Issue 10

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Department of Computer Science & Engineering presents

foCuSE

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Views

Director

It gives me great pleasure to know that the next issue of newsletter is ready. I congratulate all those who have contributed in bringing out this issue. I take this opportunity to greet faculty, students, alumni and other stakeholders and hope the newsletter gives them a glimpse of activities the institute is venturing into. I congratulate the editorial board of newsletter for their untiring efforts in collecting and compiling the data without which it would have not been possible to place this newsletter in your hands. in the present context where globalization has become a reality one needs to have autonomy with accountability. One need to develop the competence to make ethical and value based decisions. This demands two things (i) Quality of Teaching and (ii) Contribution towards generation of knowledge (Research). Let us take a resolution to fulfill this twin objective.

- Dr. Y. Manohar

Principal

I am very much pleased with the idea of releasing newsletter from the Department of Computer Science and Engineering of Kakatiya Institute of Technology & Science,Warangal. This is really a very good effort to keep students abreast of the new technological trends and directions in the field of Computer Science.

- Dr. K. Guru Raj

Head of the Department

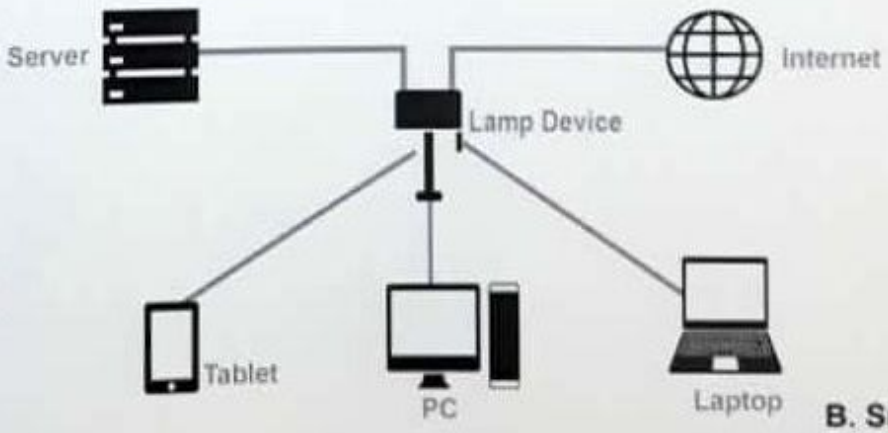
It gives an immense pleasure to announce the release of CSE Department newsletter, foCuSE. The unique feature of Newsletter is that it is being planned and designed by the student fraternity alone and without whose support; this would not have been the reality.

- Dr. P. Niranjan Reddy

L I F I

Li-Fi stands for Light-Fidelity, this term was introduced by Harald Haas. Li-Fi is transmission of data through illumination by taking the fiber out of fiber optics by sending data through a LED light bulb that varies in intensity faster than the human eye can follow. It is fast and cheap wireless-communication system. The concept of Li-Fi is currently attracting a great deal of interest, not least because it may offer a genuine and very efficient alternative to radio-based wireless. As a growing number of people and their many devices access wireless internet, the airwaves are becoming increasingly clogged, making it more and more difficult to get a reliable, high-speed signal. This may solve issues such as the shortage of radio-frequency bandwidth and also allow internet where traditional radio based wireless isn't allowed such as aircraft or hospitals. This can even work underwater where Wi-Fi fails completely.

LI-FI is a term, one used to describe visible light communication technology applied to high speed wireless communication. It acquired this name due to the similarity to WI-FI, only using light instead of radio. WI-FI is great for general wireless coverage within buildings and li-fi is ideal for high density wireless data coverage in confined area and for relieving radio interference issues. Li-Fi comprises several optical wireless technologies such as optical wireless communication, navigation and gesture recognition applied for natural user interfaces.



B. Sridhara Murthy
Asst. Professor, CSE

HADOOP

Apache Hadoop is an open source software framework for storage and large scale processing of data-sets on clusters of commodity hardware. It is licensed under the Apache License 2.0.

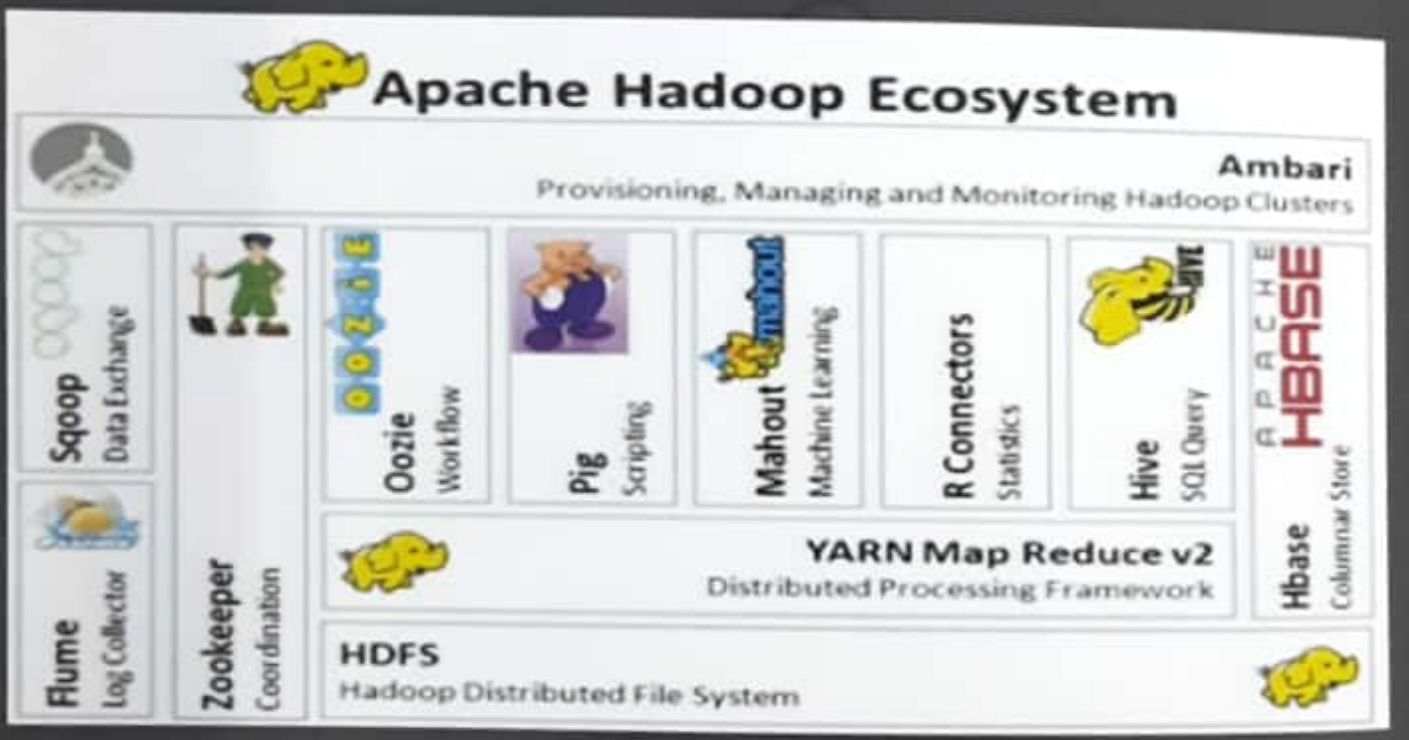
Hadoop was created by Doug Cutting and Mike Cafarella in 2005. It was originally developed to support distribution for the Nutch search engine project.

The Apache Hadoop framework is composed of the following modules

1. Hadoop Common: contains libraries and utilities needed by other Hadoop modules
2. Hadoop Distributed File System (HDFS): a distributed file-system that stores data on the commodity machines, providing very high aggregate bandwidth across the cluster
3. [illegible] a resource-management platform responsible for managing compute resources in clusters and using them for scheduling of users' applications
4. [illegible] a programming model for large scale data processing

All the modules in Hadoop are designed with a fundamental assumption that hardware failures (of individual machines or racks of machines) are common and thus should be automatically handled in software by the framework. Apache Hadoop's MapReduce and HDFS components originally derived respectively from Google's MapReduce and Google File System (GFS) papers.

Beyond HDFS, YARN and MapReduce, the entire Apache Hadoop "platform" is now commonly considered to consist of a number of related projects as well: Apache Pig, Apache Hive, ApacheBase, and others.



For the end-users, though MapReduce Java code is common, any programming language can be used with "Hadoop Streaming" to implement the "map" and "reduce" parts of the user's program. Apache Pig and Apache Hive, among other related projects, expose higher level user interfaces like Pig latin and a SQL variant respectively. The Hadoop framework itself is mostly written in the Java programming language, with some native code in C and command line utilities written as shell-scripts.

I. SAI RAMA KRISHNA
Asst. Professor, CSE

INTRODUCTION TO HYPER TEXT STRUCTURE LANGUAGE

Technical article : HTSQL databases

HTSQL is middleware component that SQL queries translate from HTTP form. It covering easy-to learn Syntax. It performs the query against a relational database, and returns the result as XML, HTML, CSV, JSON, or YAML. HTSQL formalizes a URI-to-SQL translation

In other words, HTSQL IS A COMPREHENSIVE NAVIGATIONAL QUERY LANGUAGE FOR RELATIONAL DATABASES. HTSQL is designed for data analysts and other accidental programmers who have complex business inquiries to solve and need a productive tool to write and share database queries. HTSQL is free and open source software.

Hyper-Text Structured Query Language is both a specification and an implementation of a "native" web Query language. Its objective is to provide a near-complete mapping of URIs onto SQL while maximizing Readability. HTSQL supports modern file formats and HTTP's best features: REST, error handling, request authentication, compression and encryption. Versions of HTSQL have been deployed in medical laboratories at Yale University for the past three years. The most recent deployment includes a two-tier solution pairing HTSQL with an entirely AJAX data-browser, DBGUI. HTSQL works with modern web browsers and open source relational databases, such as PostgreSQL, and soon SQLite and MySQL.

Example: List all colleges

/college

SQL Query

Select code , deptname from a.college order by code;

2. Design of HTSQL

The target audience for HTSQL is the accidental programmer, a person who customizes and tweaks software, a power-user. These individuals are not software engineers; instead, they are system administrators, business analysts – even professional accountants or medical researchers. These people know their data inside and out. They are the ones who play with URIs just to "see what happens". It is an explicit goal for a URI-based SQL access language to be intuitive and helpful; completeness or even consistency is not nearly as important as usability. This section covers the design of the HTSQL language, explaining how various features of SQL are covered, why particular decisions were made and what is their impact upon usability. We start with the most tedious detail, quoting and escaping.

HTSQL was designed from the ground up as a self-serve reporting tool for data analysts. With HTSQL, the easy stuff is truly easy; and, the complex stuff is easy too.

In this section we introduce the fundamentals of HTSQL syntax and semantics approach, For the purposes of this section, we use a fictitious university schema.

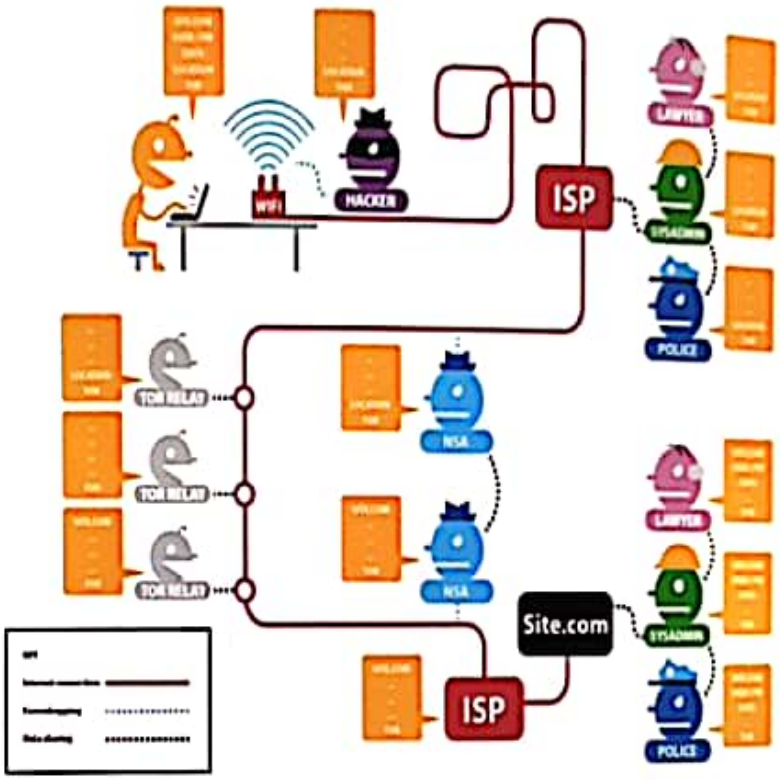
P. RAJITHA
Asst. Professor,CSE

TOR THE ONION ROUTER

Tor is free software for enabling anonymous communication. The name is an acronym derived from the original software project name The Onion Router. Tor directs Internet traffic through a free, worldwide, volunteer network consisting of more than six thousand relay to conceal a user's location and usage from anyone conducting network surveillance or traffic analysis. Using Tor makes it more difficult for Internet activity to be traced back to the user: this includes "visits to Web sites, online posts, instant messages, and other communication forms".Tor's use is intended to protect the personal privacy of users, as well as their freedom and ability to conduct confidential communication by keeping their Internet activities from being monitored. An extract of a Top Secret appraisal by the National Security Agency (NSA) characterized Tor as "the King of high-secure, low-latency Internet anonymity" with "no contenders for the throne in waiting", and the Parliamentary Office of Science and Technology deemed it, with approximately 2.5 million users daily "by far the most popular anonymous internet communication system."

Onion routing is a technique for anonymous communication over a computer network. In an onion network, messages are encapsulated in layers of encryption, analogous to layers of the vegetable onion. The encrypted data is transmitted through a series of network nodes called onion routers, each of which "peels" away a single layer, uncovering the data's next destination. When the final layer is decrypted, the message arrives at its destination. The sender remains anonymous because each intermediary knows only the location of the immediately preceding and following nodes.

In 2013, Jacob Appelbaum described Tor as a "part of an ecosystem of software that helps people regain and reclaim their autonomy. It helps to enable people to have agency of all kinds; it helps others to help each other and it helps you to help yourself. It runs, it is open and it is supported by a large community spread across all walks of life."In June 2013, whistleblower Edward Snowden used Tor to send information about PRISM to the Washington Post and The Guardian.



In 2014, the Russian government offered a $111,000 contract to "study the possibility of obtaining technical information about users and users' equipment on the Tor anonymous network"

USAGE

Tor enables users to surf the Internet, chat and send instant messages anonymously, and is used by a wide variety of people for both licit and illicit purposes. Tor has for example been used by criminal enterprises, hacktivism groups, and law enforcement agencies at cross purposes, sometimes simultaneously; likewise, agencies within the U.S. government variously fund Tor (the U.S. State Department), the National Science Foundation, and (through the Broadcasting Board of Governors, which itself partially funded Tor until October 2012), Radio Free Asia, and seek to subvert it.

Tor is also used for illegal activities, e.g., to gain access to censored information, to organize political activities,or to circumvent laws against criticism of heads of state.

LIMITS

Like all current low-latency anonymity networks, Tor cannot and does not attempt to protect against monitoring of traffic at the boundaries of the Tor network (i.e., the traffic entering and exiting the network). While Tor does provide protection against traffic analysis, it cannot prevent traffic confirmation (also called end-to-end correlation).

In spite of known weaknesses and attacks listed here, Tor and the alternative network system JonDonym (Java Anon Proxy, JAP) are considered more resilient than alternatives such as VPNs. Were a local observer on an ISP or WLAN to attempt to analyze the size and timing of the encrypted data stream going through the VPN, Tor, or JonDo system, the latter two would be harder to analyze, as demonstrated by a 2009 study.

PRAMOL H A
13016T 91

TECHNOLOGY

Technology is the collection of tools,including machinery,modifications,arrangements and procedures used by humans.Engineering is the discipline that seeks to study and design new technologies.Technologies significantly affect human as well as other animal species. I think Technology has affected society and its surroundings in a number of ways.In many societies,technology has helped develop more advanced economies and has allowed the rise of a leisure class.

Philosophical debates have arisen over the present and future use of technology in society,with disagreements over whether technology improves the human condition or worsens it.Technology in modern world can harm the environment and alienate people;proponents of idealogies such as transhumanism and techno-progressivism view continued technological progress as benificial to society and the human condition.

Advantages of technology are: We can reach larger audience from greater geographic locations,help disabled and geographically isolated students,improving the educational skills and knowledge of the people,-freedom to work at home on their own time,decrease over-crowded class rooms,promoting "Green Revolution" and many other advantages.

Like any other possible thing on this planet Technology has dis-advantages too.like,instructors and students need training to learn how to use technology;as the people are relying more on technology ,they become lazy;The basic way of studying is by books which they tend to forget gradually as they keep surfing internet for information.Technology can effect people physically too,like, when people use computers too much their eyes are effected.

Technology makes modern life easier and helps us to connect people around the globe.As we discussed earlier,there are dis-advantages too.We need to strive to make good use of technology and at the same time reduce the side-effects and dis-advantages of technology.

A.AKSHAY REDDY
12016T0957

XD Design Branches Out With Ginkgo Solar Tree

The Ginkgo can rapidly charge your phone in 2 hours. Furthermore it has enough juice to charge your phone two times! The Ginkgo is great for daily use.

- 4,000 mAh battery
- Suitable for USB chargeable phones, tablets and mobile devices
- Charge your phone in 2 hours
- Made from eco-friendly plastic and bamboo
- LED battery indicator
- Integrated phone/tablet standard

Specifications

Material: Eco friendly plastic, bamboo and aluminum
Battery: Lithium
Capacity: 4,000 mAh
Packaging: Gift box including manual and mini USB cable.

to combat the growing needs to power mobile devices, XD design looked to solar panels to develop the 'ginkgo solar tree' charger. The contours where sparked by japense ginkgos, which are long lasting often tall and slender, sparsely branched trees. unlike the trees, the solar charger comes with a large 4,000 mAh rechargeable lithium battery to store solar energy. It is manufactured from recycled plastics and bamboo, in addition to an aluminium base that incorporates a small black grip to stand phones and tablets.

the base blends LED lighting to indicated charging and the battery status along with discrete cable storage. located at the back, the USB output can rapidly charge devices in two hours, with enough storage to power an additional two phones. XD design's 'ginkgo solar tree' is now available for purchase at their online comes with a large 4,000 mAh rechargeable lithium battery made from recycled plastics and bamboo.USB port is located at the back the solar panels pivot for mobility purposes.

Chaitanya Kumar
13016T0994

foCuSE

INTERNET SOCIAL NETWORKING RISKS

Internet-based social networking sites have created a revolution in social connectivity. However, con artists, criminals, and other dishonest actors are exploiting this capability for nefarious purposes.

There are primarily two tactics used to exploit online social networks. In practice, they are often combined.

1. Computer savvy hackers who specialize in writing and manipulating computer code to gain access or install unwanted software on your computer or phone.
2. Social or human hackers who specialize in exploiting personal connections through social networks. Social hackers, sometimes referred to as "social engineers," manipulate people through social interactions (in person, over the phone, or in writing).

Humans are a weak link in cyber security, and hackers and social manipulators know this. They try to trick people into getting past security walls. They design their actions to appear harmless and legitimate.

Falling for an online scam or computer hack could be damaging for an individual victim as well as the organization the victim works for. Such risks include:

Vulnerability of Social Networking Sites

Social networking sites are Internet-based services that allow people to communicate and share information with a group.

Risks:

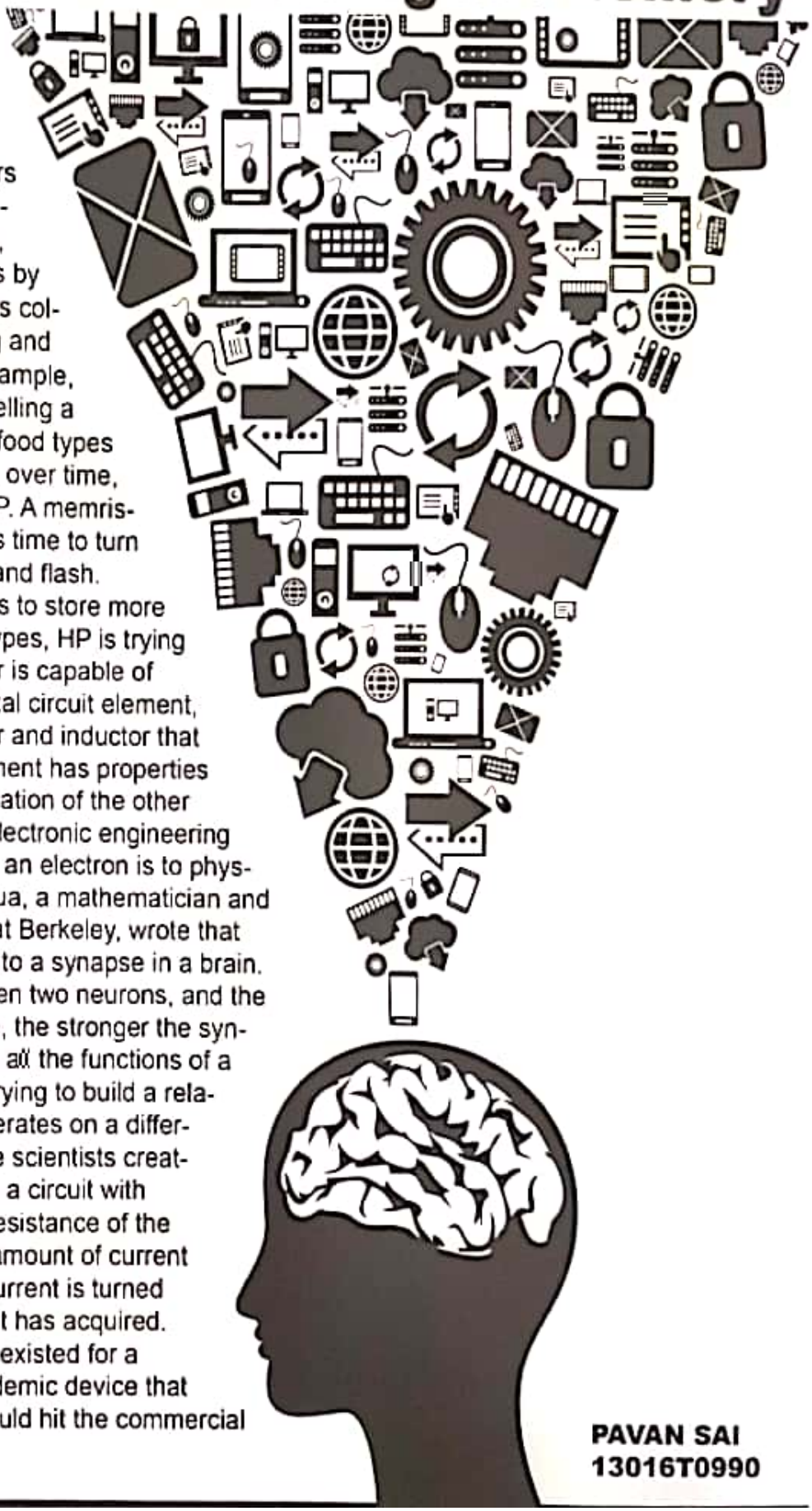
Once information is posted to a social networking site, it is no longer private. The more information you post, the more vulnerable you may become. Even when using high security settings, friends or websites may inadvertently leak your information. Personal information you share could be used to conduct attacks against you or your associates. The more information shared, the more likely someone could

impersonate you and trick one of your friends into sharing personal information, downloading malware, or providing access to restricted sites. Predators, hackers, business competitors, and foreign state actors troll social networking sites looking for information or people to target for exploitation.

Information gleaned from social networking sites may be used to design a specific attack that does not come by way of the social networking site.

Md. Sharfuddin Waseem
Asst. Professor, CSE

HP Researchers Build Intelligent Memory



Researchers at Hewlett-Packard have developed a working unit of a memory circuit that has existed in theory for 37 years, which could ultimately replace RAM and make computers more intelligent by tracking data it has retained. The technology, called memristor, could allow computers to make decisions by understanding past patterns of data it has collected, similar to human brains collecting and understanding a series of events. For example, a memristor circuit could be capable of telling a microwave the heating time for different food types based on the information it has collected over time, said Stanley Williams, senior fellow at HP. A memristor circuit requires lower voltage and less time to turn on that competitive memory like DRAM and flash. Denser cells also allow memristor circuits to store more data than flash memory. Through prototypes, HP is trying to show circuit designers what memristor is capable of doing. Memristor is the fourth fundamental circuit element, joining the other three resistor, capacitor and inductor that had been known for 150 years. The element has properties that cannot be duplicated by any combination of the other three elements. It is as fundamental to electronic engineering as a chemical element is to chemistry or an electron is to physics. In a 1971 academic paper, Leon Chua, a mathematician and professor at the University of California at Berkeley, wrote that memristor would have properties similar to a synapse in a brain. The synapse makes connections between two neurons, and the more often a signal is sent to a synapse, the stronger the synapse gets. HP is not going to reproduce all the functions of a brain in memristor, but the company is trying to build a relatively simple computing machine that operates on a different principle from today's computers. The scientists created the memory by applying a charge on a circuit with blocks of titanium dioxide. The actual resistance of the memristor changes depending on the amount of current flowing through the circuit. When the current is turned off, the memory retains the information it has acquired. Although the concept of memristor has existed for a while, the memory prototype is an academic device that will first work its way to academia. It could hit the commercial semiconductor market in five years

PAVAN SAI
13016T0990

Speaking Computers In a Network Based Environment

This article is an idea of implementing preliminary Robotic Conversations between computers based entirely on Java Technology, thereby setting a new trend of creating speaking devices (to start with computers), that exchange a formal conversation between them, when initiated to make a conversation by the user. The project is based on network programming and shall include socket based reception of voice conversation converted to text and text converted to voice between any two computers that start a formal talk with each other

Existing System:

The existing system has computers that only can interact with a text based data transfer between systems and thus cannot speak or communicate with each other.

Proposed System:

The proposed system is a preliminary Voice conversation system between computers that exchanges text between two computers for the equivalent voice generated by any of the two systems that are talking to each other.

Advantage:

1. Particularly very useful in Robotics.

2. Efficient voice based interaction is very useful in Robotics.

Modules:

1. **Socket Based Data Exchange Module:** This module is particularly useful for exchanging data between the two computers for efficient voice based interaction
2. **Text to Voice Conversion Module:** The text data received in the network is verified and a suitable text to voice conversion is done for the reply text that has to be spoken out by each computer at their respective ends.
3. **Greeting Module:** This module is required to start a formal conversation between any two computers for starting voice-based conversation that follows after greeting between each of the computers. This also serves as a connectivity check.
4. **Sign Out Module:** This module is for ending the conversation between the two talking computers after they finish their conversation

Ch.Vishnuvardhan Red
12016T0934

3D Touch

The next generation of Multi-Touch

iPhone 6s introduces an entirely new way to interact with your phone. For the first time, iPhone senses how much pressure you apply to the display. In addition to familiar Multi-Touch gestures like Tap, Swipe and Pinch, 3D Touch introduces Peek and Pop. This brings a new dimension of functionality to the iPhone experience. And when you use 3D Touch, your iPhone responds with subtle taps. So not only will you see what a press can do — you'll feel it.

3D touch is the ability to experience the virtual world in much the same way the real world is experienced — intuitively, interactively, and with a full complement of complex tactile sensations. Much more than simple "joy buzzer" vibrations, 3D touch allows computer users to navigate in three-dimensional space naturally while feeling sophisticated, high-fidelity simulations of weight, texture, shape, and dynamics.

One example of it's applications in gaming is through the feeling of recoil for weapons. Since the level of touch that can be simulated is very sophisticated, it allows each weapon to have it's very own unique feel. In computer-generated environments, 3D touch makes it possible to practice complex surgical procedures, to polish a golf swing, to distinguish the viscosity differences between molasses and honey, to pull back a bowstring, and more. 3D touch is deeply affecting, genuinely helpful for users, never gimmicky, and when implemented correctly, it can be as crucial to an application as sound or even graphics.

K.VINAY KUMAR
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K. Sai Akshitha - B.Tech-III/IV

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