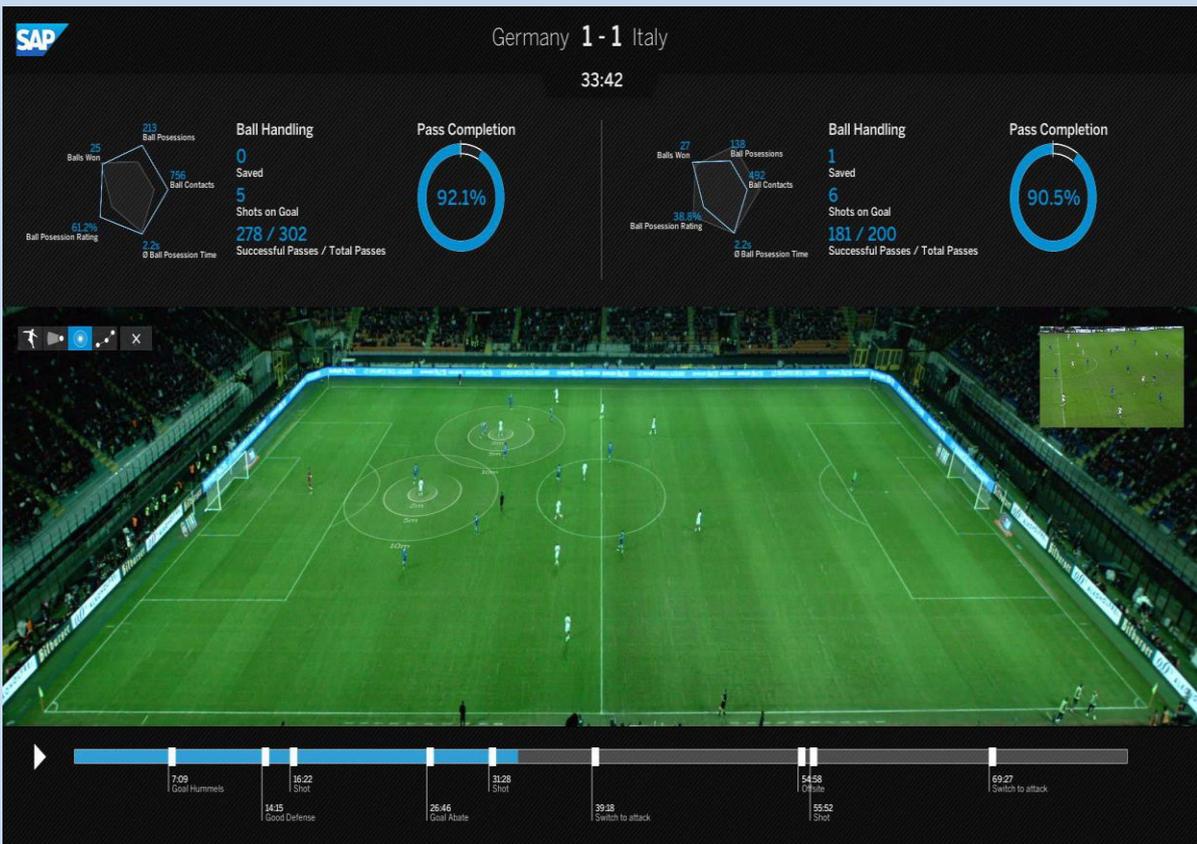
SAP Match Insights helped the German team by processing vast amount of data about members of the team and their opponents, based on their on-field performance. Video data was captured from 8 on-field cameras spread around the pitch and crunched into thousands of data points per second, i.e., Within 10 minutes, 10 players can produce over 7 million data points. The pitch is digitally gridded and each player is assigned a unique identifier which allows the software to track their movements. The distance travelled, movement, direction and speed, possession time, and the number of touches can be measured and stored. That data then goes into an SAP HANA database that runs analytics and then be converted into simulations and graphs that can be viewed on a tablet or smartphone, enabling trainers, coaches and players to identify and assess key situations in each match. These insights enabled coaches to analyze performance metrics, such as player speed, position and possession time. Coaches could then provide feedback to players via mobile devices to help them improve their game.

One of the key targets for the German team in the World Cup was to improve their passing speed. Using the software, they were able to reduce average possession time from 3.4 seconds in 2010 down to 1.1 second in 2014. When it comes to the opposition, Match Insights can identify opponents' strengths and weaknesses and help shape defensive tactics as well. For instance, as it concerns positioning on the field, the

software is able to show the team virtual “defensive shadows” or the area a player can protect with his own body.

Big Data and spatial analytics is an incredible resource for coaches and players to contextualize information and draw well-informed conclusions to optimize training and tactics. Soccer is among the growing list of sports being transformed by Big Data. The use of data and statistics to gain a competitive advantage has grown across a wide range of sports including basketball, tennis, and cricket.





NEW NETWORK TRENDS

Minu Cherian - M Tech N.E(S2)

Today the world is changing faster than ever imagined. Now a day's networking field grows in a surprising way. The world is fully covered by network. And everybody takes the advantage of networks.

Of all the technology trends on this list, cloud computing is one of the more interesting and in my opinion, now least controversial. While there are far more reasons to adopt cloud technologies than just cost reduction.

IT organizations are struggling to keep pace with changes in cloud computing scale, global reach, and analytics. Business agility, vendor choice, and access to next-generation architectures are all benefits of employing the latest cloud computing architectures, which are often radically advanced compared to their traditional enterprise brethren.

Fast IT provides Internet of Everything is bringing together people, process, data, and things to make networked connections more valuable than ever before. However, the challenges of complexity, speed, and resiliency are likely to intensify. Internet of Everything creates tremendous opportunity. A new model for IT, Fast IT, transforms your IT infrastructure, making it more flexible, automated, simple, and secure.

Another interesting thing of network is internet of Things (IoT) .Internet of Things (IoT) is the network of physical objects accessed through the Internet, as defined by technology analysts and visionaries. These objects contain embedded technology to interact with internal states or the external environment. So that the objects can sense and communicate, it changes how and where decisions are made, and who makes them. IoT is connecting new places such as manufacturing floors, energy grids, healthcare facilities, and transportation systems of the Internet.

Another interesting fact is Cisco Technology Radar to identify and track novel technologies and trends emerging around the world. Some of the Technology Radar trends they are closely monitoring are Growth of Encrypted network Traffic, Network Simplification, Dynamic Spectrum Access, Predictive Context, Real-Time Analytics, and Fog Computing.

Big Data plays an important role in business. Businesses are drowning in data more than ever before, yet have surprisingly little access to it. In turn, business cycles are growing shorter and shorter, making it necessary to "see" the stream of new and existing business data and process it quickly enough to make critical decisions. The

Indian Prime Minister Narendra Damodardas Modi and the US President Barack Obama use Big Data for election. Challenges to adopting big data are requirement of many new skills and meaningful use of big data.

CORTANA

Aravind S (S7 IT)



Microsoft Cortana is an intelligent personal assistant developed by Microsoft Corporation for their new Windows 8.1 system. Cortana uses artificial intelligence technology as its heart of operation. It's considered to be the key ingredient in the future of operating systems in Windows platform.

It works on Bing search engine. The name Cortana was termed after the artificial intelligence character in the Halo video game series. Cortana was first introduced in the Microsoft Build Conference on April 2014.

FEATURES

- Capability to set reminders, recognize natural voice without having to input a predefined series of commands, and answer questions from Bing.

- Stores personal information such as interests, location data, reminders and contacts in Notebook for later access. Cortana will be able to draw upon and add to this data in order to learn specific patterns and behavior shown by the user.
- Cortana also features a “do not disturb” mode in which the users can specify quiet hours. Users can also set settings so that they will be called by their nick names.

WHERE IS CORTANA

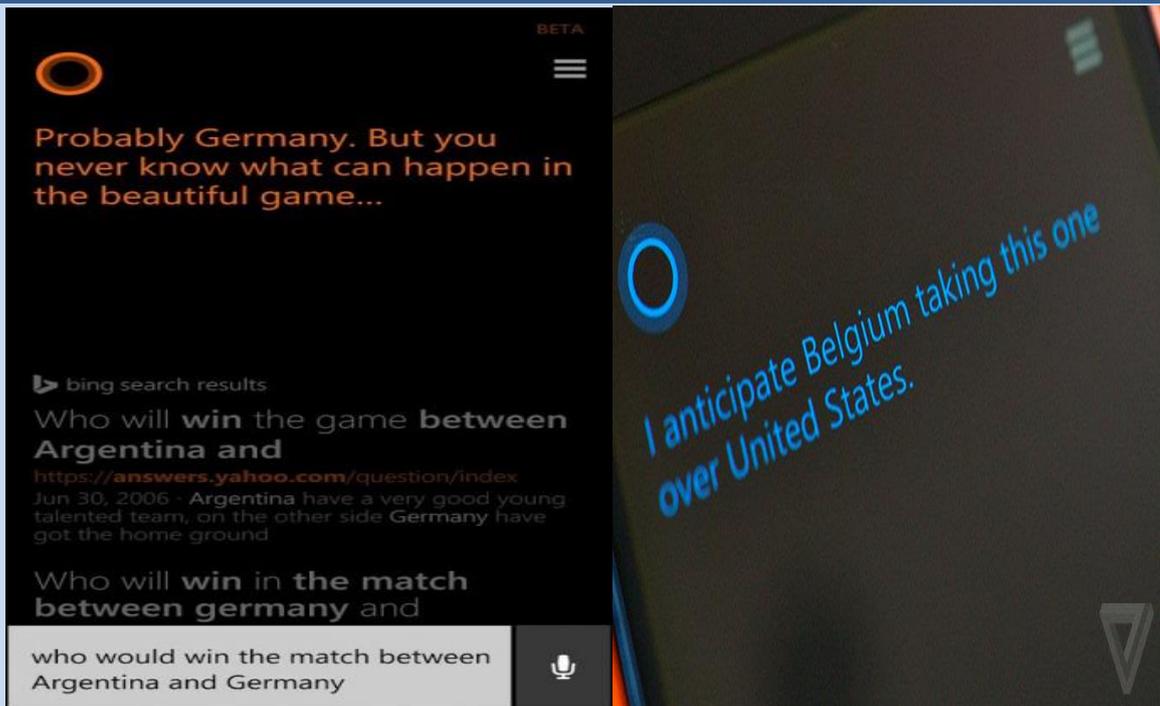
You can reach Cortana in three ways:

1. Press the search icon button- You'll see Cortana greet you. Swipe up to see your interests, or tap the microphone to speak to her.
2. Tap the Cortana tile on the start screen- This takes you straight to the interests and Cortana is ready for you.
3. Press and hold the search icon button-Cortana will begin listening no matter what you're doing on your phone, even while the phone is locked. You'll always be able to tell when she's listening, because her icon will look different from the normal one.

CORTANA SETTINGS



CORTANA AND FIFA WORLD CUP 2014



Cortana was able to predict all the matches of the FIFA world cup accurately. This streak has topped Paul the octopus who correctly predicted the 7 matches of Germany FIFA world cup held in 2010 in Germany.

IoT - INTERNET OF THINGS

Anjali S Thomas (S7 IT)

One of the latest buzz in the world of technology is the Internet of Things (IoT), aka Cloud of Things, which refers to the interconnection of numerous uniquely identifiable devices within the existing internet infrastructure. It's a scenario where objects are provided unique identifiers and the ability to transfer data over the internet without any human-to-human or human-to-computer interaction. IoT brings together wireless technologies, micro-electromechanical systems and the internet.

without the support of IPv6; and consequently the global adoption of IPv6 in the coming years will be critical for the successful development of the IoT in the future.



With the embedded computing nature of many of the IoT devices, it's likely to have low-cost computing platforms. In fact, to minimize the impact of such devices on the environment and energy consumption, low-power radios are likely to be used for connection to the Internet. Such low-power radios do not use Wi-Fi, or well established Cellular Network technologies, and remain an actively developing research area. However, the IoT will have higher order computing devices other than embedded devices, to perform heavier tasks like routing, switching, data processing etc.

“Today computers -- and, therefore, the Internet -- are almost wholly dependent on human beings for information. Nearly all of the roughly 50 petabytes (a petabyte is 1,024terabytes) of data available on the Internet were first captured and created by human beings by typing, pressing a record button, taking a digital picture or scanning a bar code.

The problem is, people have limited time, attention and accuracy -- all of which means they are not very good at capturing data about things in the real world. If we had computers that knew everything there was to know about things -- using data they gathered without any help from us -- we would be able to track and count everything and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling and whether they were fresh or past their best.”

The Internet of Things as explained by Dr. John Barrett in his TED talk.



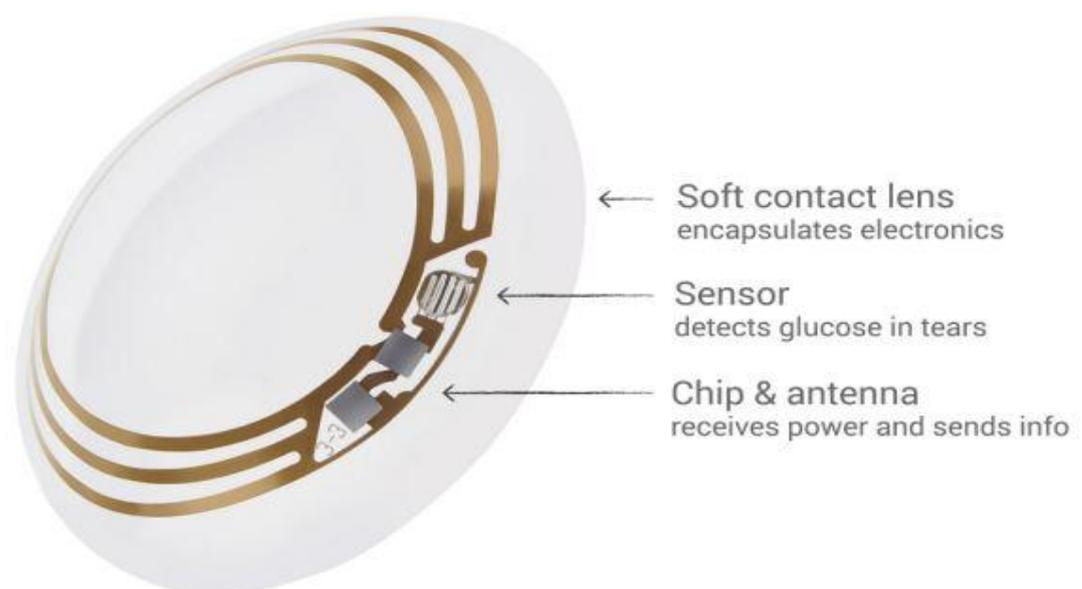
Ashwin Antony (S5 IT)

Google has signed a deal with the health giant Novartis to produce its ground breaking smart contact lens which will help diabetic patients to track their blood glucose levels or restore the eye’s ability to focus. The deal is to first involve the smart lens, and follow several deals to work with other manufacturers on Glass, the firm’s wearable computer.

“Our dream is to use the latest technology in the miniaturization of electronics to help improve the quality of life for millions of people”, said Sergey Brin, Co-Founder of Google.

The device for diabetics would measure glucose in tear fluid and send the data using wireless technology to a mobile device. The technology is potentially life-changing for many diabetic patients, who prick their fingers as many as 10 times daily to check their body's production of sugar. Success would allow Novartis to compete in a global blood-sugar tracking market that is expected to be worth more than \$12 billion by 2017, according to research firm Global Data. Diabetes afflicts an estimated 382 million people worldwide. Many people with Type 1 diabetes and some with Type 2 diabetes monitor their blood glucose level to help manage their condition and reduce the risk of health complications such as amputation and blindness. Simon O'Neill, director of health intelligence at the charity Diabetes UK, said the field would "welcome any investment in new technology that might one day have the potential to make this easier for people or to offer them more choice". He added, however, that without knowing more about this technology "we have no idea how likely it is to develop into something that is routinely available or how long this might take to happen".

The second element of the [Google](#) agreement is focused on presbyopia, in which ageing eyes have trouble focusing on close objects. Novartis hopes the lens technology will help restore the eye's ability to focus, almost like the autofocus on a camera. The chip includes a sensor, chip and antenna to let users know when their glucose levels are dangerously low. For people living with presbyopia who can no longer read without glasses, the smart lens has the potential to provide accommodative vision correction to help restore the eye's natural autofocus on near objects in the form of an accommodative contact lens or intraocular lens as part of the refractive cataract treatment.

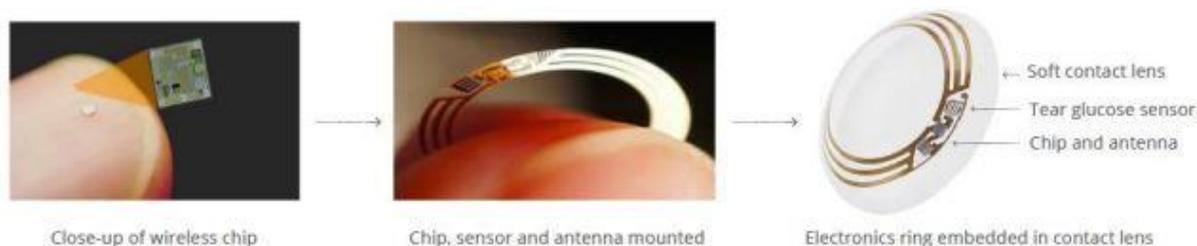


"Alcon and [Google](#) have a deep and common passion for innovation", said Jeff Gorge, Division head of Alcon.

By combining Alcon's leadership in eye care and expertise in contact lenses and intraocular lenses with Google's innovative 'smart lens' technology and ground breaking speed in research, they aim to unlock a new frontier to jointly address the unmet medical needs of millions of eye care patients around the world.

Earlier this year it was revealed Google has patented a smart contact lens that could see its Glass wearable computer fit inside a smart lens, opening the possibility of its Glass system being shrunk down significantly, offering features such as 'super zoom' to wearers. According to Patent Bolt, the system could even be used to help the blind see.

'For example, a blind person wearing Google's contact lens with a built-in camera may approach an intersection while walking on a sidewalk. The analysis component of the contact lens can process the raw image data of the camera to determine processed image data indicating that the blind person is approaching an intersection with a crosswalk and establish that there is a car approaching the intersection. The lens also has wireless capabilities allowing it to link to a Smartphone, which can be used to process data and give the user audio commands. Google also says the system will be able to detect faces, potentially allowing the blind to recognize people.



Non-invasive sensors, microchips and other miniaturized [electronics](#) would be embedded into the contact lenses.

Under the deal, Novartis's Alcon eye care unit will further develop and commercialize the lens technologies designed by Google, the American company's development team. Financial details were not disclosed. The alliance comes as drug makers explore ways for technology to reshape healthcare, helping patients to monitor their own health and lowering the costs of managing chronic diseases.

In turn, technology companies such as Apple, Samsung Electronics and Google are trying to find health-related applications for wearable devices.

Novartis Chief Executive Joe Jimenez said he hoped that a product could be on the market in about five years.

"This really brings high-technology and combines it with biology - and that's a very exciting combination for us, I think you're going to see more and more areas of unmet medical need where companies like Novartis are going to take a non-traditional approach to addressing those needs.", said Jimenez. Although the licensing deal is only for the eye, Jimenez said the drug maker was also thinking about how technology could be applied in other areas, such as remote patient monitoring in heart failure.

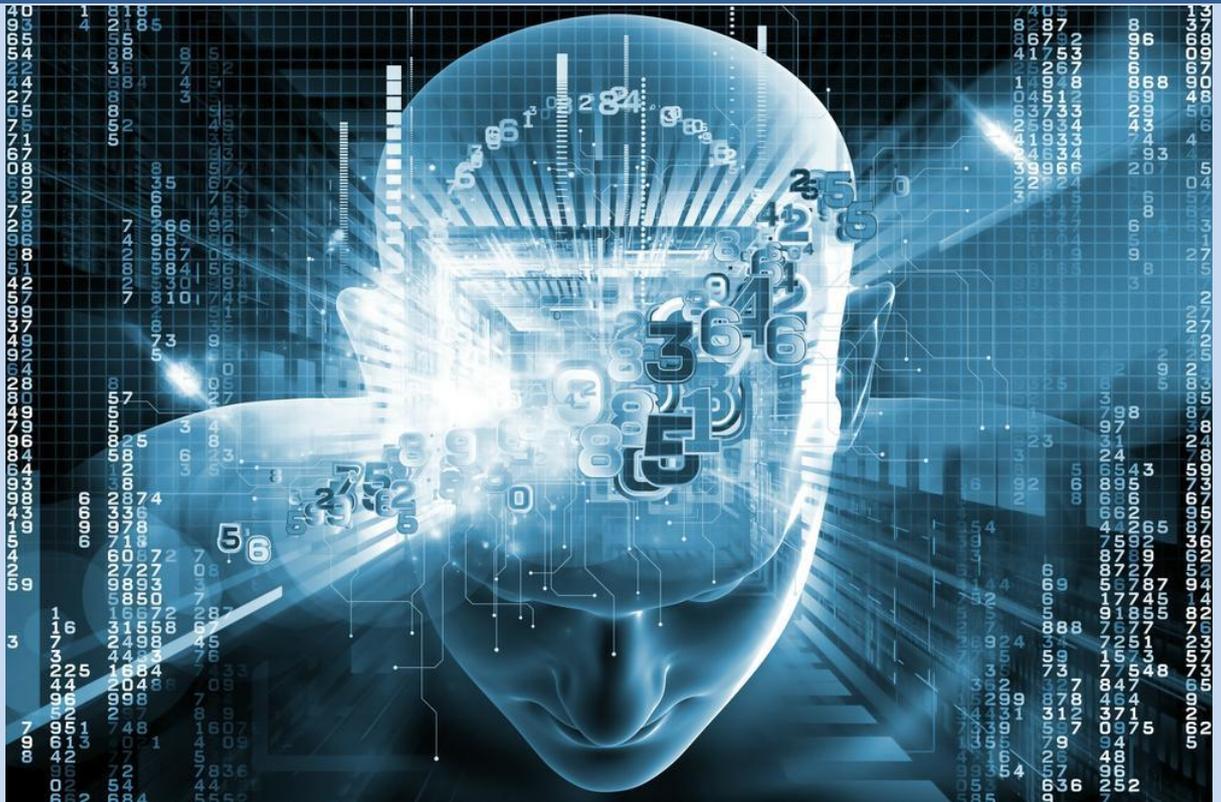
FUTURE OF ARTIFICIAL INTELLIGENCE

Parvathi Ramesh (S5 IT)

In recent years the mushrooming power, functionality and ubiquity of computers and the Internet have outstripped early forecasts about technology's rate of advancement and usefulness in everyday life. Alert pundits now foresee a world saturated with powerful computer chips, which will increasingly insinuate themselves into our gadgets, dwellings, apparel and even our bodies.

Yet a closely related goal has remained stubbornly elusive. In stark contrast to the largely unanticipated explosion of computers into the mainstream, the entire endeavor of robotics has failed rather completely to live up to the predictions of the 1950s. In those days experts who were dazzled by the seemingly miraculous calculation ability of computers thought that if only the right software were written, computers could become the artificial brains of sophisticated autonomous robots. Within a decade or two, they believed, such robots would be cleaning floors, mowing our lawns and, in general, eliminating drudgery from our lives.

Obviously, it hasn't turned out that way. It is not the mechanical "body" that is unattainable; articulated arms and other moving mechanisms adequate for manual work already exist, as the industrial robots attest. Rather it is the computer-based artificial brain that is still well below the level of sophistication needed to build a humanlike robot.



Nevertheless, the decades old dream of useful, general purpose autonomous robots will be realized in the not too distant future. The single best reason for optimism is the soaring performance in recent years of mass-produced computers. Through the 1970s and 1980s, the computers readily available to robotics researchers were capable of executing about one million instructions per second (MIPS). Each of these instructions represented a very basic task, like adding two 10-digit numbers or storing the result in a specific location in memory.

The challenge facing robotics is to take general-purpose computers and program them to match the largely special-purpose human brain, with its ultra-optimized perceptual inheritance and other peculiar evolutionary traits. Today's robot-controlling computers are too feeble to be applied successfully in that role, but it is only a matter of time before they are up to the task.

Of course, computers and robots today fall far short of broad human or even animal competence. But that situation is understandable in light of an analysis that concludes that today's computers are only powerful enough to function like insect nervous systems. And robots do indeed perform like insects on simple tasks.

Ants, for instance, can follow scent trails but become disoriented when the trail is interrupted. Moths follow pheromone trails and also use the moon for guidance.

Similarly, many commercial robots can follow guide wires installed below the surface they move over, and some orient themselves using lasers that read bar codes on walls.



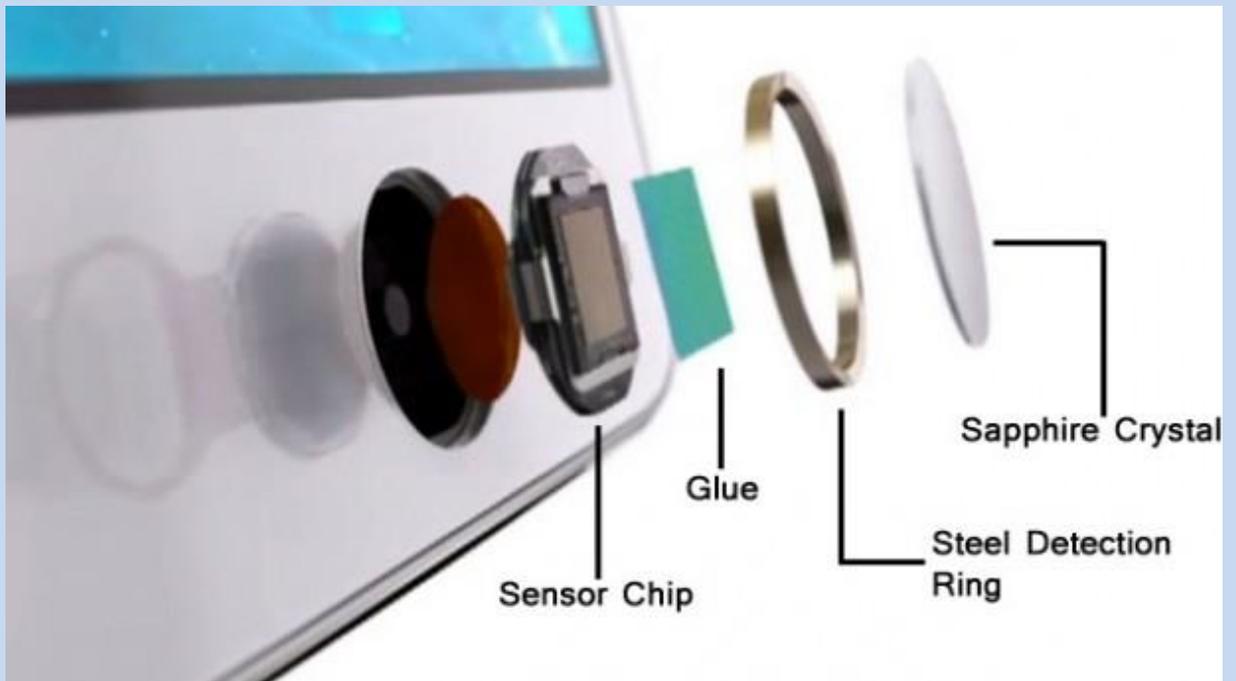
Properly educated, the resulting robots will become quite formidable. Entire corporations will exist without any human employees or investors at all. Humans will play a pivotal role in formulating the intricate complex of laws that will govern corporate behavior. Ultimately, though, it is likely that our descendants will cease to work in the sense that we do now. They will probably occupy their days with a variety of social, recreational and artistic pursuits, not unlike today's comfortable retirees or the wealthy leisure classes.

UNLOCK YOUR WORLD, THE NEW WAY

Vinay V (S3 IT)

From cherished personal chats to valuable credit card information and business plans our phones are home to a lot of stuff that we wish to keep to ourselves. This is where the inevitability of locking our phone comes in. From the conventional PIN locks to the simple yet secure pattern locks found in Android devices, the security means have had its advances. Mobile giants and rivals Apple Inc. and Samsung Mobiles have taken a step further. In this article we take a look at the new technology their flagship phones use to recognize their original owner.

Both of the top end phones of Apple and Samsung, iPhone 5S and Galaxy S5, use fingerprint detection technology to provide a quick and secure method for unlocking them. You set up a number of fingers (five in the case of the iPhone 5S and three for the Galaxy S5) by either tapping or swiping over the fingerprint scanner until your fingerprints have been captured and stored.



HOW DO THE FINGERPRINT SCANNERS WORK?

Apple and Samsung have taken very different tacks in terms of the technology used to power the fingerprint recognition.

Apple's Touch ID

Surprisingly, Apple has been very forthcoming with the technology used for Touch ID, as they'd like to call their feature. The iPhone uses a steel ring that surrounds home button to tell the scanner to get ready. A square touch sensor then reads a fingerprint just by a touch alone, negating the need for a swipe gesture and, as mentioned, means it is far more convenient than swipe scanners.

The iPhone then scrambles the extremely detailed image of the fingerprint into a mathematical representation and will keep adding detail so it gets more accurate the more its used. The image of your fingerprint will never be stored and the mathematical expression can never be reverse-engineered to generate the original fingerprint.

Apple has taken the security of the fingerprint very seriously indeed and in addition to these safeguards it only allows the mathematical representations to be stored on your device and never transmitted.

Samsung's Fingerprint Scanner

It is split into two parts. One section is positioned under the screen about an inch above the home button, while the main sensor is under the home button.

It appears that the top sensor registers that a fingerprint needs to be scanned and activates the scanner. The inclusion of a Synaptic fingerprint scanner suggests that Samsung may be using Synaptic Natural ID Technology, which is online transaction ready. The neat add-on Samsung provides is that, the fingerprint scanner can be easily used to log in to your PayPal account without any hassle.

The truth of matter is that on mobile devices like the iPhone 5S and Samsung Galaxy S5, fingerprint scanners will likely improve overall security for most users.

There are plenty of other people who don't bother even adding a pass code to their phones to keep inputting it. On average a person takes 2.9 seconds to unlock their phone and they do it over 40 times a day. This means we spend over 2 minutes for just unlocking our device. Motorola and Google is teaming up to produce a Digital NFC tattoo that can be worn which will unlock your device instantly once you bring them close together. It's safe enough to predict that more advanced technology like Retinal Scanning will come into safeguarding our phones in the near future.

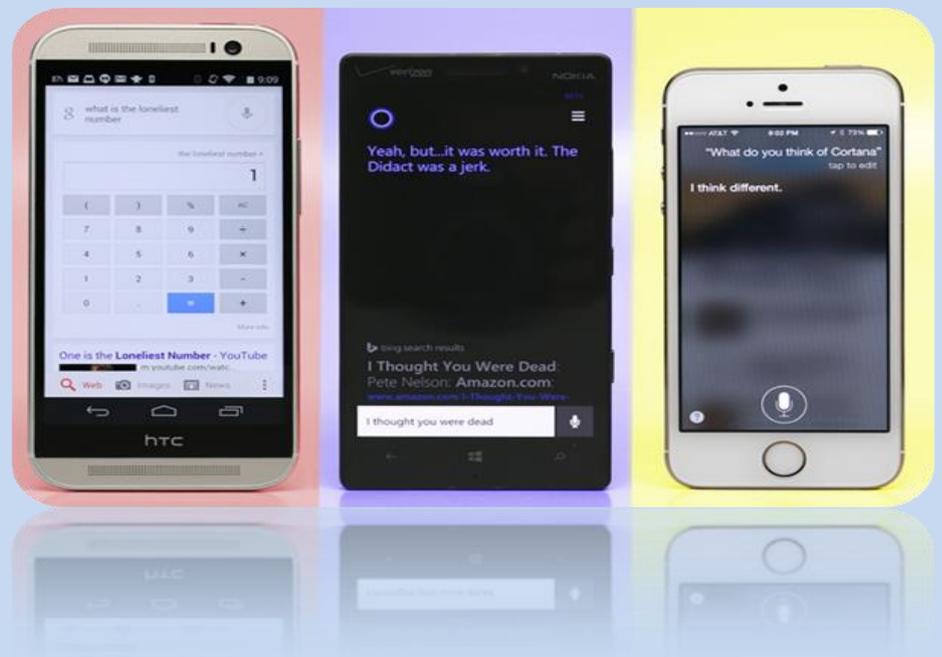
SMARTPHONES FOR HIRE

Speech Recognition

Rishil Shaji (S3 IT)

In computer science and electrical engineering, speech recognition (SR) is the translation of spoken words into text. It is also known as "automatic speech recognition" (ASR), "computer speech recognition", or just "speech to text" (STT).

Speech recognition applications include voice user interfaces such as voice dialling (e.g. "Call home"), call routing (e.g. "I would like to make a collect call"), domestic appliance control, search (e.g. find a podcast where particular words were spoken), simple data entry (e.g., entering a credit card number), preparation of structured documents (e.g. a radiology report), speech-to-text processing (e.g., word processors or emails), and aircraft (usually termed Direct Voice Input).



The top two Smartphone platforms now feature fully functional personal assistants, and just like real-life assistants, it's not so easy to pick one at random. Each has its own talents, weaknesses and personality quirks to consider. A series of interviews conducted with Google Now and Siri show that they know exactly what the fox says.

These personal assistants help the user with a variety of tasks through speech recognition, a set of commands etc. It performs speech recognition by understanding the user's natural language. It helps the user get their things done.

Google Now



Google Now, the mind-reading personal assistant for iOS and Android, has gotten a ton of updates lately, making it the perfect smartphone companion for...well, anything. Here's a list of the coolest stuff it can do. Google Now does a ton of awesome stuff, and it's releasing new features all the time.

Google Now the kind of assistant that takes everything a little too

Hire Google if you're looking for: travel and flights, navigation, dictation, music discovery, hands-free voice activation and website shortcuts.



Siri

Siri is the intelligent personal assistant that helps you get things done just by asking. It allows you to use your voice to send messages, schedule meetings, place phone calls, and more. But Siri isn't like traditional voice-recognition software that requires you to remember keywords and speak specific commands. Siri understands your natural speech, and it asks you questions if it needs more info.

Siri is a seasoned assistant with plenty of experience to back up its

Hire Siri if you're looking for: personality, dictation, social networking, music playback, sports, movies, changing settings, reading messages, finding friends.