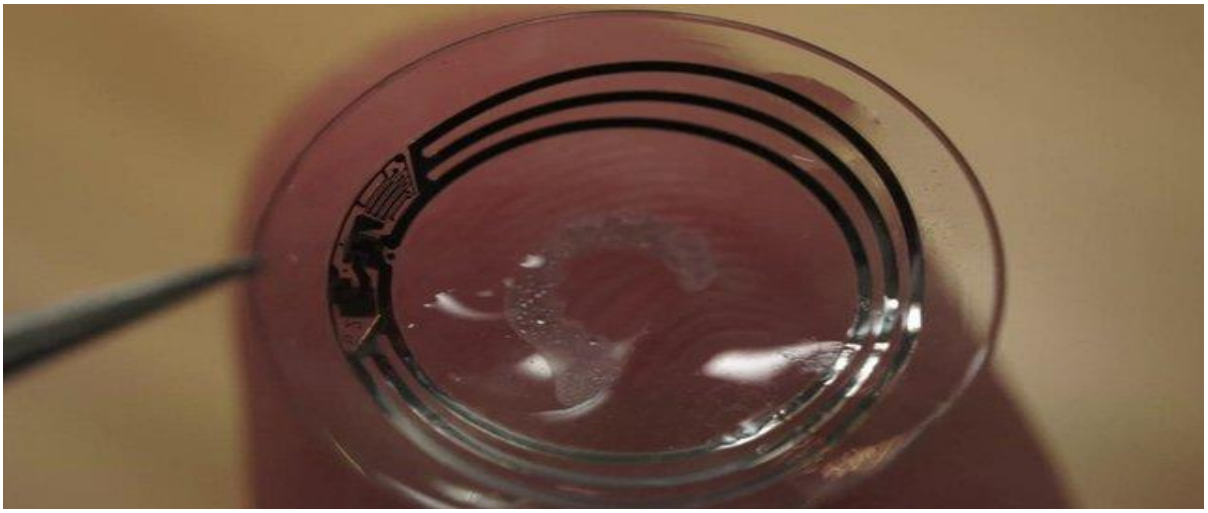
GOOGLE'S "SMART CONTACT LENS"

By Jeyanthi M, II CSE 'C'



Google has said it is testing a "smart contact lens" that can help measure glucose levels in tears.

INTRODUCTION

A new contact lens that monitors glucose levels in tears could help diabetics avoid the pain and inconvenience of having to prick their fingers to draw blood as many as 10 times a day.

On 16 January 2014 Google announced that, for the past 18 months, they had been working on a contact lens that could help people with diabetes by making it continually check their glucose levels.

Google noted in their official announcement that scientists have long looked into how certain body fluids can help track glucose levels easier, but as tears are hard to collect and study, using them was never really an option. They also mentioned that the project is currently being discussed with the FDA while still noting that there is a lot more work left to do before the product can be released for general usage, which is said to happen in five years at best, and that they are looking for partners who would use the technology for the lens by developing apps that would make the measurements available to the wearers and their respective doctors.

DESIGN

It uses a "tiny" wireless chip and a "miniaturized" glucose sensor embedded between two layers of lens material. The firm said it is also working on integrating tiny LED lights

that could light up to indicate that glucose levels have crossed certain thresholds. But it added that "a lot more work" needed to be done to get the technology ready for everyday use.

The device looks like a normal contact lens, but inside is a minuscule glucose sensor and wireless transmitter. Sandwiched in the lens are two glitter-specks loaded with tens of thousands of miniaturized transistors, while the lens is ringed with a hair-thin antenna.

HOW DOES IT WORK???

A tiny pinhole in the lens lets tear fluid seep over the glucose monitor to get regular readings. Right now, the company said, it can get a level reading once every second. The lens also features a tiny antenna, capacitor and controller so that the information gathered from the lens can move from the eye to a device — such as a handheld monitor — where that data can be read and analyzed. It will draw its power from that device and communicate with it using a wireless technology known as RFID.

USES

Google's smart diabetic contact lens could make managing the disease both easier and less painful. It has a miniature sensor embedded in the surface that is able to measure glucose levels by examining the eye's tears; it will then report this data nearly every second.

Google is looking into using the lens to serve as an early warning to any dangerous spikes or drops in glucose which could lead to organ damage, and future models could integrate tiny LEDs that will light up in such cases.

It's still early days for this technology, but we've completed multiple clinical research studies which are helping to refine our prototype. "We hope this could someday lead to a new way for people with diabetes to manage their disease." It is likely to spur a range of other innovations towards miniaturizing technology and using it in wearable devices to help people monitor their bodies better".

Many global firms have been looking to expand in the wearable technology sector seen by many as a key growth area in the coming years. Google said it was testing a prototype of the lens that could "generate a reading once per second".

"This is an exciting development for preventive health care industry," Manoj Menon, managing director of consulting firm Frost & Sullivan told the BBC. "It is likely to spur a range of other innovations towards miniaturizing technology and using it in wearable devices to help people monitor their bodies better."

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TRIMULOUS DISPLAY

By Shirabthinath N J, IV CSE 'B'

Sony's Most refined screen technologies has been found in the latest high end bravia TV's Now Introduced in Xperia Z Ultra Smartphone, A high end android device.

Conventional LCD Screen's add contrast, brightness, saturations, But Sony Bravia Expertise introduced the Tri Luminous display replicates red more vividly, hard to reproduce greens and blues are richer and more intense and People look more real and skin tones

The LCD Screens has less wide palette colors but the Triluminous display increases the width of color palettes

Sample Illustration

Here's a range of colour pens to paint a beautiful picture but if we add to the range of pen, we open up to new dimensions

Standard Display

TRILUMINOS Display

How does it work?

The Reason is behind the X Reality Display Image processing engine for mobile add spectacular clarity to your pictures, thereby enhancing the contrast, add saturation, sharpness and reduces noise in the image to display a stunning detail and vivid colors.

Xperia Z Ultra features a 6.4" Full HD display with Sony's latest BRAVIA TV technology, TRILUMINOS™ Display for mobile, creating a wider palette of rich natural colors. This breakthrough technology includes X-Reality™ for mobile – Sony's intelligent display technology which analyses each image to optimize colors, sharpness and contrast for vivid image quality.

The super resolution feature reproduces lacking pixels resulting in sharp videos while the large Full HD display has been optimized to experience at least 60% more of the screen than most smart phones. The Super Resolution function analyses your movies and reproduces

lacking pixels for high resolution viewing experience. The X-Reality™ Engine selectively processes everything on your display device for optimal Razor Sharp viewing.

Triluminous display and X-Reality Engine, An Innovative Technology for a colorful and amazingly crisp

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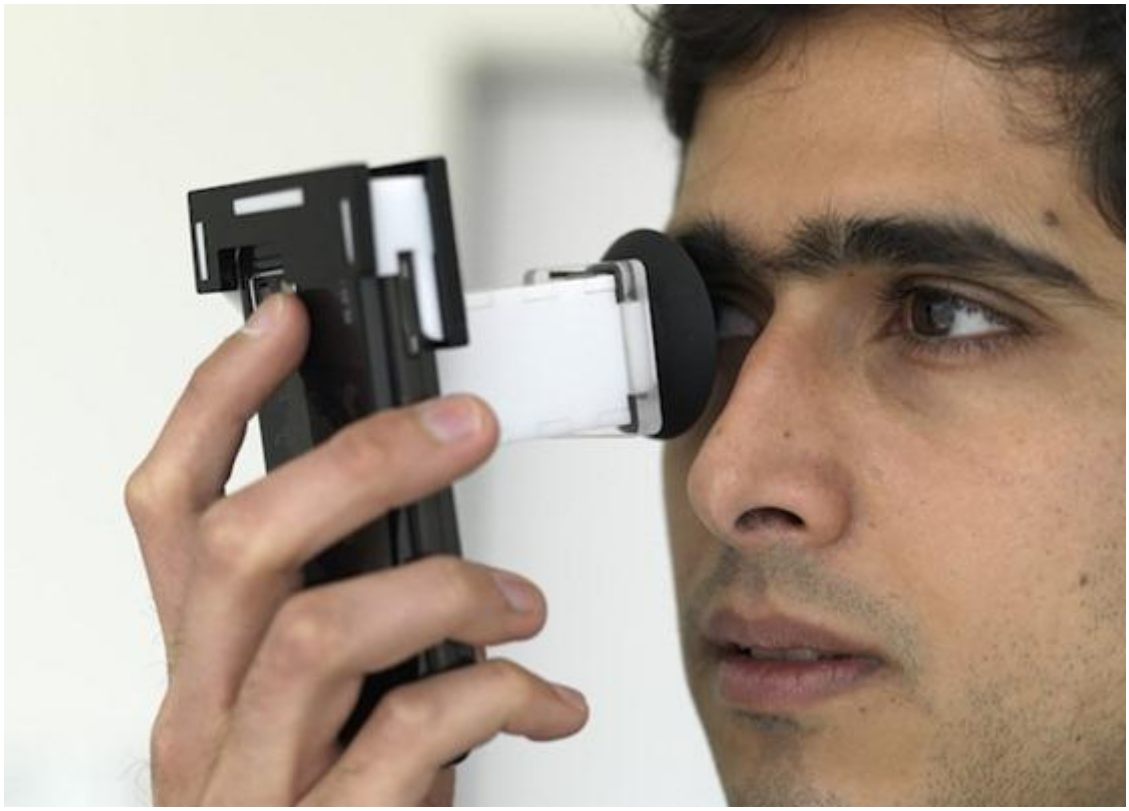
SMARTPHONE IS YOUR NEW EYE DOCTOR

By Sharmilaa R, IV CSE 'A'



This is a new technology that diagnoses the eye problem using Smartphone. Adapting smart phones for the eye has the potential to revolutionize the delivery of eye care especially in the developing world where ophthalmologists are few and far between.

Smart phones not only have quality camera resolutions, but also have the capability to transfer data and upload photo securely to medical record within seconds.

Smartphone that can click high-resolution pictures of the front and back of the eye that can help specialists sitting in metros advise you in places.

Two inexpensive adapters make it easy for anyone with minimal training to take a picture of the eye and share it securely with other health practitioners or store it in the patient's electronic record.

This technology can increase access to eye care services as well as improve the ability to advice on patient care remotely.

After successfully imaging the front of the eye, then focused on visualizing the inside lining of the back of the eye, called the retina. Taking a photo of the retina is harder because you need to focus light through the pupil to reach inside the eye. Optics theory used to determine the perfect working distance and lighting conditions for a simple adapter that connects a conventional examination lens to a phone.

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APPLE CAR PLAY

By Sindhu M, II CSE 'B'

Apple's new system uses the voice assistant Siri to connect the iPhone to a car's audio system, giving the driver voice-controlled music, maps, contacts and messages

Apple's new Car Play system connects an iPhone to the car for maps, music, messages and Siri.

Apple has launched its assault on the in-car technology market by announcing a product called Car Play, which it hopes will integrate the iPhone, Apple maps and Siri into the car dashboard.

Announced at the Geneva International Motor Show, Car Play is the next evolution of Apple's iOS in the Car, which connected iPhones to car stereos via the now obsolete docking connector that featured on iPhones and iPods up until the release of the iPhone 5 with the newer, smaller Lightning Connector.

Car Play is a more advanced way to connect an iPhone to a car's entertainment and information systems, allowing access to a variety of the smart phone's functions including music, messaging and navigation.

Working:

Like existing cars with iPod or iPhone connections, cars fitted with the new Apple CarPlay will connect to iPhones using the Lightning Connector, pulling data and information directly from the iPhone and charging it in the process.

The iPhone can be controlled via voice, or through the car's native touchscreen interface mounted in the dashboard or with traditional buttons including those mounted on the steering wheel.

Features:

Car Play will allow music and music apps like Spotify to be played through a car's stereo.

Car Play goes far beyond previous in-car iPhone connections including an “eyes-free” interface through Apple’s voice assistant, Siri, accessed by a touch of the voice control button mounted on the steering wheel.

Like most other in-car connections, Car Play will allow drivers to access the music and radio content through the car’s stereo, including iTunes Radio, spotify and other third-party music applications. Tracks can be found manually, or via a spoken request for a track or artist to Siri.

Using Siri, drivers will also be able to access messages and have them read aloud, reply via voice, access their contacts on the iPhone and make calls, as well as a variety of other voice commands including music controls.

Navigation:

Car Play also leverages Apple’s mapping service. The system will be able to use Apple Maps to anticipate destinations based on recent trips and information sifted from contacts, emails and text messages in a similar manner to Google’s now digital assistant.

It can then provided turn-by-turn directions displayed on the car’s dashboard screen, as well as traffic information and estimated time of arrival. Drivers can use Siri to plot routes and get directions via voice.

Apple Maps will be displayed on the car's integrated screen, pulled directly from the iPhone with voice directions via Siri.

Do special car is needed…?

Car Play requires special, bespoke equipment supporting Apple's iPhone to be fitted into cars, which means that car manufacturers will have to build it in at the factory.

Ferrari, Mercedes-Benz and Volvo all announced that CarPlay would be fitted to certain new cars this week in Geneva, but many other manufacturers also announced support would be coming for Apple's new iPhone connectivity system in the near future.

BMW, Ford, General Motors (Vauxhall in the UK), Honda, Hyundai, Jaguar, Land Rover, Kia, Mitsubishi, Nissan, Peugeot, Citroën, Subaru, Suzuki and Toyota all announced that they are working on integrating Apple's Car Play down the road.

What will it work with?

As Car Play uses the Lightning Connector, it will require an iPhone 5, iPhone 5S or iPhone 5C to work, meaning that the iPhone 4S or earlier cannot be used with the new in-car system. Compatibility for the Car Play system will be made available via an iOS 7 software update at a later date;

Alternatives:

Apple is by no means the only company working on this kind of Smartphone integration into the car.

Google launched its own purpose-built Android-based car system initiative earlier this year called the Open automotive alliance (OAA), which includes Audi, General Motors, Honda, Hyundai and Nvidia, manufacturer of the Tegra 4 processor that powers several Android tablets and smart phones.

The OAA aims to develop systems that enable developers to easily add car-specific modes to their apps to "bring the best of Android into the automobile in a safe and seamless way"

Microsoft also has a system called Microsoft Sync to connect smart phones to in-car entertainment and the dashboard. It employs limited voice control functionality, but can pull contacts and other data from a smart phone to manage calls and messages. It is currently available in a range of cars, including many of Ford's current vehicles like the Fiesta and Focus.

Contribution for car technology:

Car technology, especially entertainment and information systems, are almost always out of date before they hit the road. That is primarily because the technology they are built on has to be rigorously tested and stand the test of time, and therefore does not change quite as rapidly as mobile devices.

As devices like mobile phones and tablets improve in leaps and bounds, they leave in-car technology behind, making it look and feel outdated in a matter of years, if not months. By centering a car's information systems on a Smartphone, like the iPhone, it unlocks the possibility of updating how the system feels and behaves much more rapidly than a standard fixed in-car system.

Apple's move shows that the company is aggressively going after the car as the next extension of the iPhone, having identified it as yet another way to lock users into Apple's ecosystem.

The more extensions of the iPhone Apple can add to a user's life, the harder it will be to move away from Apple's iPhone and its software and music ecosystem, adding yet more inertia against switching to competing platforms like Google's Android or Microsoft's Windows Phone.

Apple has also identified the car as an area of growth into which it can push its Apple Maps app and data service, competing with both Google and Nokia's Here maps for users, data and potentially advertising revenue.

By announcing that Car Play will be available in vehicles from a myriad of car manufacturers this year, Apple has dealt the competition from OAA and Microsoft a heavy first-mover advantage blow. Google and Microsoft's response to Apple's Car Play will be interesting

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WIVI TECHNOLOGY

By Akila Vaishali S, IV CSE 'A'

WiVi technology is an emerging technology that lets you see behind walls. WiVi is a demonstration of a technology that uses Wi-Fi to allow a viewer to "see" a person moving behind a wall. (WiVi stands for "Wi-Fi" and "vision")

The device uses the wireless antenna as is found in a cell phone or laptop and could in theory one day be embedded in a phone. The trick is cancelling out all interfering signals – Wi-Fi doesn't just bounce off humans, but also walls, floors, and furniture. And those signals are 10,000 to 100,000 times more powerful than the reflections off a human body.

WiVi sends out two wireless signals, one of which is the inverse of the other. This is called as "interference nulling," the two signals cancel each other out unless they hit a moving target – such as a human."To silence the noise, we change the structure of the Wi-Fi signal so all the undesired reflections cancel".

The device is meant to be portable so, for example, a person worried that someone was hiding in the bushes could do a quick scan for her personal safety.

WiVi could also serve as a high tech baby monitor or help Superman – or just cops – catch baddies.

The wireless signals we're talking about don't give them the ability to punch through steel (we hope) or shoot lasers from their eyes (we really hope), but they do grant anyone a kind of X-ray vision that gives them the ability to see through the various walls and objects within their wireless environment.

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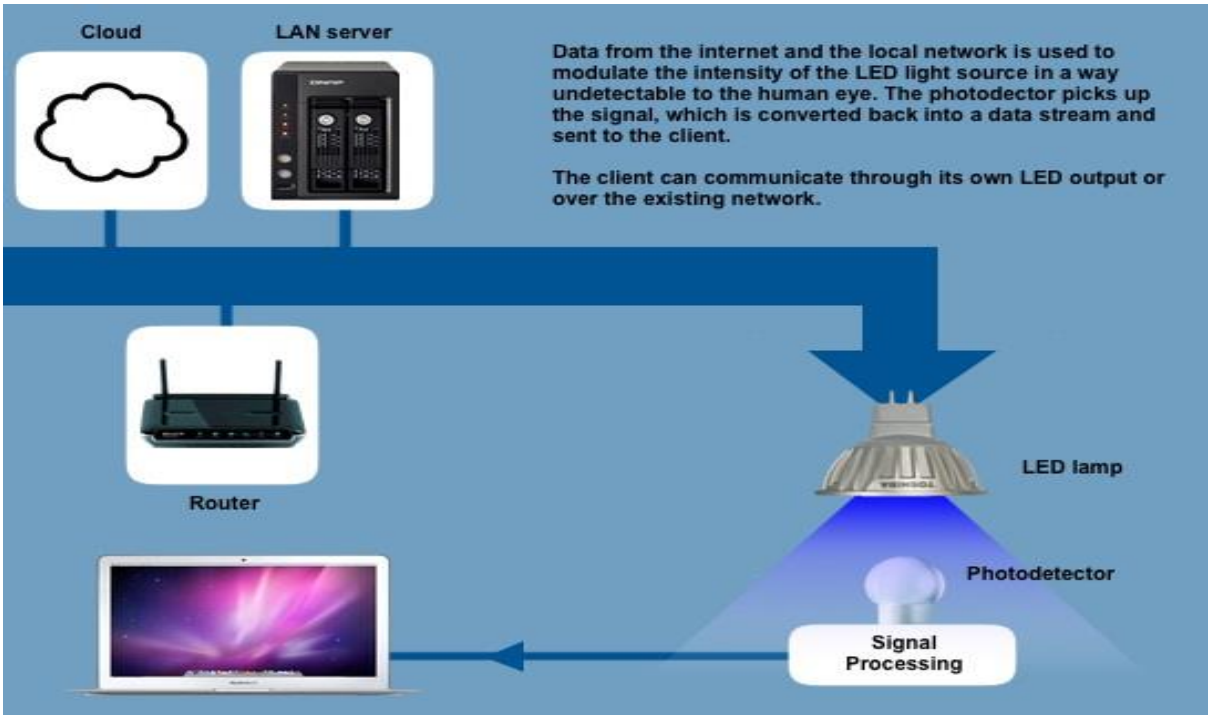
LI-FI TECHNOLOGY

By Kavitha K, III CSE 'A'

Introduction of Li-Fi Technology

In simple terms, Li-Fi can be thought of as a light-based Wi-Fi. That is, it uses light instead of radio waves to transmit information. And instead of Wi-Fi modems, Li-Fi would use transceiver-fitted LED lamps that can light a room as well as transmit and receive information. Since simple light bulbs are used, there can technically be any number of access points.

This technology uses a part of the electromagnetic spectrum that is still not greatly utilized- The Visible Spectrum. Light is in fact very much part of our lives for millions and millions of years and does not have any major ill effect. Moreover there is 10,000 times more space available in this spectrum and just counting on the bulbs in use, it also multiplies to 10,000 times more availability as an infrastructure, globally.



It is possible to encode data in the light by varying the rate at which the LEDs flicker on and off to give different strings of 1s and 0s. The LED intensity is modulated so rapidly that human eyes cannot notice, so the output appears constant.

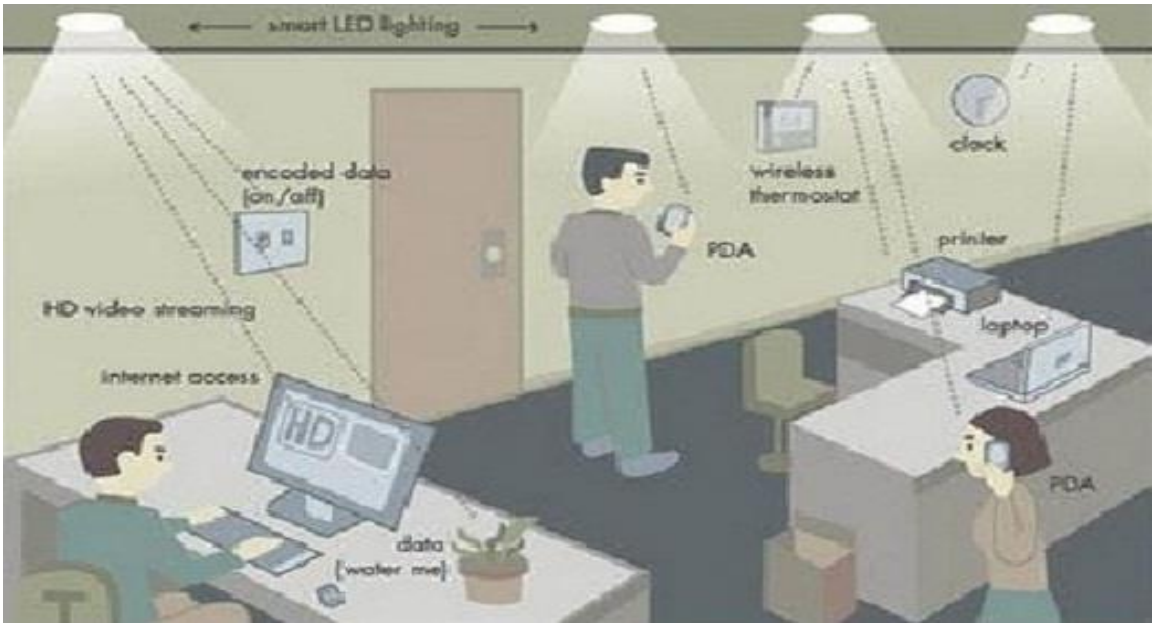
Li-Fi, as it has been dubbed, has already achieved blisteringly high speeds in the lab. Researchers at the Heinrich Hertz Institute in Berlin, Germany, have reached data rates of over 500 megabytes per second using a standard white-light LED. Haas has set up a spin-off firm to sell a consumer VLC transmitter that is due for launch next year. It is capable of transmitting data at 100 MB/s - faster than most UK broadband connections.

How Li-Fi Works?

Li-Fi is typically implemented using white LED light bulbs at the downlink transmitter. These devices are normally used for illumination only by applying a constant current. However, by fast and subtle variations of the current, the optical output can be made to vary at extremely high speeds. This very property of optical current is used in Li-Fi setup. The operational procedure is very simple-, if the LED is on, you transmit a digital 1, if it's off you transmit a 0.

The LEDs can be switched on and off very quickly, which gives nice opportunities for transmitting data. Hence all that is required is some LEDs and a controller that code data into those LEDs. All one has to do is to vary the rate at which the LED's flicker depending upon the data we want to encode. Further enhancements can be made in this method, like using an array of LEDs for parallel data transmission, or using mixtures of red, green and blue LEDs to alter the light's frequency with each frequency encoding a different data channel. Such advancements promise a theoretical speed of 10 Gbps – meaning one can download a full high-definition film in just 30 seconds.

Light is inherently safe and can be used in places where radio frequency communication is often deemed problematic, such as in aircraft cabins or hospitals. So visible light communication not only has the potential to solve the problem of lack of spectrum space, but can also enable novel application. The visible light spectrum is unused, it's not regulated, and can be used for communication at very high speeds.



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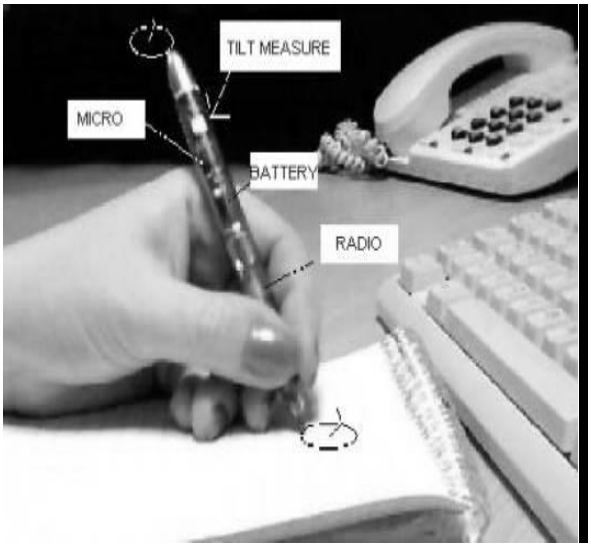
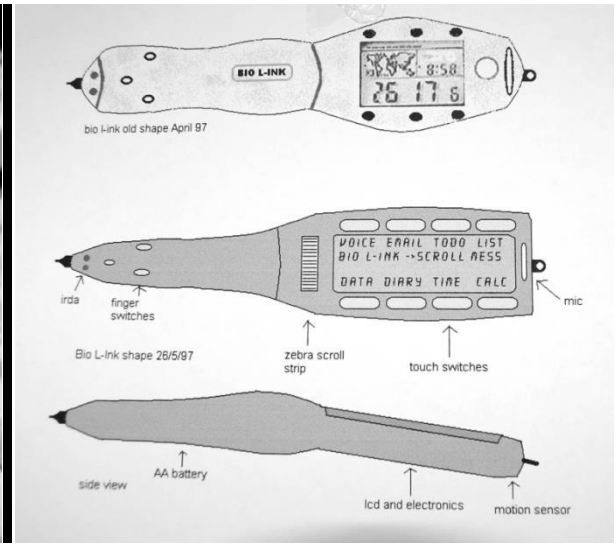
SMART QUILL

By Evelyn Gracia Shirley E, IV CSE 'A'

With the invention of handheld computers, manufacturers have taken it so far and so tiny that you require needle like fingers to operate them and screens that need constant cursor controls to read simple text. This can only be taken so far that someday they would become unusable. Therefore there was a need to introduce a technology that would reduce the problems of these tiny handheld computers with its new and innovative design.





Lyndsay Williams of Microsoft Research's Cambridge UK lab is the inventor of the **Smart Quill**, a pen that can remember the words that it is used to write, and then transform them into computer text. The idea that "it would be neat to put all of a handheld-PDA type computer in a pen," came to the inventor in her sleep. The prototype, called Smart Quill, has been developed by world-leading research laboratories run by BT (formerly British Telecom) at Martlesham, eastern England. It is claimed to be the biggest revolution in handwriting since the invention of the pen.

The sleek and stylish prototype pen is different from other electronic pens on the market today in that users don't have to write on a special pad in order to record what they write. User could use any surface for writing such as paper, tablet, screen or even air. Smart Quill contains an ink cartridge so that users can see what they write down on paper. It contains sensors that record movement by using the earth's gravity system, irrespective of the platform used. The pen records the information inserted by the user. Your words of wisdom can also be uploaded to your PC through the "digital inkwell", while the files that you might want to view on the pen are downloaded to Smart Quill as well.

It is an interesting idea, and it even comes with one attribute that makes entire history of pens pale by comparison-if someone else picks your Smart Quill and tries to write with it-it won't since user can train the pen to recognize a particular handwriting no matter how messy it is, as long as it is consistent, the pen can recognize it. The handwritten notes are

stored on hard disk of the pen. The pen is then plugged into an electronic "inkwell", text data is transmitted to a desktop computer, printer, or modem or to a mobile telephone to send files electronically. Up to 10 pages of notes can be stored locally on the pen. A tiny light at the tip allows writing in the dark. When the pen is kept idle for some time, power gets automatically off.

Smart Quill is a computer housed within a pen which allows you to do what a normal personal organizer does. It is really mobile because of its smaller size and one handed use. People could use the pen in the office to replace a keyboard, but the main attraction will be for users who usually take notes by hand on the road and type them up when returning to the office. Smart Quill will let them skip the step of typing up their notes.

Smart Quill is slightly larger than an ordinary fountain pen. Users can enter information into these applications by pushing a button on the pen and writing down what they would like to enter .The Smart Quill does not need a screen to work. The really clever bit of the technology is its ability to read handwriting not only on paper but on any flat surface - horizontal or vertical. There is also a small three-line screen to read the information stored in the pen; users can scroll down the screen by tilting the pen slightly.

Smart Quill also provides handheld computer applications such as digital diary, contacts, calculators etc. It is used for receiving pager and e-mail messages. This is possible through recent technology involved in Smart Quill, the wireless messaging system which allows two way communications between devices.

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GREEN COMPUTING

By Karthika R, IV CSE 'A'

Green computing is the practice of environmentally sustainable computing. It is also called as Green IT. The main objective is to reduce hazardous materials, reduce power consumption, reduce global warming and maximize the energy efficiency.

Computer consumes a lot of energy. Printing often unnecessary stuff is waste. Green computing will reduce the pollution and toxicity. Thus we require green computing.

Green computing was originated in 1992 at the U.S Environmental Protection Agency that launched Energy Star Program. Shortly after that the term "Green Computing" was coined.

Normally CPU uses 120 Watts of energy and CRT uses 150 Watts of energy. Energy use comes from electrical current to run the CPU, motherboard, memory, running the fan, spinning the disk, monitor and printers.

The pathways to green computing are green use, green disposal, green design and green manufacturing. Several approaches like Product Longevity, Software and Deployment optimization, Power Management and Materials Recycling.

Product Longevity means prolonging the equipment's lifetime. Software and deployment optimization should consider algorithmic efficiency, resource allocation and virtualizing the resources. Power management should reduce both the amount of heat produced and electricity consumed. E-wastes should be handled properly.

The methods to implement green computing are Carbon Free Computing, Solar Computing, RoHS Computing and Virtualization.

Carbon Free Computing is a set of programs and products designed to help individuals and organizations reduce their impact on the environment. VIA technologies is an initiative of carbon free computing. Here the company will calculate the amount of carbon dioxide released into the environment because of electric usage and they try to minimize the effect by reforestation or they invest in some alternative energy.

We can use solar power, which is a clean and non-polluting energy. Also solar panels do not require refueling and they are highly reliable.

Restriction of Hazardous Substances (RoHS) directive restricts the use of six hazardous materials (Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated biphenyls, Polybrominated biphenyl ether) in the manufacturing of various electronic and electrical equipment.

Virtualization, in computing, refers to the act of creating a virtual (rather than actual) version of something, including but not limited to a virtual computer hardware platform, Operating System (OS), Storage device, or computer network resources.

We can contribute to green computing by turn off the computer when not in use and turn off the monitor when not in use and using the power save mode. We should use hardware or software with the Energy Star Label.

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GOOGLE BALLOONS

By Mary Diana B, III CSE 'B'

As Food, Shelter, Cloth Internet also became the vital need to run the human life. But most of our planet is without WEB. To underestimate this condition, Internet giant Google has been working on a project that could bring the web where it's needed even to remote rural farmsteads or areas recovering from a disaster. This can achieved by Balloon.

A series of balloons, flying in the stratosphere at a height twice that of commercial airliners, could be used to connect people to a network. Google is putting lot of time, effort and money in it. In a blog's post it named the Google's floating network in the sky as **Project Loon.**

The Project Loon began in June 2013 with a small number of Pioneers in Christchurch and Canterbury. Thirty balloons, launched from New Zealand's South Island, beamed Internet to a small group of pilot testers.

Project Loon is a high network of global altitude balloons. These balloons are similar to weather balloons with the difference that they can stay in stratosphere with their Super pressure for about +100 days at a time. Loon balloons are unique in that they are steerable and entirely Solar powered.

Signals are transmitted from balloons to specialized Internet antenna which is connected to the top of home or workspace which uses Radio Frequency technology. The Internet antenna is connected to the consumer graded router.

Balloons fly around at about 18-27Km or 60,000-90,000 feet. Balloons after landed will be monitored by Google team. They are steered such that they can land in various collection points around the world.

The Balloon envelope is name for the inflatable part of balloon. Project Loon Balloon's are made from the sheet of polyethylene and it stand by 15m wide and 12m tall when it is fully inflated. It also has solar panel in order to get energy from the sun during day time which is being used dark conditions. They are designed in such a way that they withstand at higher pressure at greater altitude. When is ready to be taken out of service, gas is removed from the envelope to bring balloon in the controlled descent.

This Loon act as a Boon For all. Any remote village can be connected at any circumstance and it is highly efficient if some more tricks are to be implemented.

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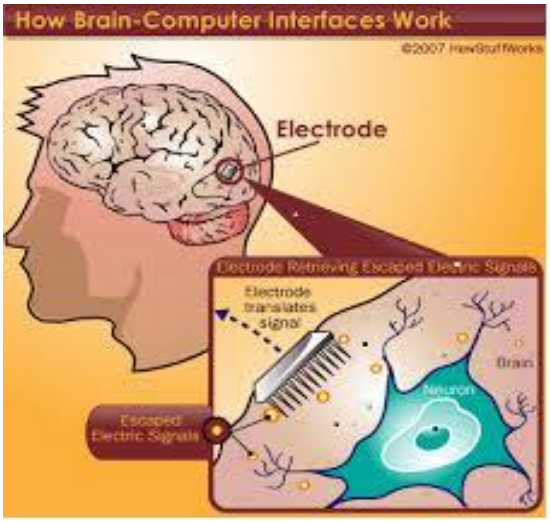
OPTICAL BRAIN MACHINE INTERFACE

By Muthu Meena G, III CSE 'B'



What is brain computer interface?

A brain computer interface (BCI) is a system that translates neurophysiological signals detected from the brain to supply input to a computer or to control a device. Volitional control of neural activity and its real-time detection through neuroimaging modalities are key constituents of BCI systems. The purpose of this study was to develop and test a new BCI design that utilizes intention-related cognitive activity within the dorsolateral prefrontal cortex using functional near infrared (fNIR) spectroscopy. fNIR is a non-invasive, safe, portable and affordable optical technique with which to monitor hemodynamic changes, in the brain's cerebral cortex. Because of its portability and ease of use, fNIR is amenable to deployment in ecologically valid natural working environments. We integrated a control paradigm in a computerized 3D virtual environment to augment interactivity. Ten healthy participants volunteered for a two day study in which they navigated a virtual environment with keyboard inputs, but were required to use the fNIR-BCI for interaction with virtual objects. Results showed that participants consistently utilized the fNIR-BCI with an overall success rate of 84% and volitionally increased their cerebral oxygenation level to trigger actions within the virtual environment.

Basic Experiment in the Application of Optical Topography as a Brain-Machine Interface to Operate Equipment:

Details about this experiment:

1. In this experiment, Optical Topography equipment is used to measure changes in blood volume at 22 positions in the prefrontal cortex. A learning-type drive scheme was developed based on the dynamic signal patterns resulting from neural activity, which is pre-obtained before actual operation. When a signal pattern similar to the information contained in this news release is current as of the date of

the press announcement, but may be subject to change without prior notice.pre-recorded signal pattern is obtained, the machine is in operation, and when the pattern desists, the machine stops.

2. New control circuits and software were developed to convert the signals obtained from the Optical Topography measurement into voltage signals which could be used to control machine operation. It is generally known that during mental arithmetic or silently singing, changes in blood volume occurs in the prefrontal cortex around the forehead. An experiment was conducted using Optical Topography to measure this change in several subjects who were asked to conduct mental arithmetic or sing silently, and control the movement of a small model train.

The following results were confirmed in this experiment:

1. Movement of the train corresponded almost perfectly with the initiation of mental arithmetic or silent singing. Further, while some individual differences were observed, it was found that when the subject ceased calculations or singing, that the train could be slowed down or stopped.
2. By pre-recording changes in pattern in a subject, and using the pattern to adjust the conversion parameter for the input signal controlling the equipment, the equipment could be effectively controlled.
3. With increased training, subjects were able to improve their control in operating the machine. This result is a basic experiment confirming the viability of using the principle of Optical Topography in achieving a non-invasive brain-machine interface. It is basic research opening the way to the development of new man-machine interface technology for welfare equipment to assist persons who experience difficulty in physically operating machines, or rehabilitation in brain functions. Hitachi will continue research to develop human-friendly information equipment gentle on the user.

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GOOGLE GLASS

By Priyanga C, III CSE 'A'

The emergence of Google Glass, a prototype for a transparent Heads-Up Display (HUD) worn over one eye, is significant. It is the first conceptualization of a mainstream augmented reality wearable eye display by a large company. This paper argues that Glass's birth is not only a marketing phenomenon heralding a technical prototype, it also argues and speculates that Glass's popularization is an instigator for the adoption of a new paradigm in human-computer interaction, the wearable eye display. Google Glass is deliberately framed in media as the brainchild of Google co-founder Sergey Brin. Glass's process of adoption operates in the context of mainstream and popular culture discourses, such as the Batman myth, a phenomenon that warrants attention.

Figure 1 Google Glass

Project Glass is a research and development program by Google to develop an augmented reality Head-Mounted Display (HMD). The intended purpose of Project Glass products would be the hands-free displaying of information currently available to most smart phone users, and allowing for interaction with the Internet via natural language voice commands. These glasses will have the combined features of virtual reality and augmented reality. Google glasses are basically wearable computers that will use the same Android software that powers Android smart phones and tablets. Google Glass is as futuristic a gadget we've seen in recent times. A useful technology for all kinds of people including handicapped/disabled.

Background

Google Glass is a prototype for an augmented reality, heads-up display developed by Google X lab slated to run on the Android operating system (see Figure 1). Augmented reality involves technology that augments the real world with a virtual component. The first appearance of Glass was on Sergey Brin who wore it to an April 5, 2012 public event in San Francisco. Provocative headlines emerged such as "Google 'Project Glass' Replaces the Smartphone with Glasses" and "Google X Labs: First Project Glass, next space elevators?". A groundswell of anticipation surrounds Glass because it implies a revolutionary transition to

a new platform, even though release for developers is only planned for 2013. At the time of our writing this paper, it is not available for consumers who can only see it in promotional materials.

Heads-up eye displays are not new. The Land Warrior system, developed by the U.S. army over the past decade, for example, includes a heads-up eye display with an augmented reality visual overlay for soldier communication. Many well-known inventors have contributed eye display technology, research or applications over the past two decades including Steve Mann (Visual Memory Prosthetic), Thad Starner (Remembrance Agent), and Rob Spence (Eyeborg). Commercially, Vuzix is a company that currently manufactures transparent eye displays.

How it Works?

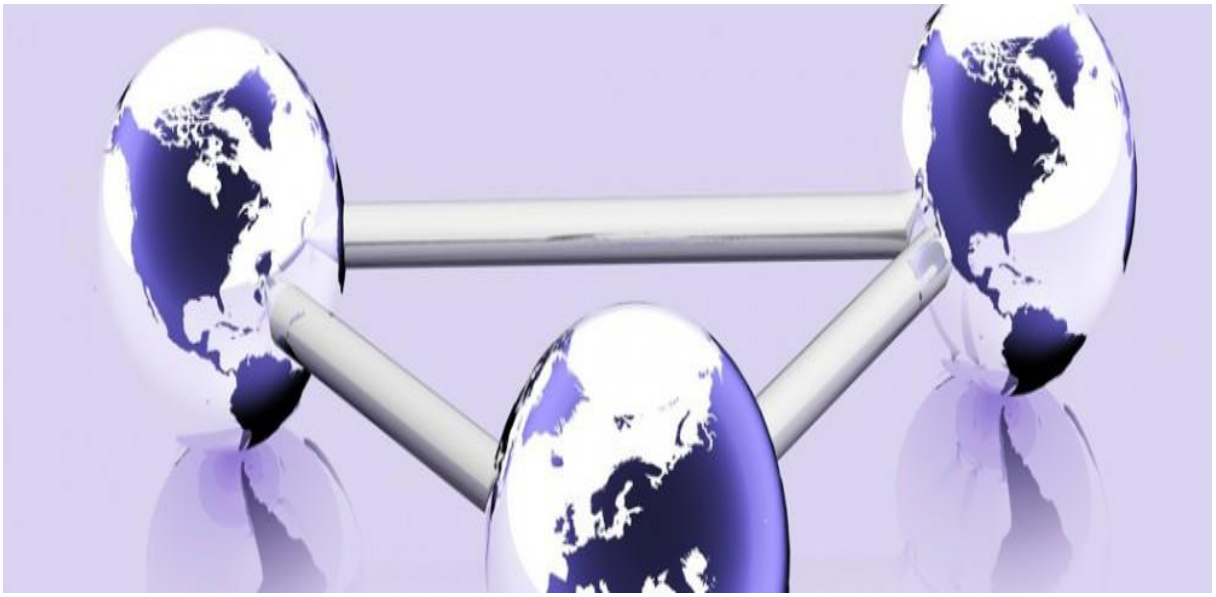
The device will probably communicate with mobile phones through Wi-Fi and display contents on the video screen as well as respond to the voice commands of the user. Google put together a short video demonstrating the features and apps of Google glasses. It mainly concentrates on the social networking, navigation and communication. The video camera senses the environment and recognizes the objects and people around. The whole working of the Google glasses depends upon the user voice commands itself.

Benefits:

- Easy to wear and use.
- Sensitive and responsive to the presence of people.
- Fast access of maps, documents, videos, chats and much more.
- A new trend for fashion lovers together being an innovative technology.
- A spectacle based computer to reside directly on your eyes rather than in your pouch or pocket.
- A useful technology for all kinds of handicapped/disabled people

3D INTERNET

By Premalatha M, II CSE 'C'



Solitary surfing, status staring in Facebook, returning wrong size web shop purchases. 3D Internet makes virtual communities and collaboration being and doing together possible. 3D Internet is the next wave after the current 2D web. 3D Internet consists of interconnected services, presented as virtual worlds. Virtual worlds are 3D environments user enters with his avatar. Virtual worlds may be considered as advanced web sites and avatars as user profiles. The difference lays in collaborative content creating where user is part of building his virtual experience together with other users' avatars and service provider.

Virtual worlds can be based on an existing, real place (e.g. Oulu) or a fictional place (e.g. Middle Earth from J.R.R Tolkien's novels). A virtual world can hold a service for the users, much in the same way as a web server in the 2D web. Mass breakthrough of the 3D Internet is projected by the year 2015. Today, World of War craft, Second Life and Habbo Hotel can boast over 200 million users. When the use of the 3D Internet expands from recreational use to business, education, medicine , these numbers will shoot rapidly.

What make these brand new worlds possible? Several technology platforms exist. In 2007, the realXtend project kicked off in Oulu, Hi-tech hub in Northern Finland. The realXtend project aimed to develop the de facto -standard for 3D Internet. Currently, realXtend is developed globally as an open source project, lead from Oulu by a non-profit organization. The realXtend people believe that open source makes the best technology available for all and that the true value of the 3D Internet does not lie in the platform but in the content.

Oulu has given rise not only to realXtend, but to the 3D Internet Alliance (3DIA), which has its roots in the realXtend project. Currently the 3DIA is led by Business Oulu and Cyber Lightning Ltd. functions on an international level and includes hundreds of people from tens of organizations. Represented are e.g. research organizations, the game industry and other content producers, domain specialists, service providers, application developers and investors. The 3DIA aims to popularize the new technology and to facilitate the typically small 3D Internet businesses network, collaborate and thus form a strong ecosystem

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1. http://3dinternetalliance.org/

5G WIRELESS SYSTEM

By Anu Nevetha P, II CSE 'B'

Introduction

5th generation wireless systems denotes the next major phase of mobile telecommunications standards beyond the current 4G/IMT-Advanced standards. 5G is also referred to as beyond 2020 mobile communications technologies. 5G does not describe any particular specification in any official document published by any telecommunication standardization body.

Although updated standards that define capabilities beyond those defined in the current 4G standards are under consideration, those new capabilities are still being grouped under the current ITU-T 4G standards.

History

- In July 2013, India and Israel have agreed to work jointly on development of fifth generation (5G) telecom technologies.
- On 1 October 2013, NTT (Nippom Telegraph and Telephone), the company to launch world first 1G network in Japan, wins Minister of Internal Affairs and Communications Award at CEATEC for 5G R&D efforts
- On 6 November 2013, Huawei announced plans to invest a minimum of $600 million into R&D for next generation 5G networks capable of speeds 100 times faster than modern LTE networks.

Research

Key concepts suggested in scientific papers discussing 5G and beyond 4G wireless communications are:

- With massive MIMO multiple messages for several terminals can be transmitted on the same time-frequency resource, **maximizing beam forming gain** while minimizing interference.
- The usage of millimeter wave frequencies (e.g. up to 90 GHz) for wireless backhaul and/or access (IEEE rather than ITU generations).
- Efficient support of machine-type devices to enable the **Internet of things** with potentially higher numbers of connected devices, as well as novel applications such as mission critical control or traffic safety, requiring reduced latency and enhanced reliability.
- Pervasive networks providing, **Internet of things, wireless sensor networks** and *ubiquitous computing*: The user can simultaneously be connected to several wireless access technologies and seamlessly move between them.
- Multihop networks issue is addressed by **cellular networks** and **macro diversity** techniques, also known as group co-operative relay, where also users could be potential cooperative nodes thanks to the use of direct device-to-device (D2D) communications.
- *Real wireless world* with no more limitation with access and zone issues.

Internet evolution

5G will drive the future evolution of the internet itself.

- Implementing the next generation of ubiquitous ultra-broadband network infrastructure will require a rethinking, restructuring and redesigning of approaches to mobile network construction and expansion.
- Integration of mass-scale cloud architectures will infuse mobile network with capabilities for flexibly delivering services at unprecedented speeds while meeting forecasts for tremendous growth in mobile data traffic, diversification of mobile app innovation, IoT connectivity, and security.
- To achieve these goals, developments in 5G will primarily focus on two fundamental aspects for eliminating infrastructure bottlenecks: massive capacity and massive connectivity.

Fundamental requirements

- Capabilities for supporting massive capacity and massive connectivity
- Support for an increasingly diverse set of services, application and users – all with extremely diverging requirements for work and life
- Flexible and efficient use of all available non-contiguous spectrum for wildly different network deployment scenarios

5G network solutions

- Multiple access and advanced waveform technologies combined with
- coding and modulation algorithms
- Interference management
- Access protocols
- Service delivery architecture
- Mass-scale MIMO
- Single frequency full duplex radio technologies
- 5G devices
- Virtualized and cloud-based radio access infrastructure

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2. http://en.wikipedia.org/wiki/5G

ANDROID APPS RELATED TO EDUCATION

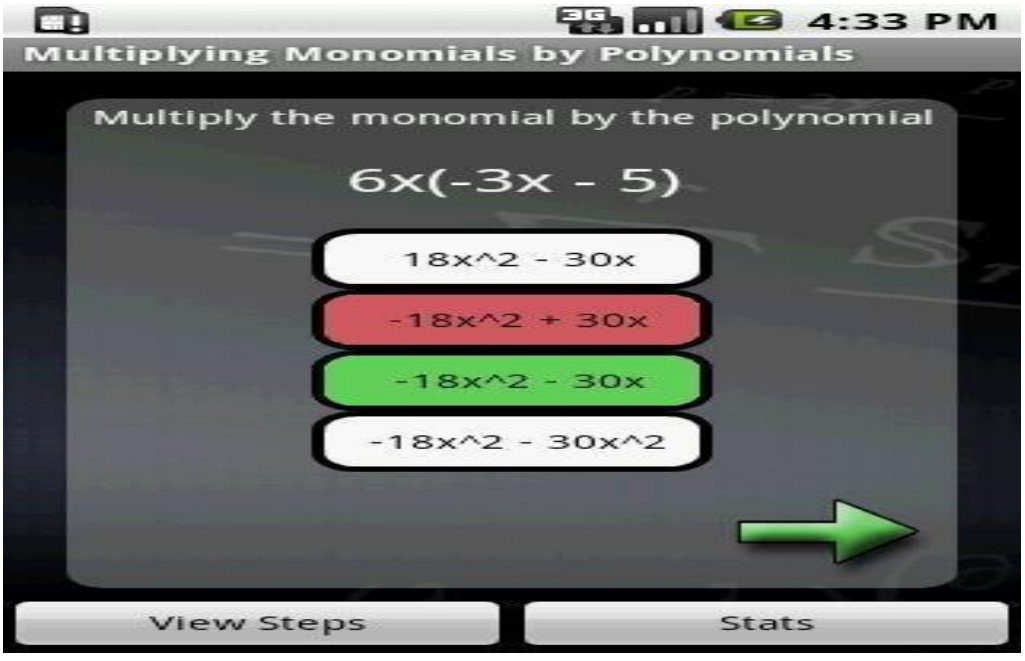
By Deepa R, II CSE 'B'

CELESTE:

Celeste combines 3D graphics of the heavenly bodies with fun facts about astronomy. Aim your device's camera at the sky and see exactly where each object is located, day or night.

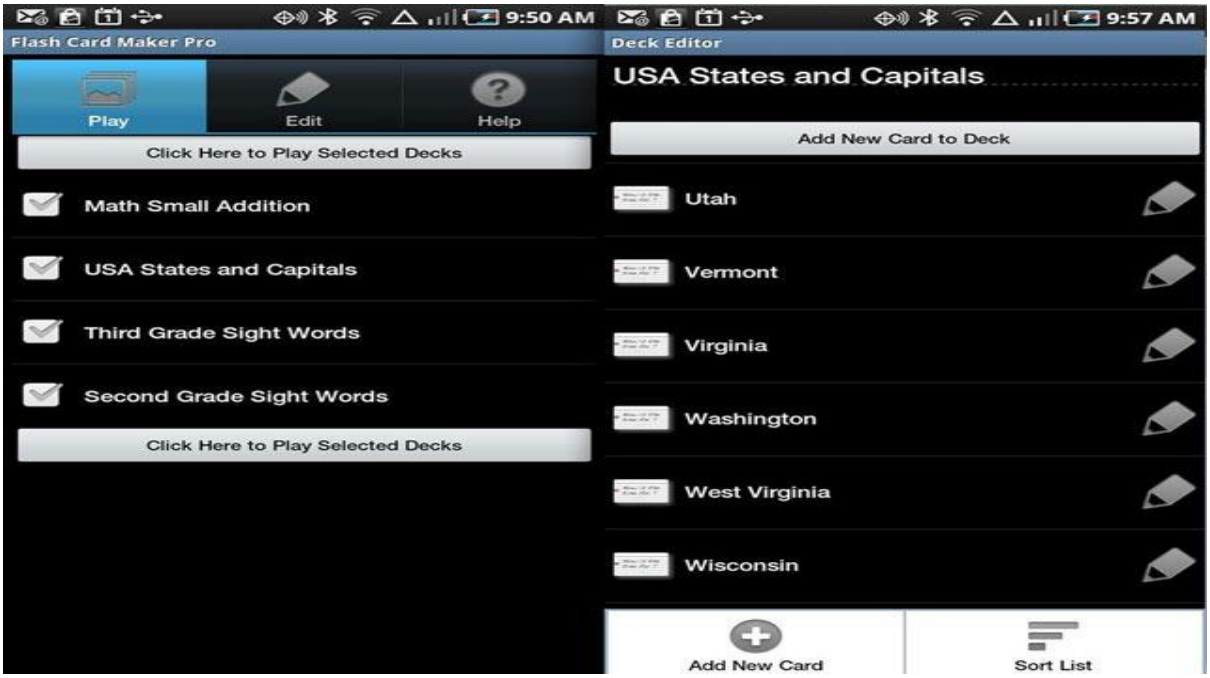
ALGEBRA TUTOR:

It is one of the highest-recommended math apps in the Market. It gives step-by-step instructions and shows where you've made mistakes. Even for older Android users, the app is good for brushing up on rusty skills.



FLASH CARD MAKER:

This one is great for students *and* for parents of younger children. Flash Card Maker Pro, as the name implies, lets you make your own study aids. It uses speech recognition for optimal memory building and fact retention.



MAP MASTER:

For geography nuts, Map_Master is where it's at (rim shot!). This educational game tests your knowledge of famous places and capitals around the world. You can also compete against up to 10 friends on the same device.

CUE BRAIN:

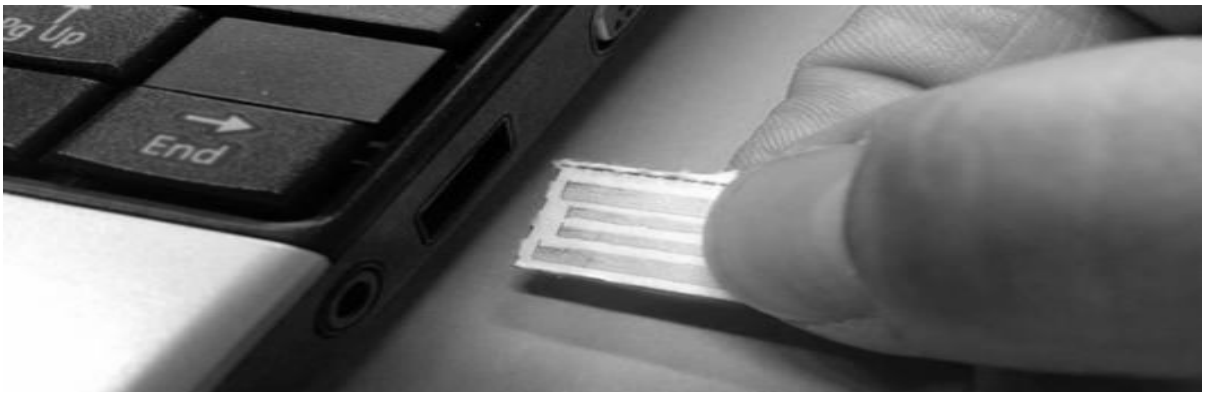
Need to work on your language skills? Try Cue Brain, which offers vocal training in a variety of languages.

REFERENCES:

1. www.mashable.com

PAPER BASED PENDRIVE

By Shenbagavalli S, III CSE 'C'



USB drives have become so prolific in recent years that they've become practically disposable. Now, one company has created a different type of flash drive that can literally be crumpled up and thrown in the garbage. With an embedded silicon chip, intelliPaper seamlessly turns an ordinary strip of paper into a fully functioning USB drive.

We've seen concepts for a USB stick made out of paper before, but the design team at intelliPaper has now patented technology that allows electronic components to be layered into a regular sheet of paper with USB contact points exposed. Once it's ripped from the full sheet and folded in half, the paper can be inserted into any USB port to access the files it holds, just like a typical USB drive. Files can be added and removed like any other storage device, and the drive can be reused for as long as the paper and contacts remain intact.

The paper used is about as thick as card stock and the embedded chip can hold 8-32 MB of data – the team has not decided on a fixed capacity yet, but it will be within this range. So far, the developers have implemented their technology in mail-out flyers, promotional brochures, and business cards, among other items. Uploading data to a fresh card does require a special reader and some software to avoid damaging it, which intelliPaper offers to customers. If someone doesn't want to risk damaging the paper drive itself, intelliPaper also communicates wirelessly with any near field-enabled smart phone or tablet.

Since intelliPaper is so inexpensive to produce, it's not hard to think of plenty of uses for such a paper-based USB drive. Tourists could send out postcards with vacation photos uploaded onto them, schools and businesses could hand out multiple pages of documents uploaded to a single sheet of paper.

References:

1.http://www.gizmag.com/intellipaper-paper-based-usb-drives

QUIZ

By Hemapriya N, III CSE 'A'

GUESS WHO

1. A cricket lover, born on 1967 in Hyderabad, Andhra Pradesh. He completed his schoolings in Hyderabad Public school, his college in Manipal Institute of Technology. He joined a famous company in 1992. He worked as the senior vice-president of Research and Development (R&D) and later he was promoted as a CEO of a famous company. Guess who???

2. He is a personality who is an Indian born American business man. He completed his bachelor degree in Metallurgical engineering from Indian Institute of Technology, Kharagpur. He joined a Google in 2004. He led the product management and innovation. He also a chief of Android. Guess who???

3. He is an American Computer programmer born on 1962. He received his bachelor's degree in mathematics and computer science at Santa Clara University. He is the creator of the Javascript scripting language and a Chief Technology officer at the Mozilla Corporation. Guess who???

4. An American entrepreneur born on 1984 graduated from Harvard. He co founded facebook along with Mark Zuckerberg in the year 2004. Also named as the youngest self made billionaire by Forbes magazine in the year 2011. Guess who???

5. An American entrepreneur born on Feb 24, 1955, a college drop out. He founded and served as a CEO of Pixar Animation Studios. Also a co founder, Chairman and CEO of a famous company which is now headed by Tim Cook. He passed away in 2011 due to Metastatic Insulinoma. Guess who???
   Ps: he also spent seven months in India. Follows Zen Buddhism.

6. An American business man born on August 17, 1944. A college dropout and a co-founder of a company called Rational software Inc.., which was renamed as Oracle corporation and presently its CEO. Guess who???

7. An American computer scientist who made heavy breakthrough in the Computer Programming language. An Alma matter of Harvard University. He and his friend Ken Thompson (B language inventor) developed UNIX Operating System. Guess who???

8. An Indian American entrepreneur who founded Hot Mail with Jack Smith. An Alma matter of California Institute of Technology and Stanford University. Also founded Jaxtr SMS. Guess who???

9. An American computer programmer graduated from Stanford University in Computer Science rejected for a job by Facebook co founded an instant messaging subscription service for smart phones along with a friend and a fellow Facebook reject Jan Koum which was later acquired by Facebook for 19 billion dollars. Guess who???

10. An American Computer scientist who co founded a search engine named after a digit (1 followed by 100 zeroes) with his friend Sergey Brin in Stanford University. Guess who???

ANSWERS

1. Satya Nadalla
2. Sundar Pichai
3. Brendan Eich
4. Dustin Moskovitz
5. Steve Jobs
6. Larry Ellison
7. Dennis Ritchie
8. Sabeer Bhatia
9. Prian Acton
10. Larry Page (1 followed by 100 zeroes is Googol)

PORT FORWARDING

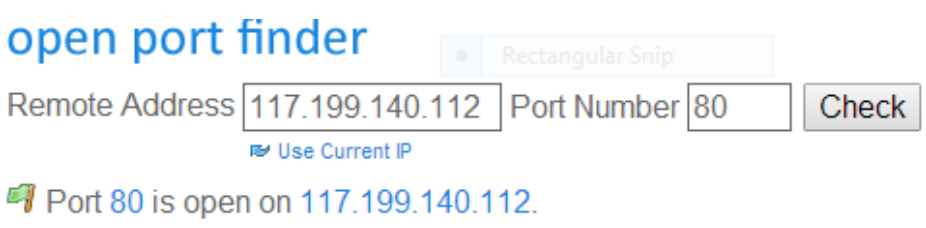
By Shirabthinath N J, IV CSE 'B'

Port forwarding is a technique of translating the IP address or port number of a packet to a new destination and forward the packet. The destination may be a predetermined network port. Port forwarding allows remote computers (for example, computers on the Internet) to connect to a specific computer or service.

Here are the following steps to port forward your modem/router so that anyone can access your project running on wamp server.

Before continuing **Make sure that your modem and ISP (Example Airtel) support port forwarding by referring to the manual or internet.**

1. Find out your local IP address (This is the address where website request will be forwarded) using **ipconfig** command in command prompt
2. Note down the **IPv4** address of your connection and will be required in further steps.
3. Point your browser to your modem configuration page (Usually http://192.168.1.1) and depends based on your modem model
4. Find out the port forwarding services in the configuration page.
5. Follow the screenshots where port forwarding is done in BSNL Wi-**Fi Type 2 modem.**
6. Select server and Web Server from drop down box in predefined or use User defined to define your own settings.
7. Now, type the local IP noted down in the **Forward to Internal Host IP Address** box.
8. Click Apply and restart your modem.
9. Now, you need to check whether the port (80 in our case wamp) is opened. Point your browser to **http://www.yougetsignal.com/tools/open-ports/**



10. If the port is still closed, then you might need to check your Windows Firewall rules and settings and modem support page.

11. If everything is successful, ask your friends to open your external IP address in browser (In my case http://117.199.140.112) and they should see your wamp server page.

DISCLAIMER:

The reader should have the knowledge of wamp server usage, creating project using PHP and also some details about IP address and port.

References:

1. http://www.wikihow.com/Set-Up-Port-Forwarding-on-a-Router
2. Guide to open port forwarding for your modem. : http://portforward.com/english/routers/port_forwarding/

STICK N FIND

By Soundarya R, IV CSE 'A'

StickNFinds are Bluetooth enabled stickers designed to help you keep track of items after they are lost. They are pitched as small, cheap stickers which you can fix on gadgets, children or even pets in order to find them with a handy app when they go missing.

With a compatible size, StickNFind Tracker can be easily stuck on to many items.

- Diameter: 0.98 Inches x Thickness 0.16 Inches (24mm x 4mm).
- Weight: 0.15 ounces (4.5 grams).

App

The Radar Screen displays all of your devices within range. Simply select the Sticker on the radar screen and track it. You can even press a button to make it buzz, flash or do both. The radar screen can only be used to approximate the distance of the StickNFind from your device, but not the exact direction. Once you have located a StickNFind Sticker you would like to find on your Radar Screen, you start walking in a specific direction and see if you are getting closer or further from the blue dot on your Radar Screen. StickNFind Stickers have a buzzer and light, so that you can find your tagged items in the dark.

Virtual Leash

This feature allows you to create a virtual leash on a sticker so that if that sticker moves away more than the approximate selected distance from your phone, your phone will alarm you. You can even select a different type of alarm for each individual Sticker.

Trackable stickers

By enabling your sticker to be Trackable allows it to be displayed on a map as "last place seen." In the case that you lose your item this feature will allow you to see where you last used StickNFind to locate that item. This feature also allows your sticker to communicate within the StickNFind server where other users can communicate with your sticker but only you will receive notifications that your sticker has been found.

Activating lost sticker:

By activating the "lost sticker" feature, any user running the StickNFind application will automatically begin looking for your lost sticker. Once it is detected you will receive notification via email with "last place seen" and timestamp information.

Personal items:

This feature will activate a one mile geofence (or virtual perimeter) around your mobile device to help prevent the loss of your personal items. Once your mobile device is outside the geofence you will receive an email notification.

"Find It" Alerts

If you are looking for a missing StickNFind Sticker, that your phone cannot find, or is not in range, you can either walk in a specific direction until the StickNFind Sticker appears on your radar screen, or depending on the situation, the Sticker will eventually come in range, and your phone will then alert you.

You could stick this Sticker on your suitcase. You can sit down and wait when all the suitcases start coming out on the belt. Once your Suitcase is within range, your phone will alert you so you can then go retrieve your luggage.

Connectivity: Bluetooth 4.0 (Bluetooth Low Energy)
Range: Approximately 100 feet line of sight.
Battery: Lasts up to 1 year (based on 30min. a day use).
Battery Type: CR2016 watch battery (replaceable).

It has a Range of about 100 Feet with a Battery that lasts for over a year. It uses a standard watch battery, so it is easy to replace the battery.

It works on iOS devices with Bluetooth 4.0 such as iPhone 4s, iPhone 5, iPhone 5C, iPhone 5S, new iPad, New Touch, mini iPad. It also works on Android devices from Samsung like Galaxy S3, Galaxy S4, Galaxy S4 Mini, and Note 2.

Reference:

1. www.sticknfind.com

COOL FEATURES OF WINDOWS 8

By Pavithra D, III CSE 'C'

1. Boot quickly - by default

There are many tweaks, but maybe the most important happens when the system shuts down. It closes all your programs as normal, but the kernel is now hibernated, its RAM contents saved to your hard drive. This doesn't take long, and when you reboot your system can be reinitialized far faster than before.

2. Display alerts immediately

Windows 8 means you won't necessarily have to turn on your laptop, wait for an age as it loads, then wait even longer to launch an application, just to discover some really basic item of data: it could be available on the lock screen in seconds.

3. Log on without passwords

Windows 8 will offer you an unusual alternative: the picture password. You'll be able to point Windows to a picture you'd like to use, which you then click, tap or draw on with your mouse or using a touch screen. So if you choose a picture of your house, say, you might draw an outline around the roof, then tap on a window and the front door. Windows will remember your gestures, and won't allow anyone to log in later unless they can repeat them.

4. Enjoy a dynamic desktop

The Windows 8 Metro interface doesn't give you static shortcuts to launch its applications. Instead you get dynamic tiles, which you can change in size to reflect an app's importance, and freely organize into whatever groups best suits your needs.

5. Synchronize your settings

Of course, with so much functionality on the Metro desktop, it may take a while to set it up just the way you like. But don't worry, you only have to do this once, even if you've several Windows 8 PCs, because you'll be able to synchronize your Metro apps, their settings and application histories (as well as login details for applications and websites) across all your systems, entirely automatically.

6. Spot resource hogs

All this syncing, email-checking, RSS monitoring and so on could become a little expensive if you're using a metered 3G connection, of course. So it's just as well that the new Windows 8 Task Manager includes an App History feature which can show you exactly who's hogging all your network bandwidth (as well as your CPU time, hard drive and RAM).

7. Close apps automatically

Windows 8 is fortunately a little different, at least when running Metro apps. If you're running short of resources then it'll close down anything you've not used for a while, to try to help out. Don't worry, the app's state is saved first, so you don't lose anything; relaunch it and you'll carry on exactly where you left off.

8. Work on files with ease

The Windows 8 Explorer now uses a ribbon-style interface, which brings many otherwise tricky to find options within very easy reach.

9. Back up automatically

Windows 8 includes a very easy-to-use File History feature, which can automatically back up whatever folders you like, at the frequency you specify.

10. Run other operating systems

Windows 8 now includes Microsoft's Client Hyper-V virtualization platform, which allows you to install other operating systems onto virtual machines and run them on your desktop.

References:

1. http://www.techradar.com

COMPUTER BLESSING

By Jenifer A, III CSE 'A'

Blessings on this fine machine,
May its data all be clean.
Let the files stay where they're put,
Away from disk drives keep all soot.
From its screen shall come no whines,
Let in no spikes on power lines.
As oaks were sacred to the Druids,
Let not the keyboard suffer fluids.
Disk Full shall be nor more than rarity,
The memory shall not miss its parity.
From the modem shall come wonders,
Without line noise making blunders.
May it never catch a virus,
And all its software stays desirous.
Oh let the printers never jam,
And turn my output into spam.
I ask of Eris, noble queen,
Keep Murphy far from this machine.

- Zhahai Stewart

References:

1. www.sacredtexts.com