IEEE
SSGMCE Students' Branch

HORIZON

BY IEEE STUDENTS' BRANCH

VOLUME : XIII ISSUE : 1 JULY 2017

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SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING SHEGAON

IEEE Students' Branch SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING, SHEGAON

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EVENT REPORT 2017-18

S. N	Title of Activity	Organizer / Resource person	Date	No. of Beneficiaries /Participants
1	Workshop on “Introduction to Calculators”	IEEE Coordinators	8/9/2017	203
2	Social Activity on “Basics of Computers”	IEEE Coordinators	15/9/2017	150
3	Workshop of “DS7 Solidworks”	Kaustubh Pathak and Swapnil Mistry BE Third Mech Engg	21/9/2017	20
4	Training Program on “ Effectively and efficiently utilizing the IEEE Xplore platform for project and research”	Mr. Chandrakant Ganvir, IEEE Certified Trainer, EBSCO Information Service, New Delhi	6/1/2018	20
5	The Ultimate Talk (Public Speaking Competition)	IEEE Coordinators	17/01/201819/ 01/2018 24/01/2018	11
6	IEEE Paper Presentation	IEEE Coordinators	16/02/2018	4
7	Two Day Workshop on “Hands on VLSI Circuit Design using Cadence”	Prof. S. P. Badar E & TC Dept SSGMCE	17/03/2018 To 18/03/2018	21
8	Two Day Workshop on “Hands on VLSI Circuit Design using cadence	Prof. S. P. Badar E & TC Dept SSGMCE	31/03/2018 To 01/04/2018	21

9	YP Guest Lecture on ‘Cognitive Radio”	Mr. Suyog Vyavahare, YP IEEE Bombay Section	7/04/2018	20
10	Summer School on Internet of Things	Dr. K. B. Khanchandani Prof. P. R. Wankhede	11/06/2018 To 07/07/2018	27
11	Summer School on CMOS VLSI Circuit Design	Dr. K. B. Khanchandani Prof. S. P. Badar	11/06/2018 To 07/07/2018	19

INTERNET OF THINGS

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

The definition of the Internet of things has evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of Things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", covering devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers.

There are a number of serious concerns about dangers in the growth of IoT, especially in the areas of privacy and security; and consequently industry and governmental moves to begin to address these.

The concept of a network of smart devices was discussed as early as 1982, with a modified Coke vending machine at Carnegie Mellon University becoming the first Internet-connected appliance, able to report its inventory and whether newly loaded drinks were cold or not. Mark Weiser's 1991 paper on ubiquitous computing, "The Computer of the 21st Century", as well as academic venues such as UbiComp and PerCom produced the contemporary vision of the IoT. In 1994, Reza Raji described the concept in *IEEE Spectrum* as "[moving] small packets of data to a large set of nodes, so as to integrate and automate everything from home appliances to entire factories". Between 1993 and 1997, several companies proposed solutions like Microsoft's at Work or Novell's NEST. The field gained momentum when Bill Joy envisioned device-to-device communication as a part of his "Six Webs" framework, presented at the World Economic Forum at Davos in 1999.

The term "Internet of things" was likely coined by Kevin
Ashton of Procter & Gamble,
later MIT's Auto-ID Center, in 1999, though he prefers the phrase "Internet *for* things". At that point, he
viewed radio-frequency identification (RFID) as essential to the Internet of things, which would allow computers to manage all individual things.

Defining the Internet of things as "simply the point in time when more 'things or objects' were connected to the Internet than people", Cisco Systems estimated that the IoT was "born" between 2008 and 2009, with the things/people ratio growing from 0.08 in 2003 to 1.84 in 2010.

SMART LOCK.(BASED ON IOT)

SOCIAL MEDIA

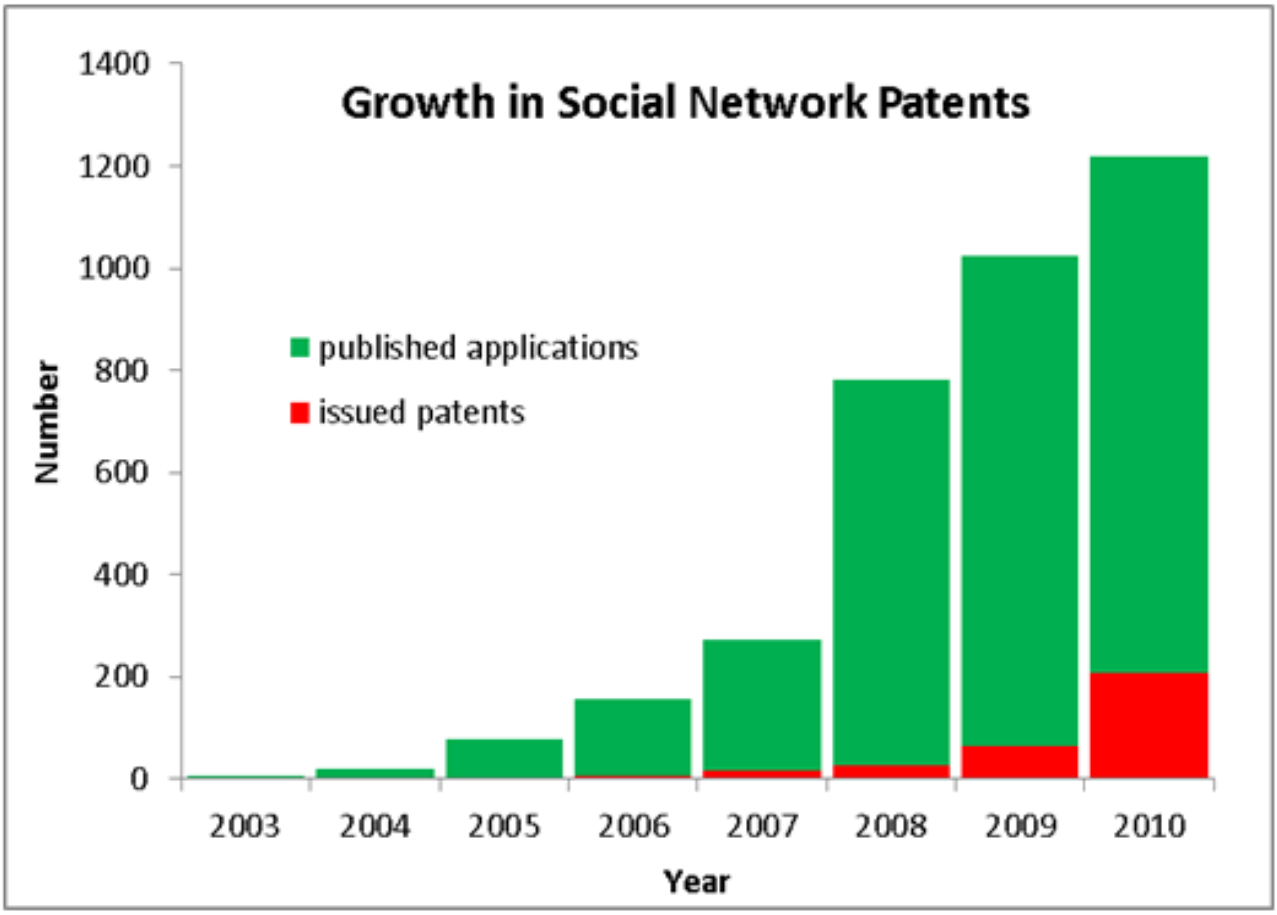
Social media are interactive computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. The variety of stand-alone and built-in social media services currently available introduces challenges of definition; however, there are some common features:

1. Social media are interactive Web 2.0 Internet-based applications.
2. User-generated content, such as text posts or comments, digital photos or videos, and data generated through all online interactions, is the lifeblood of social media.
3. Users create service-specific profiles and identities for the website or app that are designed and maintained by the social media organization.
4. Social media facilitate the development of online social networks by connecting a user's profile with those of other individuals or groups.

Users usually access social media services via web-based technologies on desktops and laptops, or download services that offer social media functionality to their mobile devices (e.g., smartphones and tablets). As users engage with these electronic services, they create highly interactive platforms through which individuals, communities, and organizations can share, co-create, discuss, participate and modify user-generated content or self-curated content posted online.

Networks formed through social media change the way groups of people interact and communicate or stand with the votes. They "introduce substantial and pervasive changes to communication between organizations, communities, and individuals." These changes are the focus of the emerging fields of technoself studies. Social media differ from paper-based media (e.g., magazines and newspapers) and traditional electronic media such as TV broadcasting, Radio broadcasting in many ways, including quality, reach, frequency, interactivity, usability, immediacy, and performance. Social media outlets operate in a dialogic transmission system (many sources to many receivers). This is in contrast to traditional media which operates under a mono-logic transmission model (one source to many receivers), such as a newspaper which is delivered

to many subscribers, or a radio station which broadcasts the same programs to an entire city. Some of the most popular social media websites, with over 100 million registered users, include Facebook (and its associated Facebook Messenger), YouTube, WeChat, Instagram, QQ, QZone, Weibo, Twitter, Tumblr , Telegram, Baidu Tieba, LinkedIn, LINE, Snapchat, Pinterest, Viber and VK.



ELECTRIC VEHICLE

Just as there are a variety of technologies available in conventional vehicles, plug-in electric vehicles (also known as electric cars or EVs) have different capabilities that can accommodate different drivers' needs. A major feature of EVs is that drivers can plug them in to charge from an off-board electric power source. This distinguishes them from hybrid electric vehicles, which supplement an internal combustion engine with battery power but cannot be plugged in.

There are two basic types of EVs: all-electric vehicles (AEVs) and plug-in hybrid electric vehicles (PHEVs). AEVs include Battery Electric Vehicles (BEVs) and Fuel Cell Electric Vehicles (FCEVs). In addition to charging from the electrical grid, both types are charged in part by regenerative braking, which generates electricity from some of the energy normally lost when braking. Which type of vehicle will fit your lifestyle depends on your needs and driving habits. Find out which BEVs and PHEVs are available to suit your needs.

All-electric vehicles (AEVs) run only on electricity. Most have all-electric ranges of 80 to 100 miles, while a few luxury models have ranges up to 250 miles. When the battery is depleted, it can take from 30 minutes (with fast charging) up to nearly a full day (with Level 1 charging) to recharge it, depending on the type of charger and battery.

If this range is not sufficient, a plug-in electric vehicle (PHEV) may be a better choice. PHEVs run on electricity for shorter ranges (6 to 40 miles), then switch over to an internal combustion engine running on gasoline when the battery is depleted. The flexibility of PHEVs allows drivers to use electricity as often as possible while also being able to fuel up with gasoline if needed. Powering the vehicle with electricity from the grid reduces fuel costs, cuts petroleum consumption, and reduces tailpipe emissions compared with conventional vehicles. When driving distances are longer than the all-electric range, PHEVs act like hybrid electric vehicles, consuming less fuel and producing fewer emissions than similar conventional vehicles. When driving distances are longer than the all-electric range, PHEVs act like hybrid electric vehicles, consuming less fuel and producing fewer emissions than similar conventional vehicles.

Depending on the model, the internal combustion engine may also power the vehicle at other times, such as during rapid acceleration or when using heating or air conditioning. PHEVs could also use hydrogen in a fuel cell, biofuels, or other alternative fuels as a back-up instead of gasoline.

Following some best practices can help you maximize your all-electric range and vehicle efficiency whether you have an AEV or PHEV.

Types of EVs

EVs (also known as plug-in electric vehicles) derive all or part of their power from electricity supplied by the electric grid. They include AEVs and PHEVs.

AEVs (all-electric vehicles) are powered by one or more electric motors. They receive electricity by plugging into the grid and store it in batteries. They consume no petroleum-based fuel and produce no tailpipe emissions. AEVs include Battery Electric Vehicles (BEVs) and Fuel Cell Electric Vehicles (FCEVs).

PHEVs (plug-in hybrid electric vehicles) use batteries to power an electric motor, plug into the electric grid to charge, and use a petroleum-based or alternative fuel to power the internal combustion engine. Some types of PHEVs are also called extended-range electric vehicles (EREVs).

BITCOIN

Bitcoin (₿) is a cryptocurrency. It is a decentralized digital currency without a central bank or single administrator that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

Transactions are verified by network nodes through cryptography and recorded in a public distributed ledger called a blockchain. Bitcoin was invented in 2008 by an unknown person or group of people using the name Satoshi Nakamoto and started in 2009 when its source code was released as open-source software. Bitcoins are created as a reward for a process known as mining. They can be exchanged for other currencies, products, and services. Research produced by University of Cambridge estimates that in 2017, there were 2.9 to 5.8 million unique users using a cryptocurrency wallet, most of them using bitcoin.

Bitcoin has been criticized for its use in illegal transactions, its high electricity consumption, price volatility, and thefts from exchanges. Some noted economists, including several Nobel laureates, have characterized it as a speculative bubble. Bitcoin has also been used as an investment, although several regulatory agencies have issued investor alerts about bitcoin.

The domain name "bitcoin.org" was registered on 18 August 2008. On 31 October 2008, a link to a paper authored by Satoshi Nakamoto titled *Bitcoin: A Peer-to-Peer Electronic Cash System* was posted to a cryptography mailing list. Nakamoto implemented the bitcoin software as open-source code and released it in January 2009. Nakamoto's identity remains unknown.

On 3 January 2009, the bitcoin network was created when Nakamoto mined the first block of the chain, known as the *genesis block*. Embedded in the coinbase of this block was the text "The Times 03/Jan/2009 Chancellor on brink of second bailout for banks". This note references a headline published by *The Times* and has been interpreted as both a timestamp and a comment on the instability caused by fractional-reserve banking.

Supply

Successful miner finding the new block is allowed by the rest of the network to reward themselves with newly created bitcoins and transaction fees. As of 9 July 2016, the reward amounted to 12.5 newly created bitcoins per block added to the blockchain, plus any transaction fees from payments processed by the block. To claim the reward, a special transaction called a *coinbase* is included with the processed payments. All bitcoins in existence have been created in such coinbase transactions. The bitcoin protocol specifies that the reward for adding a block will be halved every 210,000 blocks (approximately every four years). Eventually, the reward will decrease to zero, and the limit of 21 million bitcoins will be reached c. 2140; the record keeping will then be rewarded solely by transaction fees.

In other words, Nakamoto set a monetary policy based on artificial scarcity at bitcoin's inception that the total number of bitcoins could never exceed 21 million. New bitcoins are created roughly every ten minutes and the rate at which they are generated drops by half about every four years until all will be in circulation.

AGUMENTED REALITY

Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real-world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities,
including visual, auditory, haptic, somatosensory and olfactory. The overlaid sensory information can be constructive (i.e. additive to the natural environment), or destructive (i.e. masking of the natural environment). This experience is seamlessly interwoven with the physical world such that it is perceived as an immersive aspect of the real environment. In this way, augmented reality alters one's ongoing perception of a real-world environment, whereas virtual reality completely replaces the user's real-world environment with a simulated one. Augmented reality is related to two largely synonymous terms: mixed reality and computer-mediated reality.

The primary value of augmented reality is the manner in which components of the digital world blend into a person's perception of the real world, not as a simple display of data, but through the integration of immersive sensations, which are perceived as natural parts of an environment. The earliest functional AR systems that provided immersive mixed reality experiences for users were invented in the early 1990s, starting with the Virtual Fixtures system developed at the U.S. Air Force's Armstrong Laboratory in 1992. Commercial augmented reality experiences were first introduced in entertainment and gaming businesses. Subsequently, augmented reality applications have spanned commercial industries such as education, communications, medicine, and entertainment. In education, content may be accessed by scanning or viewing an image with a mobile device or by using markerless AR techniques. An example relevant to the construction industry is an AR helmet for construction workers which displays information about construction sites.

Augmented reality is used to enhance natural environments or situations and offer perceptually enriched experiences. With the help of advanced AR technologies (e.g. adding computer vision, incorporating AR cameras into smartphone applications and object recognition) the information about the surrounding real world of the user becomes interactive and digitally manipulated. Information about the environment and its objects is overlaid on the real world. This information can be virtual or real, e.g. seeing other real sensed or measured information such as electromagnetic radio waves overlaid in exact alignment with where they actually are in space. Augmented reality also has a lot of potential in the gathering and sharing of tacit knowledge. Augmentation techniques are typically performed in real time and in semantic contexts with environmental elements. Immersive perceptual information is sometimes combined with supplemental information like scores over a live video feed of a sporting event. This combines the benefits of both augmented reality technology and heads up display technology (HUD).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