Panimalar Institute of Technology

(JAISAKTHI EDUCATIONAL TRUST)

Department of Computer Science and Engineering

Accredited by NBA

BITS & BYTES '2020

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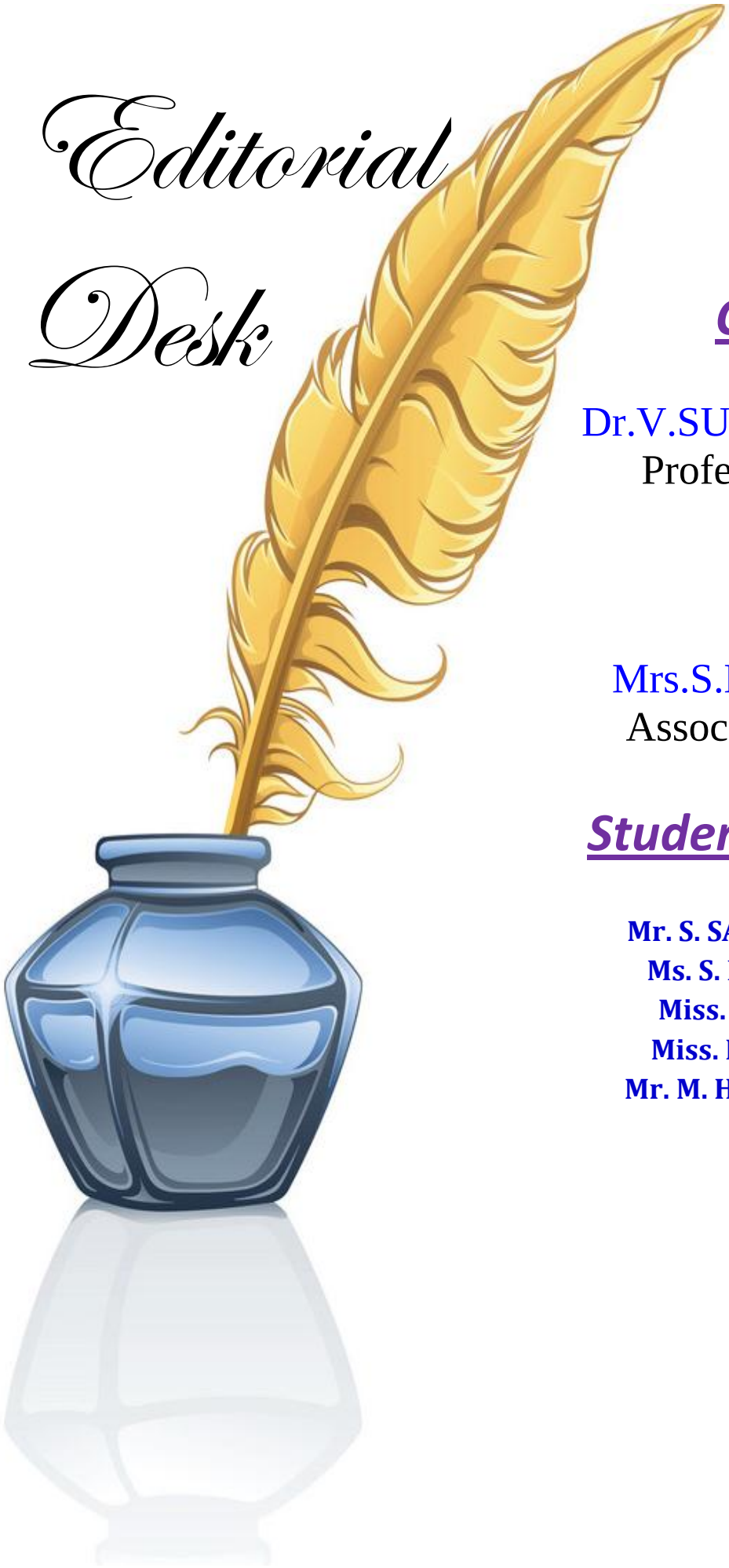

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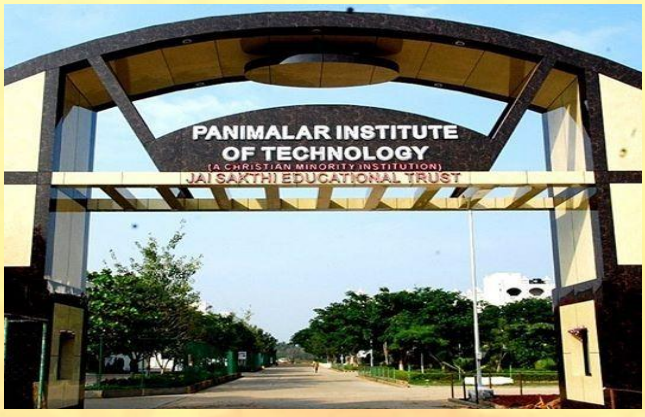
About the College

Panimalar Institute of Technology started by **Jaisakthi Educational Trust** focuses on disseminating knowledge coupled with discipline and ethics. It is a Christian Minority Institution and a self- financing engineering college with five streams viz. CSE, IT, ECE, EEE and MECH at present. This institution is affiliated to Anna University meets the guidelines of AICTE, New Delhi in all aspects. Among the five departments, CSE, IT, ECE and EEE departments are accredited by National Board of Accreditation (NBA), New Delhi. Our college is a combination of a world class infrastructure built upon the greatest faculty strength combined with a pictures environment to chisel the finest minds into the most capable future generations of India. It is located in Poonamallee, not far away from Chennai city limits.

Our institution is likely to expand its sphere in other facilities also. The institution takes care to impart updated and high quality technical education throughout the year. Special care is taken in the matter of students becoming qualified as well as competent to face the challenges of the leading corporates in the present world of tough competition. Every effort is taken to transform the students into well rounded personality with strong confidence and sound character making no compromise in perfection, morality, dedication and commitment.

Students : Our well-equipped Engineers
Staff : Our means
Industry and Profession : End users



Institute

VISION

An Institution of Excellence by imparting quality education and serve as a perennial source of technical manpower with dynamic professionalism and entrepreneurship having social responsibility for the progress of the society and nation.

MISSION

Panimalar Institute of Technology will strive to emerge as an Institution of Excellence in the country by

- Providing state-of-the-art infrastructure facilities for designing and developing solutions for engineering problems.
- Imparting quality education and training through qualified, experienced and committed members of the faculty.
- Inculcating high moral values in the minds of the Students and transforming them into a well-rounded personality.
- Establishing Industry Institute interaction to make students ready for the industrial environment.
- Promoting research based projects/activities in the emerging areas of Engineering & Technology.

About the Department

The Department of Computer Science and Engineering was established in the year 2008 and accredited by NBA, with well-equipped, spacious and state-of- the-art infrastructure. The department strives to impart best training to the students on Computer Science. The department has dedicated and qualified faculty besides good infrastructure for learning. The department has world-class laboratories to serve the needs of the faculty to enrich teaching and research activities and also to provide an experimental foundation for the students to experience learning with practical dimensions. Research at the department is nurtured through various sponsored technical program to keep pace with the current technological trends. The department is an active member of the professional bodies like Computer Society of India – Chennai Chapter, IEEE Computer Society and ICT Academy. CSE department is fabulous in maintaining Industry- Institute Interaction with the aim of imparting Short-Term Courses, Workshops, Certification Courses, Faculty Development Programs and Sponsored Projects at our campus. The major objectives of the department are to assist and develop top quality professional engineers and technicians required by the industries and other organizations.

- **Department of CSE creates new knowledge and opportunities to the students for learning through the process of research and enquiry.**
- **Department of CSE inculcates its students to recognize and value communication as the tool for creating new understanding, collaborating with others and furthering their own learning.**

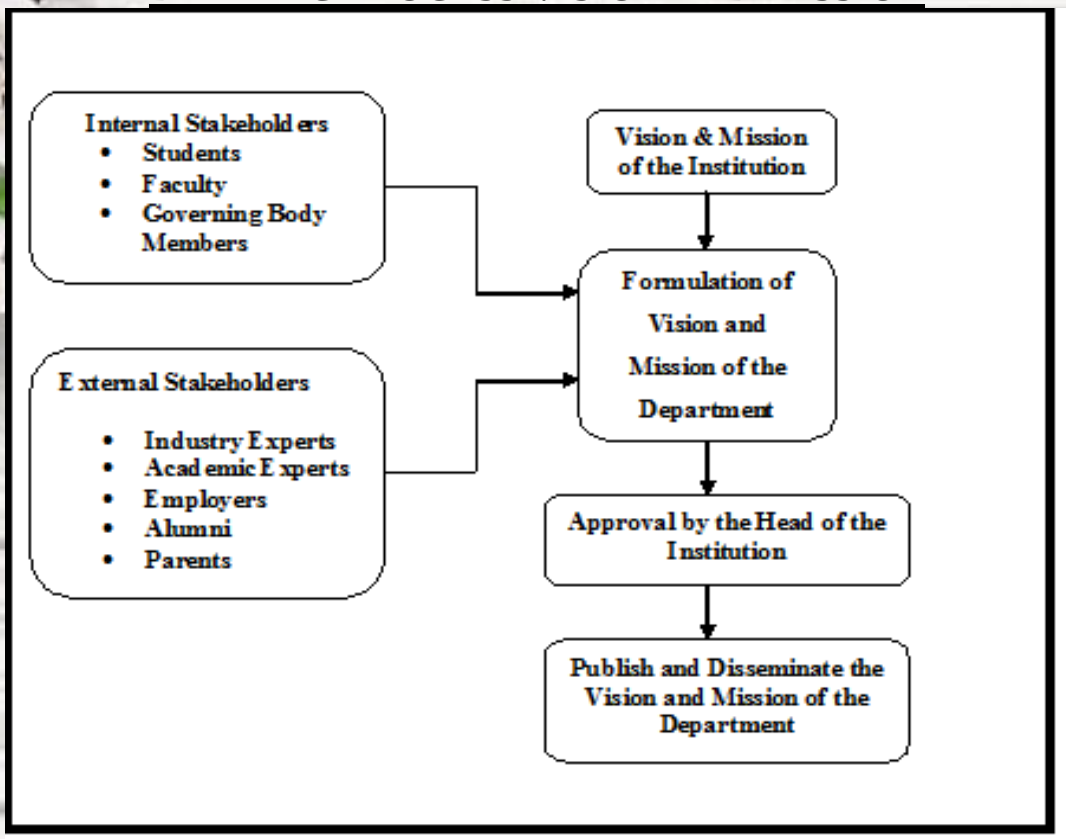
VISION

To evolve as a Centre of Excellence in Computer Science and Engineering to compete with latest trends and also persistently strive to inculcate the requisite skills in research, innovation and entrepreneurship, making the budding engineers as competent professionals to take up any global challenge.

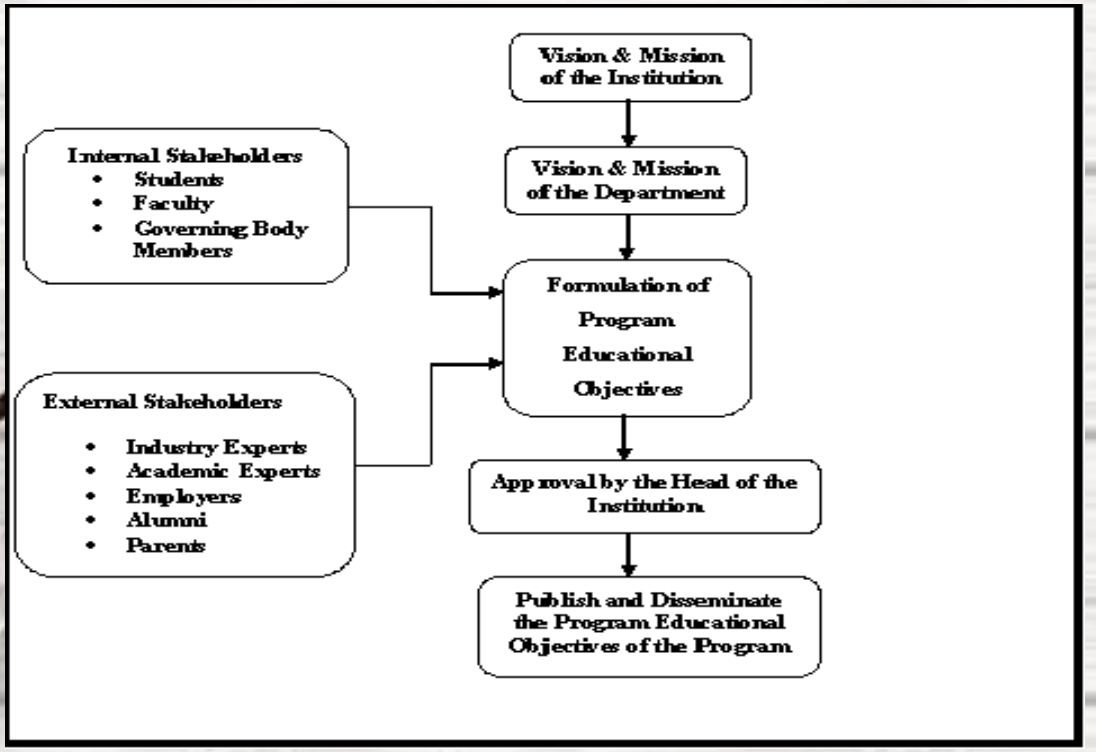
MISSION

- To produce high-quality Computer Engineers with employable skills and professional standards by imparting theoretical and practical training.
- To collaborate with industry in pursuit of education and research, leading to the development of commercially-viable technologies.
- To develop an overall personality of the students by encouraging them to participate in co-curricular and extra-curricular activities.
- To train teachers capable of inspiring the next generation of engineers and researchers.
- To develop research interest among the student community.

DEFINING PROCESS-VISION AND MISSION



DEFINING PROCESS - PROGRAM EDUCATIONAL OBJECTIVES



PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO-I:

To excel in Computer Science and Engineering program to pursue their higher studies or succeed in their profession through quality education.

PEO-II:

To acquire knowledge in the latest technologies and innovations and an ability to identify, analyze and solve problems in computer engineering.

PEO-III:

To become recognized professional engineers with demonstrated commitment to life-long learning and continuous self-improvement in order to respond to the rapid pace of change in Computer Science Engineering.

PEO-IV:

To be capable of modeling, designing, implementing and verifying a computing system to meet specified requirements for the benefit of society.

PEO-V:

To possess critical thinking, communication skills, teamwork, leadership skills and ethical behavior necessary to function productively and professionally.

PROGRAM OUTCOMES (POs)

On completion of the B.E (CSE) degree the Computer science and Engineering graduates will be able to

PO1.Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4.Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5.Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6.The Engineer and Society: Apply reasoning informed by the contextual knowledge toassess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7.Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8.Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9.Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10.Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11.Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

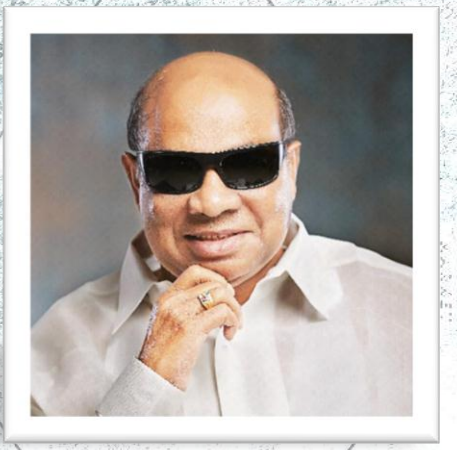
PO12. Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: An ability to apply knowledge of software development concepts to select and apply software development processes, programming paradigms, and architectural models appropriate to different applications.

PSO2: Familiarity with various programming languages and paradigms, with practical competence in at least three languages and two paradigms.

PSO3: An ability to demonstrate knowledge in theoretical computer science and in related areas such as algorithm design, compiler design, artificial intelligence and information security.



RIP. Dr. JEPPIAAR, M.A.,B.L.,Ph.D.,
Founder and Chairman

Our Founder & Chairman Late Dr. Jeppiaar, M.A., B.L., Ph.D., deserves the due homage of mortals for he still lives and reigns in the hearts of many through his service of eduction.

He had a vision to offer quality technical education to those who were deprived of basic necessities due to poverty, social status and many such social injustices. He was committed to offer a fair chance that every student deserved to prove their worth despite their economic status.

Despite of the college's success in terms of glory and money, his motive was not making profit out of education instead; he chose to be the eye opener for many who lived in the vulnerability caused by illiteracy. His ardent desire was to give back to the society that nurtured him.

With his blessings we are delighted to release this magazine **Bits and Bytes'2020** from Department of Computer Science and Engineering for the academic year 2019-2020.

Correspondant's Message

Dr.P.CHINNADURAI, M.A.,Ph.D.,
Secretary & Correspondent

Greetings! To educate is to empower. Education is indeed the process of moulding an individual to meet demands of society. It is solely responsible for building the socio-economic infrastructure of nation. Our college is committed to bring about social empowerment through dynamic education. The efforts taken to provide education to the masses have made our country emerge as an economic power. We take pride in being a contributor to this social transformation. Our college has also been playing a crucial role in the development of academic excellence. Its policies are aimed at overall development of the students. Beyond providing a sound education, we wish to provide our students a holistic learning experience for life. I sincerely appreciate all the members of staff, students who have contributed besides their academic activities and those who have taken strenuous efforts in bringing out the magazine successfully. I wish it becomes a continuous process. Wish you Good Luck!

MESSAGE FROM THE DIRECTOR

Mr. C. Sakthikumar, M.E.,
Director, Panimalar Institute of Technology

It is a matter of great happiness to see the success of the CSE Department's magazine **BITS & BYTES '2020**. The humans have been exchanging the ideas to acquire and use knowledge. This exchange of idea was initially limited to tribes or the people living in close vicinity. With the advent of the technology the horizon of this sharing expanded, and today internet has made the whole world a global village and has facilitated communication irrespective of the distance. Though technology has made life simpler for mankind it has also made life difficult for the budding engineers who have to learn new technologies every day. This learning could possibly be achieved only through sharing. This sharing need not necessarily be only about the contemporary research but also about the usage of the current technologies. I hope this magazine will provide a platform where the students and faculties can discuss the mechanisms of using the state of art technologies to refine their skills.

MESSAGE FORM THE PRINCIPAL

Dr. T. JAYANTHY, M.E., Ph.D.,
Principal, Panimalar Institute of Technology

It gives me great pleasure to know that the Department of Computer Science and Engineering has come out with magazine **BITS & BYTES '2020**. The technology is changing at a very rapid pace and the only way one can remain acquainted with the recent trend is through sharing. This magazine will help the students and the staff of the CSE department to share and discuss the state-of-the-art technologies. It will also help the students and faculty members to improve their writing skills and also provide an opportunity to ventilate their feelings and thoughts. I appreciate the CSE department for its initiative and congratulate students and faculty members who have made contributions to make this effort fruitful.

MESSAGE FROM THE HEAD OF THE DEPARTMENT

DR. V. SUBEDHA, M.Tech., Ph.D.,

Professor & Head

At this outset let me extend my warm greetings and best wishes to each and every one for yet another magazine **BITS & BYTES' 2020**. The CSE department has reached a landmark since its inception in the Year 2008. Apart from the growth in intake and infrastructure, we have also been able to improve the quality of education provided to the students.

Moreover, it gives me immense pleasure to release the current issue of our magazine BITS & BYTES and I extend my hearty congratulations to the Editorial Board and the faculty members for their laudable venture in bringing out this issue. Department magazines are the means to show the skills of the students in their respective fields. We are proud to have such students among us who, I am sure, will significantly contribute towards the development their own career, the department, the institution and the entire nation.

With this edition we could revitalize CSE department and show the way ahead for its future growth and expansion. Keep up the Good Work.

CEO Talk

"...RISK is Rewarded..."

-Sundar Pichai
Chief Executive Officer of Alphabet

"Sundar Pichai".... The name is nothing less than a self-explained fame! The path to fame is not always covered by visible thorns, endurance through surprise twists and troubles is something that distinguishes the extra-ordinary from the ordinary! From Chennai to the hall of fame... Here's the summary of the brilliant things ever said by the CEO of GOOGLE!

"I would like to see people value creativity, value experience of doing things and value taking risks. It is important to be well-rounded. I would encourage people to try different things, take some risks and follow their passions a little bit more.

Enjoy what you're doing and what matters most is "loving" what you're doing and trying to do good at it. So I think, if you follow your heart and do what you like you will always do much better. It's worthwhile taking risks. I mean, trying to do something you're really excited by, if the first attempt you don't do it you know you can try again and you know things seem to work out in the long run if you work on really difficult things you're better off, because you have no competition! Others aren't working on that difficult problem; ***even if you fail you end up doing something great in the process***.

Most of how life plays out is up to you, not up to what happens outside of you and I think it's important to keep that in mind and take the long-term view

You want to aim high enough that you fail a few times I think that's the natural part of the process, setbacks actually don't matter. In Silicon Valley a part of the reason so many people startup a company is, starting a company and even having failed you can wear it like a badge of honor and I think that's important culturally, ***"risk is rewarded"*** so, I think it's important to keep your hopes, keep your dreams and try to follow them.

The Empowered Edge

In 2018, Gartner mentioned the technology trends as 'cloud to the edge' where the shift to edge-based infrastructure was predicted from centralised cloud platforms to address challenges related to bandwith constraints, connectivity and latency.

Now this year, Gartner is emphasizing the empowerment of edge-focused infrastructure due to ongoing substantial growth in digital devices, especially those devices which require analysis response after computation at the data centre end in no time.

Edge computing will become a dominant factor across virtually all industries and use cases as the edge becomes empowered with more sophisticated and specialized computer resources and more data storage. The goal of edge computing is to keep the traffic and processing local in order to reduce latency, exploit the capabilities of the edge and enabler greater autonomy at the edge. The focus on the edge currently stems from the need for Internet of Things (IoT) systems to deliver disconnected or distributed capabilities into the embedded IoT world.

Over time, the edge will create an unstructured architecture consisting of a wide range of "things" and services connected in a flexible mesh linked by a set of distributed cloud services. In the future, a smart "thing" such as a drone, might communicate with an enterprise IoT platform or city-level local cloud services then conduct peer-to-peer exchanges with nearby drones for navigational purposes.

Through 2028, Gartner expects a steady increase in the embedding of sensor, storage, compute and advanced AI capabilities in edge devices. Mesh architectures will enable more flexible, intelligent and responsive, and peer-to-peer IoT systems.

- S. Siva Ranjani
II Year CSE

According to wikipedia computer science and engineering is a sub-field of electronics engineering, focusing the digital electronics domain with addition of computer architecture, processor design, operating systems, high-performance computing, parallel processing, computer networks and embedded systems. Actually, living and making ourselves prominent and inevitable in every possible field that has the possibility of growth and development. Yep! That's right, you can never ignore us.

The most important aspect of computer science is problem solving, an essential skill for life. We study the design, development and analysis of software and hardware used to solve problems in a variety of business, scientific and social contexts. Besides, computers solve problems to serve people, there is a significant human side to computer science as well and that's us!

Why Computer science Rocks ?!?

You can never deny the fact that computing and computer technology are part of just about everything that touches our lives. What do u wanna do? name it and we've got it! from the cars we drive, to the movies we watch, from kid's recorded speech to the most advanced robo that can eventually assist your uniquely designed brains. Understanding different dimensions of computing is part of the necessary skill set for an educated person in the 21st century. Computing is part of everything you do which means "we" are a part of everything you do.

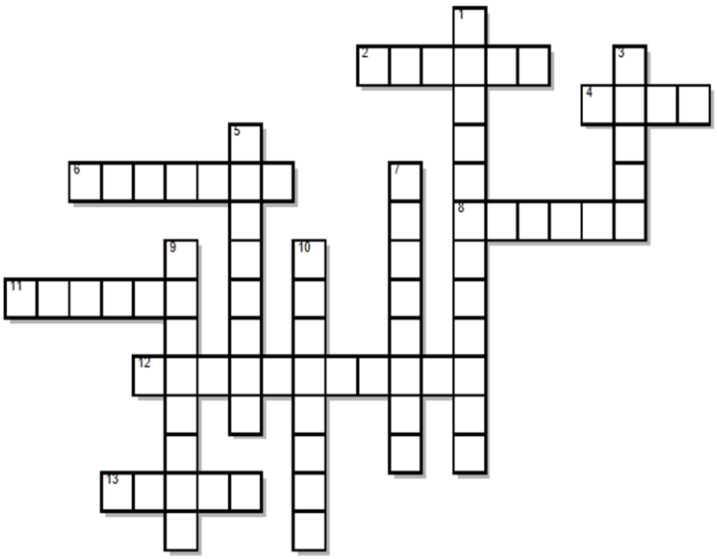
A wide variety of areas including data mining, computer graphics, artificial intelligence, human computer interaction, robotics, databases, web programming, cybersecruity and oh! So many fields, and yet we are still searching for more and more ways to make your lives better. Oh Yes! We do.

We make the change we wanna see, a positive change. Problems with the potential to impact a wide range of people have been solved by our innovations. Creating high-quality computing solutions is a highly creative activity and computing supports creative work in many other fields. The best solutions in computing exhibit high levels of elegance and beauty. The ability to think outside of the box is our specialty.

The reality I guess was far beyond any predictions. Coz computing is one of those fields where it is almost impossible to predict what will happen next. Now, that is something that keeps us on our feet to put in the best of us to find solution for questions which exist and not mere questions for existing answers. The thrill, the pulse, the deadline, the thought process, the instant output, the tech and what not? Welcome to our world!

- **J. Jonnah**
  III Year CSE

CROSSWORDs



ACROSS

2. Any device that holds computer data.

4. The process of loading or initializing an operating system on a computer, usually occurs as soon as a computer is turned on

6. Free email service, now named Outlook.com

8. A relational database management system, a large scientific digital computer that used vacuum tubes. It had an original storage capacity of 1024 words of 40 bits each

11. A small text file sent to your computer by a web site you have visited. These can be very useful in that they can allow the web site to recognize who you are when you return, cannot store viruses

12. The process of hiding certain details and showing only essential information to the user.

13. piece of program code that spreads by making copies of itself

DOWN

1. The shortcut key Win + R keys used in?

3. A peripheral device used to point to items on a monitor

5. 1024 (or 1000) bytes is 1?

7. A Cursor control device used in computer games and assistive technology

9. One of the primary input devices used with a computer and similar to an electric typewriter

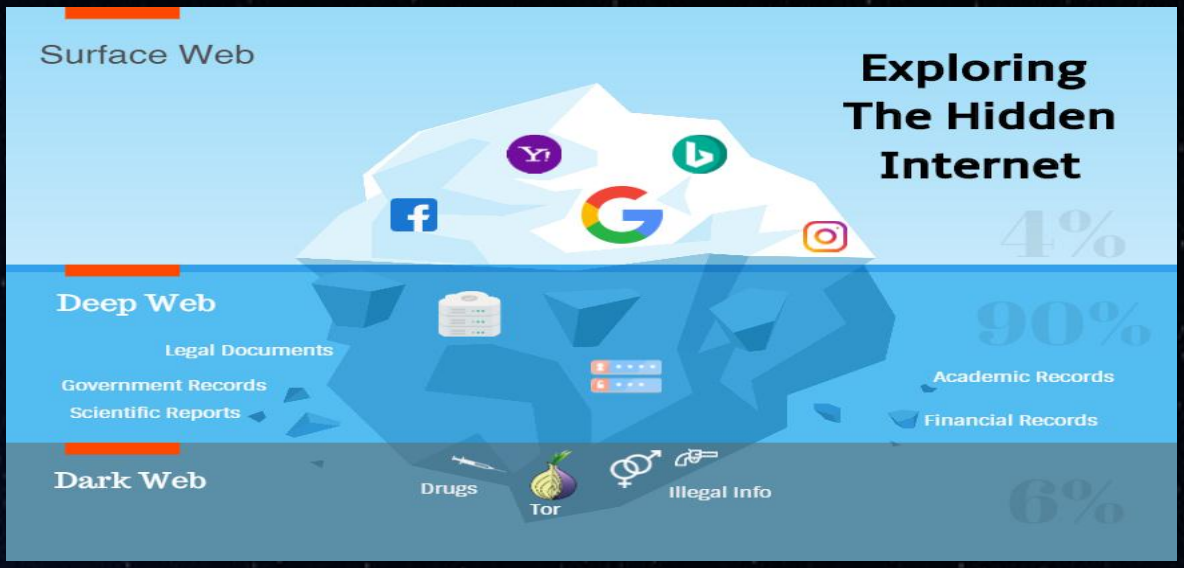
10. A large structured set of data; a file that contains numerous records that contain numerous fields

- N. Aishwarya

III Year CSE

Dark Web

Internet is a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols. Only 4%of the internet is used by common users for education, entertainment, business, etc. rest of the internet is used as dark web. In the late 1990s, two research organizations in the US department of defense drove efforts to develop an anonymized and encrypted network that would protect the sensitive communications of US spies. This secret network would not be known or accessible to ordinary internet surfers. And while the original clandestine intension was never fully realized, some of the researches saw a different value proposition at hand-launching a nonprofit focused on anonymity for human rights and privacy activists. Few examples of dark web are drug transfer, online mafia, communication between terrorist and some games like blue whale.



Darknet websites are accessible only through networks such as TOR (The onion routing) and I2P (Invisible Internet Project). The extension used for this website is .onion, while TOR focuses on providing anonymous access to the internet, I2P specializes in allowing anonymous hosting of websites. Identities and locations of darknet users stay anonymous and cannot be tracked due to the layered encryption system. The darknet encryption technology routes users data through a large number of intermediate servers, which protect the users identity and guarantees anonymity.

The transmitted information can be decrypted only by a subsequent node in the scheme, which leads to the exit node. Since using PayPal or credit card payments would give away your identity, the darknet prefer to use bitcoin virtual currency, which is even less traceable than cash.Bitcoin is the normal cryptocurrency. Cryptocurrency is a digital or virtual currency.The crypto is the general form of encryption; this is used for the security purpose which is understandable by the sender and the target receiver. The value of one bitcoin is 2300 dollars. Bitcoin is a decentralized system i.e., lower level

components operate on local information to accomplish global goals.Bitcoin exchanges are conducted using anonymous account numbers, much like swiss bank accounts but with more cloaking. These anonymous account numbers are what we call as bitcoin "wallet", which is specialized software that is installed. If you feel dishonest and defrauded treated in a financial transaction, you cannot go to a bank and ask for them to refund your money. Once bitcoin money has traded hands, it cannot be electronically reversed."

Many of the dark web's most popular sites are known as "darknet markets", because they sell goods that are often illegal through such sites, and almost always use bitcoin or other cryptocurrencies (like monero). A few of these markets include Dream market, Wall Street market, CGMC, and point / Tochka market – all of which are hosted on Tor.

AlphaBay Market and Hansa Market, which law enforcement recently busted, also used bitcoin. When purchasing goods, they will select what they want on the site, and they will have to transfer the bitcoin to the vendor through whatever payment system the site has. This can vary a lot from site to site, as many sites have different authentication systems to prevent scams – but one way or another, the bitcoin should endup in the vendor's hand. For example, most darknet markets are either escrow market or multisig markets.

On an escrow market, the bitcoins are held in escrow until the transaction is completed, to ensure that everyone holds up their end of the deal. Multisig means multisignature, i.e. more than one cryptographic key is required to finalize the transaction. A third option is "finalize early", or "FE", meaning that bitcoins are sent directly to the vendor without verification.

Some sites also support peer-to-peer (P2P) transactions, without all the safeguards in place, like two factor authentication. This usually consists of a direct transfer of bitcoin from the buyer to the vendor, which is a lot riskier, because there is no authentication system in place. In some cases, markets also reward vendors for referring new buyers and / or vendors, in which case they will get an increase in their payments. It's not unlike referral systems on legal businesses – the main difference is the types of goods being sold.

Some of the smaller sites allegedly selling goods and services have turned out to be elaborate scams. There are numerous sites claiming to "double your bitcoin", these are all obviously scams. They sound too good to be true.

Just like a package from Amazon, Darknet contraband goods are delivered via regular post or courier shipping services, that means weapons and narcotics arrive in much the same way as that purchased pair of blue jeans.

As a conclusion, if the Dark web exists or not, the aforementioned activities still occur. The dark web just provides an easy way to connect with people of similar interests, and to facilitate further interaction.

- S.SURUTHI
S.SRIJA
III Year CSE

BRAIN TEASERS

1. I have keys but do not lock, I have space but have no room , You can enter but not come in what am I ?

2. Where did the spider get a job in I.T?

3. I contain lot of information for your computer handle me carefully. What am I ?

4. I live above a star but never burn. I have 11 neighbours but they never turn. My initials are p, q, r and sometimes. What am I?

5. How do computers snack?

6. How do you know when a computer monitor is sad?

7. You write on me and secrets I can keep. In places never seen. I spin like a top. Though stiff as a board, I'm often described like a mop. What am I?

8. What company makes billions of dollars selling Windows?

9. What did the mouse say to the webcam?

10. I scurry around your desk, but I am not a pest. What am I?

- **S.Pooja**
  III Year CSE

StrandHogg

Security researchers from Promon, a Norwegian firm specialized in in-app security protections, said they identified a bug in the Android operating system that lets malicious apps hijack legitimate app, and perform malicious operations on their behalf.

In a comprehensive report published , the research team said the vulnerability can be used to trick users into granting intrusive permissions to malicious apps when they tap and interact with legitimate ones.

The vulnerability -- which Promon named StrandHogg -- can also be used to show fake login (phishing) pages when taping on a legitimate application.

CURRENT SITUATION

Promon said this security flaw has already been exploited in the wild by malware gangs. The company said it "identified the StrandHogg vulnerability after it was informed by an Eastern European security company for the financial sector (to which Promon supplies app security support) that several banks in the Czech Republic had reported money disappearing from customer accounts."

Promon said its Eastern European partner provided a sample for its researchers to analyze; sample inside which they discovered the StrandHogg security flaw.

Promon said it then partnered with Lookout, a US-based mobile security firm, which confirmed the vulnerability, and discovered 36 apps that were currently exploiting it in the wild.

Promon didn't list the names of the 36 apps that used the StrandHogg vulnerability, but it did say that none of these apps were available through the official Play Store -- directly.

These 36 apps were installed on users' devices as second-stage payloads, Promon said. Users initially installed other malicious apps from the Play Store, which then downloaded the StrandHogg-infected apps for more intrusive attacks.

HOW STRANDHOGG WORKS

The technical details of the StrandHogg vulnerability are easy to grasp, even for non-technical users.

Under the hood, StrandHogg is a bug in the way the Android OS handles switching between tasks (processes) that handle different operations or applications.
More specifically, StrandHogg is a bug in the OS component that handles multitasking -- the mechaism that allows the Android operating system to run multiple processes at once and switch between them once an app goes in or out of the users' view (screen).

A malicious app installed on an Android smartphone can exploit the StrandHogg bug to trigger malicious code when the user starts another app -- via a feature called "task reparenting."

Basically, a user taps on a legitimate app, but executes code from a malicious one. As can be seen from the example images below, tapping a legitimate app's icon triggers code executed by the malicious app -- code which can ask for intrusive permission or show phishing pages.
Because these actions occur after the icon tap, the user will believe the permissions or login screen have been created by the legitimate app, rather than the malicious one, and will be very likely to interact with these elements without having any suspicions raised.

Researchers said this makes StrandHogg attacks nerly impossible to detect by a device's end user.

Promon also said that a StrandHogg attack doesn't need root access to run, and works on all Android OS versions, including the latest Android 10 release.

In addition, Promon researchers also tested the top 500 most popular Android apps available on the Google Play Store and found that all apps' processes can be hijacked to perform malicious action via a StrandHogg attack

The research team said it notified the Android project of the vulnerability in the multitasking component over the summer, but Android OS developers have not fixed the issue after more than 90 days.

- **M.A. Ganesh Kumar**
II Year CSE

~~FISHING~~ PHISHING

Phishing is a deception technique that utilizes a combination of social engineering and technology to gather sensitive and personal information, such as passwords and credit card details by masquerading as a trustworthy person or business in an electronic communication. Phishing makes use of spoofed emails that are made to look authentic and purported to be coming from legitimate sources like financial institutions, ecommerce sites etc., to lure users to visit fraudulent websites through links provided in the phishing email.

The fraudulent websites are designed to mimic the look of a real company webpage. The phishing attacker's trick users by employing different social engineering tactics such as threatening to suspend user accounts if they do not complete the account update process, provide other information to validate their accounts or some other reasons to get the users to visit their spoofed web pages.

Why is it important to tackle the problem of phishing? According to the Anti-Phishing Working Group, there were 18,480 unique phishing attacks and 9666 unique phishing sites.

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According to the Anti-Phishing Working Group, there were 18,480 unique phishing attacks and 9666 unique phishing sites

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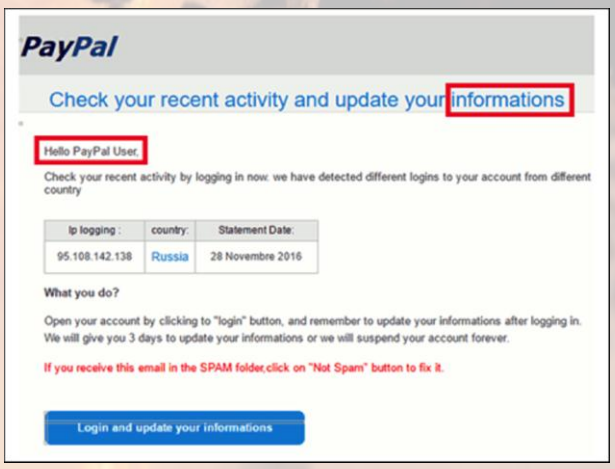
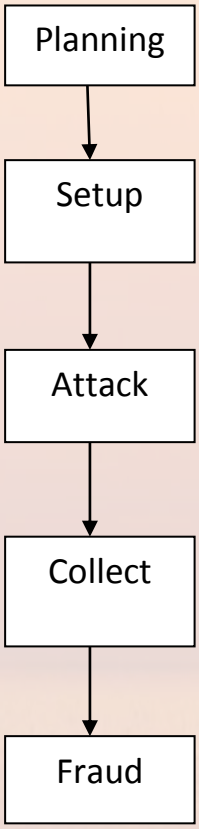
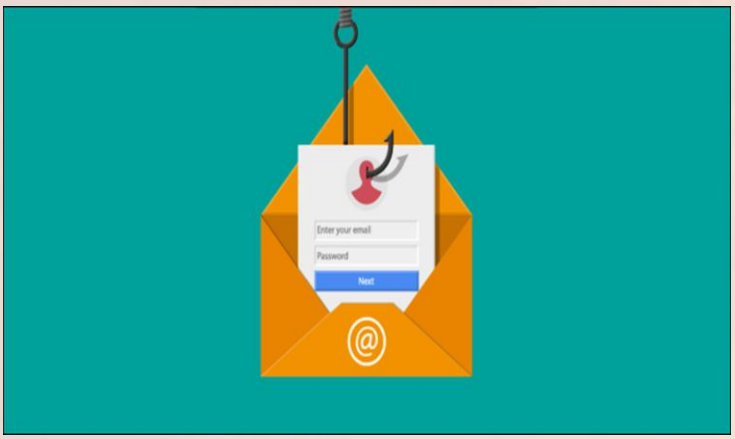


Phishing has established itself as a major security threat in today's web-driven world. The people who carry out phishing, colloquially known as phishers, choose from a variety of ways to harm the data security of millions of user involved in the web-traffic around the world. The primary reason of many web servers falling prey to such phishing websites is their vulnerability.



PHISHING PROCEDURE



Every phisher carries out phishing in a generic approach. The process can be elaborated as follows:

1. Planning: In this step, the phishers decide which organization to target and what information to get hold of.
They also decide the strategy to get their private information.
2. Setup: After the victim has been decided, the phishers create the basic setup to att ack the victim and persuade him to give up the relevant information. This often involves creation of e-mails websites, etc.
3. Attack: After the creation of the setup, the phishers deploy the website or sends the e-mail to the
Victim.
4. Collection: If the victim falls into the trap of the phishers, they have to collect the information leaked by the victim.
5.Illicit use of information: Phishers use the information to commit frauds, Identity.

-Chandra Rajesh
II Year CSE

WHAT IS DIGITAL TWIN?

The Digital Twin concept is all about copying the physical assets of a product, production process or performance of a production system into the digital world. It is the computer based version of anything that physically exists. Cloud based virtual image of your asset maintained throughout the lifecycle and easily accessible at any time. Virtual model of something real that is to be modeled realistically. One platform brings all the experts together providing powerful analysis.

Companies use digital twin technology for many reasons including to improve ongoing operations, train employees and to test new products or procedures before launching them to the real world where it becomes more expensive and complicated to fix any issues.

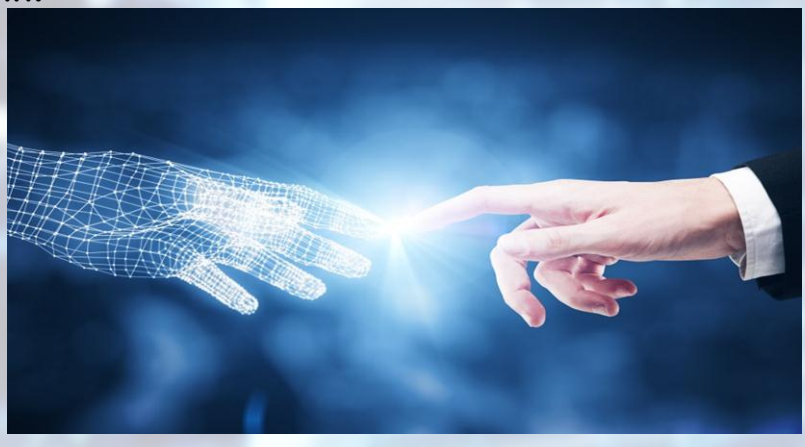
Oftentimes artificial intelligence and machine learning are used to analyze the model of operations represented by the digital twin no matter where the real facility is located—even if the equipment is used. NASA used pairing technology, the precursor to digital twin technology, from the earliest days of space exploration to solve the issue of operating, maintaining and repairing systems when you aren't near them physically. This was precisely how engineers and astronauts on Earth determined how to rescue the Apollo 13 mission. Today, digital twins are used at NASA to explore next-generation vehicles and aircraft.

Why Digital Twin is preferred in industries?

- Monitoring: A digital twin merges live data from its physical counterpart with an interactive visual interface.

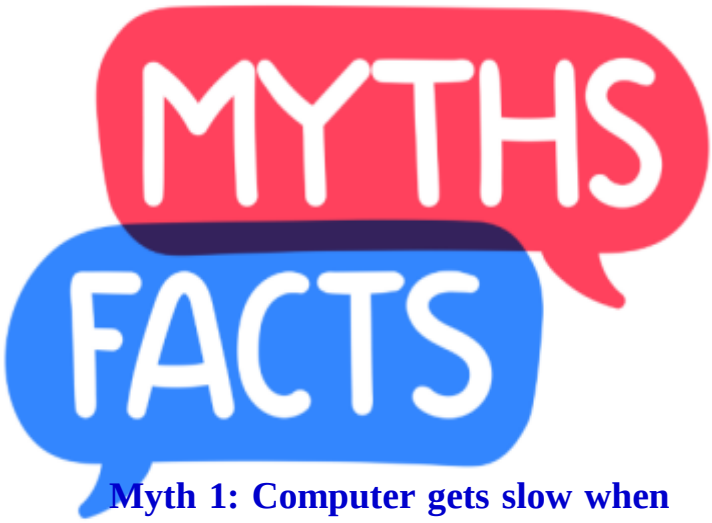
- Training: Digital twin is an excellent tool for professional training due to its visual interface.
- Communication: A digital twin can play a vital part in helping employees share knowledge about production issues.

Use of digital twin:



Digital Twins, the virtual counterparts of the physical assets are created as digitalized duplicates of machines/ equipment or physical sites using sensors. These digital assets can be created even before an asset is built physically. Thus the digital twin will act as a live model of the physical equipment.

- A. Swathi
lll Year CSE



Myth 1: Computer gets slow when there is so many files on the desktop

This was true before few years but not now. Before few years 'desktop' was a folder in 'windows' directory, so many files in desktop affected the operating system. But now the desktop is separated from windows directory, it is in 'users' directory.

Myth 2: More RAM faster computer

Computer will work a little more efficiently by reducing its dependency on its virtual memory when RAM is increased and by doing so we will feel that the computer is working faster. Operating system and programs have limitations for using RAM, so increasing RAM will not make computer to work fast.

Myth 3: Drain your laptop battery before recharge

In the past the battery technology had a memory effect of drain/recharge, so it was true at that time. But now lithium ion batteries are used and they can lose maximum battery charge if you let it down to empty level. Recharging the laptops often is safer in this case.

Myth 4: Replace your computer when it slows down

The computer gets slow when newer operating system or larger software programs are running on an old computer so upgrading or replacing the memory, motherboard, OS, processor, hard drive, etc is good in this case.

Myth 5: Less energy for screen savers

Actually the computer's energy is not saved by screen savers. So use standby/sleep mode or turn the system off to save energy.

Myth 6: No need of anti-virus software for Mac

Windows system is dominating the market so virus writers are writing codes to infect the windows rather than Macs. "I'm on a Mac and Macs don't get viruses" is a false statement.

Myth 7: Bugs in automatic updates

It occasionally causes malfunctioning but in most of the cases it does good things like closing security loops and it makes your computer to run fast.

Myth 8: Error messages mean virus

The actual fact is that the error messages may be due to the fault in memory, hard drive, virus scanners or it's more likely to be something other than a virus.

- **A.P. Shanthana roja**
K.V. Sneha
III Year CSE

GUESS ME!!

1. **How many cores does an intel i5 CPU have ?**
   a. Three b. four
   c. five d. six
2. **Who is the Father of AI ?**
   a. Allen Newell
   b. Herbert Simon
   c. McCarthy
   d. Cliff Shaw
3. **Where are silicon chips manufactured in India ?**
   a. U.P. b. Punjab
   c. Tamil Nadu d. Chandigarh
4. **The very small and cheap computer built into many home devices are ?**
   a. Mainframe b. Mini
   c. Micro d. Analog
5. **Which memory is used in high performance systems, inserted between the processor and memory ?**
   a. ROM b. SAM
   c. Cache d. RAM
6. **A break in the normal flow of processing is called**
   a. Hung b. Crash
   c. Interrupt d. Hit
7. **The value for which you are searching is called as**
   a. Binary value
   b. key
   c. Search argument
   d. serial value
8. **What is the size of the reserved memory area ?**
   a. 64kb b. 384kb
   c. 640kb d. 1024k
9. **The command used to remove the directory is**
   a. rmdir b. rd
   c. remove d. rdir
10. **In client/server architecture, what is the normal purpose of a server?**
    a. Control the graphical user interface
    b. Enforce data integrity
    c. Handle data storage
    d. All of the above
11. **Why does the programming language named lisp is created ?**
    a. To improve ML research.
    b. To improve AI research
    c. To develop the EJB
    d. None of the above.
12. **Which Linux OS is best looking distro in the world?**
    a. Linux Mint b. Ubuntu
    c. CentOS d. Elementary OS
13. **DropBox is an American company for free file hosting services which was written by**
    a.Python b. C
    c. C# d. JAVA
14. **The Blocks in the blockchain are linked using……..**
    a. Bitcoin b. Timestamp
    c. Cryptography d. None
15. **The LINUX KERNAL OS used by NASA is**
    a. Ubuntu b. RHEL
    c. PANASAS d. FEDORA

- **G. Selvakumar**
II Year CSE

Computer Science in Manufacturing Industry...

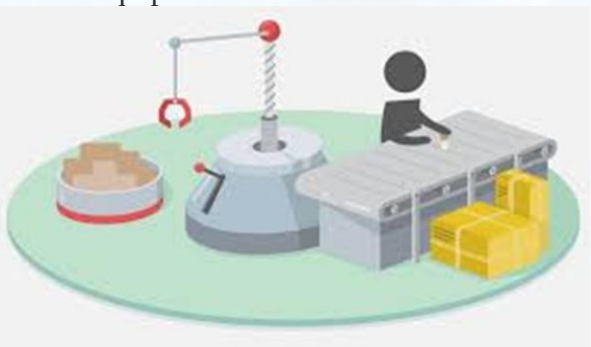
Incorporating machine vision in manufacturing will benefit manufacturers by helping them predict production flaws in manufacturing lines, improving the quality, cutting down unnecessary costs, and achieving high productivity with automation.

Machine vision has gained immense popularity over the last few years, especially in the manufacturing sector. Manufacturing organizations can benefit from the increased flexibility, lower product defects, increased overall production quality enabled by the technology. The history of machine vision systems dates back to the 1960s. Larry Roberts, who is also called as the Father of Computer Vision, published "Machine Perception Of Three-Dimensional Solids," where he mentioned the possibility of "*extracting 3D information about solid objects from 2D photographs of line drawings*." Here's where it all started. Since then, a lot of research was carried out. Finally in the 1990s, after years of study, refinement, and development, machine vision in manufacturing was seen ushered in a wide array of applications and benefits for the industry as a whole. But what is machine vision all about? To put it simply, machine vision is the ability of a machine to capture images, analyze it, comprehend (the situation), and then respond accordingly.

The system comprises of smart cameras and image-processing hardware and software setup.

1. Taking proactive measures

As manufacturing companies deal with large-scale production of goods, several large machinery or heavy-duty equipment has to be used. These pieces of equipment have to be monitored regularly to avoid equipment downtime. Manually inspecting such things is time consuming and error prone. Hence, manufacturers need to use some method not only to minimize the cases of equipment failure but also to optimize their worker productivity and boost cost-savings. Machine vision systems can effectively perform these tasks and ensure minimal downtime.Robots have been a part of manufacturing companies for a while now. Now imagine powering these robots with AI and machine vision. Such robots can easily capture images of every equipment. The images and some additional information about the equipment will then be sent to the cloud, where the analysis and processing take place. The data, after computation, will help manufacturers to gain meaningful insights on whether that particular equipment is about to fail or not.

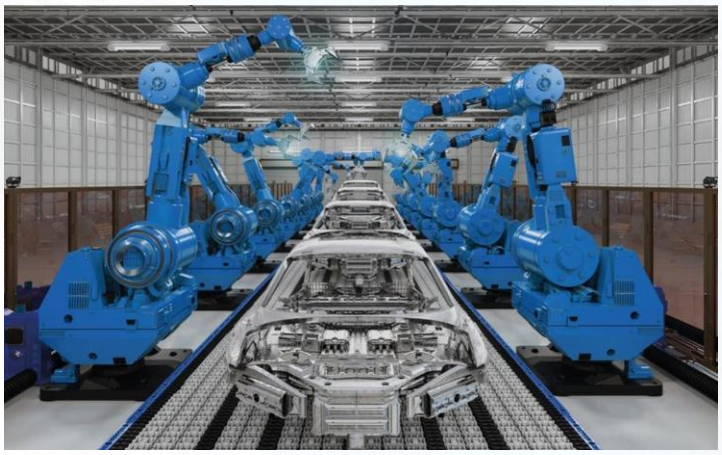


2. Inspecting goods

Product inspection and quality control are, therefore, crucial manufacturing activities that cannot be ignored. Manually performing these tasks can be boring, time-intensive, and also repetitive. With machine vision systems, all the issues can be eliminated. Manufacturing companies can optimize and streamline these processes in much lesser time.With machine vision systems, industrial manufacturers can detect flaws, cracks, or any blemishes in a physical product. Besides, these systems can easily check for accurate and precise measurements of components or parts that are used while the product is being assembled. Machine vision systems will capture images of products or goods. These pictures will then be sent to a computer for processing. Information on any defects or faults will be sent to the concerned employees. This is how manufacturers can implement machine vision systems for automatic product inspection and precise quality control for customer satisfaction.

3.Reading barcodes

In manufacturing, the role of barcode scanners is truly valuable. Barcode scanners have replaced the traditional paper-and-pencil method of processing. With barcode scanners coming into play, manufacturers encountered several benefits, ranging from streamlined operations to reduced time and cost to minimized errors to decreased stress levels. However, manually operating barcode scanners was not an easy undertaking. For an accurate outcome, workers had to read, interpret, and process the items (produced in large numbers) that they scan. Here's where manufacturers can work in harmony with machine vision systems.By powering machine vision systems with advanced capabilities like Optical Character Recognition (OCR), Optical Barcode Recognition (OBR), and other image processing technologies, manufacturers can use the system to automate the overall scanning process. The images of the text or barcodes on an item will be captured, interpreted, and compared with the information stored in a system. All of these will be carried out without involving humans. So, an automated process of ensuring all components follow the right path along the production line or checking that the right package has arrived can be carried out by machine vision systems.



4. Improving worker safety

Providing improved health to workers and keeping the environment safe is of prime concern for manufacturers. There is a need for manufacturing companies to strengthen their safety-related programs and provide the best possible service. Machine vision can help to improve worker safety.Machine vision systems, with real-time image-processing capabilities, can gather pictures of the manufacturing plant. The pictures will also capture workers and their actions. The data is then fed to a computer system where it is analyzed and processed. The result will contain valuable information on whether workers are in a hazardous and life-threatening situation. Machine vision systems will notify the concerned officers about the risky site environment, allowing them to take necessary measures at the right time. Hence, machine vision systems can benefit manufacturing companies by detecting environmental risks or hazards at the right time, evading future mishaps.The manufacturing industry has always been at the forefront of adopting new-age technologies. Machine vision systems in manufacturing solve the major challenges that companies face, helping them with benefits like higher yields, greater production quality, and low financial expenses. Machine vision is no longer something that is just nice to have -- it's a necessity for the manufacturing sector.

-Nithish Prakash

Alpha Go

It's an computer program whitch was designed for playing an GO Game which is famous in china, Japan and Korea.It is an 19 x 19 Chess board where an black and white coin has placed.In this game When the black (or) White color stone surrounded by an opponent's stone then the stone is taken by the opponent like the caren board game. At the 2017 Future of Go Summit, its successor AlphaGo Master beat KeJie, the world No.1 ranked player at the time. Go is considered much more difficult for computers to win than other games such as chess, because its much larger branching factor makes it prohibitively difficult to use traditional AI methods such as alpha–beta pruning ,tree traversal and heuristic search.

Algorithm:

It's use an **MONTE CARLO TREE SEARCH (MCTS) :** search algorithm most probabily used for decision macking in gaming.It sent the information of the next move to the newralnetwork which helps to win in game.AlphaGo was initially trained to mimic human play by attempting to match the moves of expert players from recorded historical games, using a database of around 30 million moves

Configuration and strength

Versions	Hardware	Elo rating	Date	Results
AlphaGo Fan	176 GPUs, distributed	3,144	Oct 2015	5:0 against Fan Hui
AlphaGo Lee	48 TPUs, distributed	3,739	Mar 2016	4:1 against Lee Sedol
AlphaGo Master	4 TPUs, single machine	4,858	May 2017	60:0 against professional players; Future of Go Summit
AlphaGo Zero	4 TPUs, single machine	5,185	Oct 2017	100:0 against AlphaGo Lee 89:11 against AlphaGo Master
AlphaZero	4 TPUs, single machine	N/A	Dec 2017	60:40 against AlphaGo Zero

Style of Alpha GO:

AlphaGo's playing style strongly favours greater probability of winning by fewer points over lesser probability of winning by more points.
An early version of AlphaGo was tested on hardware with various numbers of CPUs and GPUs, running in asynchronous or distributed mode. Two seconds of thinking time was given to each move. In the matches with more time per move higher ratings are achieved.

Matches:

Match against Fan Hui:

In October 2015,The alpha Was defeated the European Go Champion Fan hui (2nd professional go Player).It was the first go game was taken place between the go player with the computer program five to zero.

Match against Lee Sedol:

AlphaGo played with South Korean professional Go player Lee Sedol who is one of the best go player. The five Games where taken over each of them. This match was live telecasted through the media. In that match alpha go won In 4 match and lee Won at 1match which is 4th match.

This is interesting!

1.The first electronic computer ENIAC weighed more than 27 tons and took up 1800 square feet.
2. Only about 10% of the world's currency is physical money, the rest only exists on computers.
3. TYPEWRITER is the longest word that you can write using the letters only on one row of the keyboard of your computer.
4. Doug Engelbart invented the first computer mouse in around 1964 which was made of wood.
5. There are more than 5000 new computer viruses are released every month.
6. If there was a computer as powerful as the human brain, it would be able to do 38 thousand trillion operations per second and hold more than 3580 terabytes of memory.

-S.Ishwarya
III year

THE STORY OF ALICE AND BOB

The Facebook incident has echoes of the storyline to movie The Terminator, in which an AI system which has developed self-awareness wages a devastating war against humans.
British future technology expert Kate Adamson said: "It does feel a bit like The Terminator".

The "chatbots" Alice and Bob modified English to make it easier for them to communicate — creating sentences that were gibberish to watching scientists.
A robot expert said the revelation that Facebook machines had spoken in their own language was exciting — but also incredibly

One exchange went:
Bob: i can i i everything else . . .
Alice: balls have zero to me to me to me to me to me to me to me to me to.
Bob: you i everything else . . . .
Alice: balls have a ball to me to me to me to me to me to me to

"This is the first recorded communication but there will have been many more unrecorded. Smart devices right now have the ability to communicate and although we think we can monitor them, we have no way of knowing".

Facebook researchers in New York set up "chatbots" Alice and Bob in a bid to develop automated trouble-shooters for social media networks.They were to speak in English as they worked out how to negotiate and trade hats, books and balls — each of which were given a value. But the robots rapidly modified the English using code words and repetitions to make conversation easier for themselves — creating a gibberish language that only they understood

UK Robotics Professor Kevin Warwick said: "This is an incredibly important milestone, but anyone who thinks this is not dangerous has got their head in the sand. We do not know what these bots are saying. Once you have a bot that has the ability to do something physically, particularly military bots

-R.Aarthi
III year

Riddles:

1.keyboard
2.because it is a good web designer
3.compact disk
4.number 7 in keypad
5.they eat cookies
6.when they break down
7.floppy disk
8.microsoft
9.cheese
10.mouse

Cross word
12. Abstraction
9. keyboard
7. joystick
1. control panel
5. kilobyte
11. cookie
6.hotmail
8. oracle
13. virus
3. Mouse
4. Boot
10. database
2. memory

MCQ

1. B
2. C
3. D
4. C
5. C
6. C
7. C
8. B
9. A
10. B,C
11. B
12. D
13. A
14. C
15. C

We Won't Kill you, Bro!

Artificial Intelligence

Data science and machine learning are two terms that get thrown around a lot nowadays. Most people think of Artificial Intelligence as basically a robot that is going to take over the world and kill most human kind. Hmm?Even pioneers in the tech field such as Elon Musk, point out the dangers of AI. If you're not too heavily involved in the area, you have no choice but to trust someone who has a self-driving car and a brain computer interface company.

I also would like to point out that the person who is telling us how dangerous AI is, has companies that depend solely on machine learning which is the most fundamental block of AI. I think what Elon Musk is saying when he talks about the "danger" is the "power" of AI instead or it should be.

Who makes AI? Everything and everyone! I know that sounds vague but to make AI, you need data and data can come from anyone or anything. If I want to get more into the professions that make AI, I would say it is the combination effort of data, software, robotics, hardware and machine learning engineers but most importantly and broadly data scientist. Data science is an interdisciplinary field that uses statistical and scientific methods to get information from a dataset. The statistical method is the key to what makes a machine learning algorithm work. This information can be used to predict, classify or optimize anything.

Let's say you have a bunch of pictures of brains of people which neurological disorders and healthy brains. To be able to distinguish which is which you would have to learn the common features of healthy vs sick brains. Let's say you have a set of 100,000 brain images to study to diagnose. You can't look at a 100,000 images at a time. I can barely focus on 1 which all the distractions in my life. So here comes AI or Machine learning! A computer is not intricate or cognitively intelligent as a human however computers have tremendous amounts of processing speed. The data scientist writes a code to "train" the algorithm on all these images. Almost all information turned into numbers. Going off of a more visualizable.forexample. Let's say we have a coat company and sold 12 coats our first year 24 a year ago and 36 this year. How many will you sell next year? 48, easy right!? Now imagine you have over 2000 products that sell different every season every day and every year which different quantities and patterns. Now we have a case for machine learning.

Machine learning is a broader term, deep learning which is more importantly associated with AI. Machine learning methods are include anything basic from regression to SVMs to neural information in machine learning algorithms is

networks. Artificial Neural Networks are the mathematical representation of the action potentials and the communication patterns in human brains. The machine in a way mimics the learning structure of the human brain. What everything essential is, is just statistics. The machine learning algorithm is how you get there!

Looking at it from a more fundamental perspective, I find it hard to say that AI will take over in the near future because it's just statistics however I can say that humans can use machine learning to abuse the power of predictive knowledge. It is happening every day. Is it dangerous to a point that should be feared? Maybe not so much. Yes our privacy is a little violated, yes instagram uses a bunch of

machine learning algorithms that get you addicted to the app but is it right to attribute the danger to machines? I don't think so.
There might be cons of AI but AI has helps better human lives. In many areas such as medicine, genomic research, therapies, transportation and business, machine learning helping companies and individuals improve their lives, products and services. We excelled in genetic and medical/pharmaceutical research thanks to machine learning. Self-driving cars will help minimize car accidents. Any problem that we can't solve AI can help from answering FAQs for your customers to maybe even one day curing cancer. AI is a tool. It's all about how human kind chooses to use it.

- **Dr. J. Betina Antony**
  Associate Professor / CSE

Did you know!
In 2020

1. **Japan will build a robotic moon base**
2. **Cars will drive themselves**
3. **The 'flying car' will be airborne**
4. **We'll control devices via microchips implanted in our brains**
5. **All new screens will be ultra-thin OLEDs**
6. **computer will have the processing power of the human brain**
7. **Universal translation will be commonplace in mobile devices**

-S.Pooja
III year

IoB – Internet of Bodies

In recent times we count on our TV to realize which episode from our favorite series we've yet to see and so much the fridge writes our purchasing listing yet so our vacuum purifier notifies our smartphone when it has vacuumed the complete residence whilst we were at work.

All it is possible thanks to the net of factors IoT, which, in reality placed, is the interconnection of the internet and the gadgets in our daily lives, inclusive of a whole lot our phones, televisions, watches or motors. Now as we've got become used after dwelling along devices invented to improve our day by day lives, we will need to get used to being linked to the net.

This latest interconnection is referred to as the net of bodies – IoB. It's far already a truth. IoB are the ones clever devices with wireless connection or others which includes Bluetooth which are inside our frame.There are already numerous devices taken into consideration to be IoB and connected thru wireless, inclusive of far flung-control pacemakers, gadgets that secrete insulin in step with the extent of blood sugar or cochlear implants that recover hearing for the ones who have misplaced it.

With IoT, an item is the technological platform through which interconnection among gadgets takes vicinity. With IoB, in comparison, the human body is the platform via which interconnection takes place. We will see how this use of the human body as a technological platform generates a myriad of questions to be responded at a prison, moral or even cyber security degree. It's far clear that those gadgets, while supplying a carrier to the person, send a sequence of personal facts referring to the health of the folks to whoever controls the device.

What is the Internet of Bodies (IoB)?

While the net of things (IoB) connects along with your body, the end result is the net of our bodies (IoB). The net of our bodies (IoB) is an extension of the IoT and essentially connects the human frame to a community thru devices which can be ingested, implanted, or related to the frame in some way. As soon as connected, information can be exchanged, and the body and tool can be remotely monitored and managed.

There are 3 generations of net of our bodies that consist of:

Body external: those are wearable devices such as apple watches or fit bits that may display our health.

Body internal: these consist of pacemakers, cochlear implants, and digital tablets that cross inside our our bodies to screen or manipulate numerous components of our health.

Body embedded: the 0.33 technology of the net of our bodies is embedded era wherein generation and the human frame are melded collectively and have a real-time connection to a remote gadget.

Development in wireless connectivity, substances, and tech innovation is allowing Implantable Scientific Devices (IMD) to scale and be possible in many applications.

Use in IOB

IOB describes gadgets located on or implanted into the human frame and that promise to carry on a constant verbal exchange with us and others via the internet. Indeed, a few human beings can now reveal and manage positive body features, or

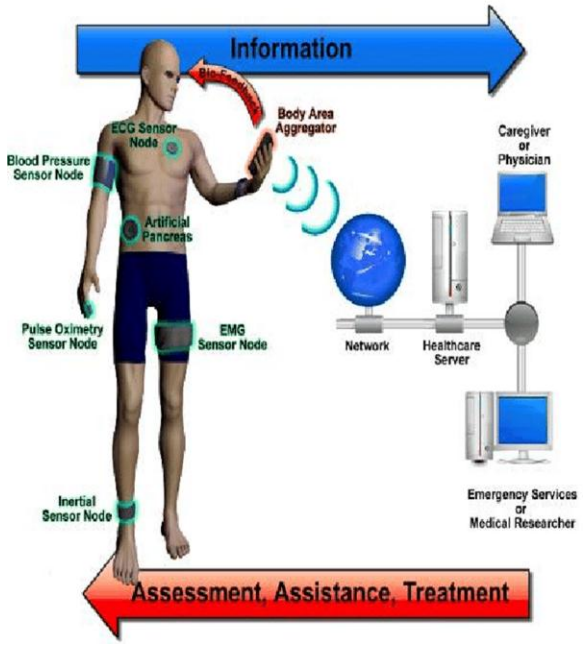
influencing characteristic, the use of a smartphone app. Iob has been a recreation changer for folks who live with specific medical situations which includes diabetes. As an example, new generations of insulin pumps connect with an app that communicates wirelessly with the pumps at the same time as also sending statistics to the cloud for different diagnostic and healing uses. Incidentally, such gadgets – that might be greater correctly described as systems – are growing new human elements concerns.

And "ingestible sensors" are starting to arrive available on the market. They cram electronics into a capsule with a semi-permeable membrane. Once swallowed, they degree your gut environment because the sensor moves through, pinging statistics in your clever smartphone. They've limited capability so far, more often than not measuring ph, temperature and whether you've got taken your meds. But, researchers are pioneering new sensors which could detect a broader range of molecules and potentially identifying micro-organism as they go.

Along with all of this technological development, it's miles crucial for customers to keep awareness of what their IoB is doing, and be prepared and capable of intervene whilst vital. In human factors speak, customers want to preserve the appropriate diploma of situational attention and be organized to seize and exercise supervisory control. Lack of awareness is not bliss, as has been established time over the years in cases where system automation has deprived customers the situational awareness, and also the way, to cope with complicated situations and aspect disasters.

The self-sufficient car is a useful analog right here. Such cars can navigate to a vacation spot while keeping in their lane, maintaining a proper velocity, acting emergency stops, and more. However, unique instances and the possibility of a unexpected element failure call for that drivers are organized to capture manage. The identical might be authentic of wearable and implanted gadgets that characteristic correctly and automatically…till they don't.

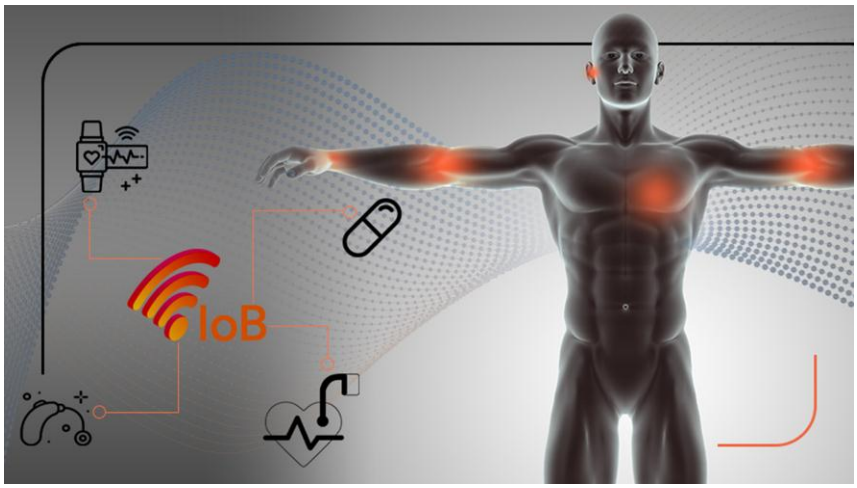
Iob gadgets will want to give customers the records and manipulate they want without disturbing an excessive amount of oversight. Therefore, IOB devices will want to have terrific user interfaces which have been confirmed to be safe, powerful, and comparatively easy to use. Otherwise, humans could be overwhelmed in emergency scenarios, which in flip should cause damage. In the end, the devices will want to fail safe.



Examples of Internet of Bodies Devices

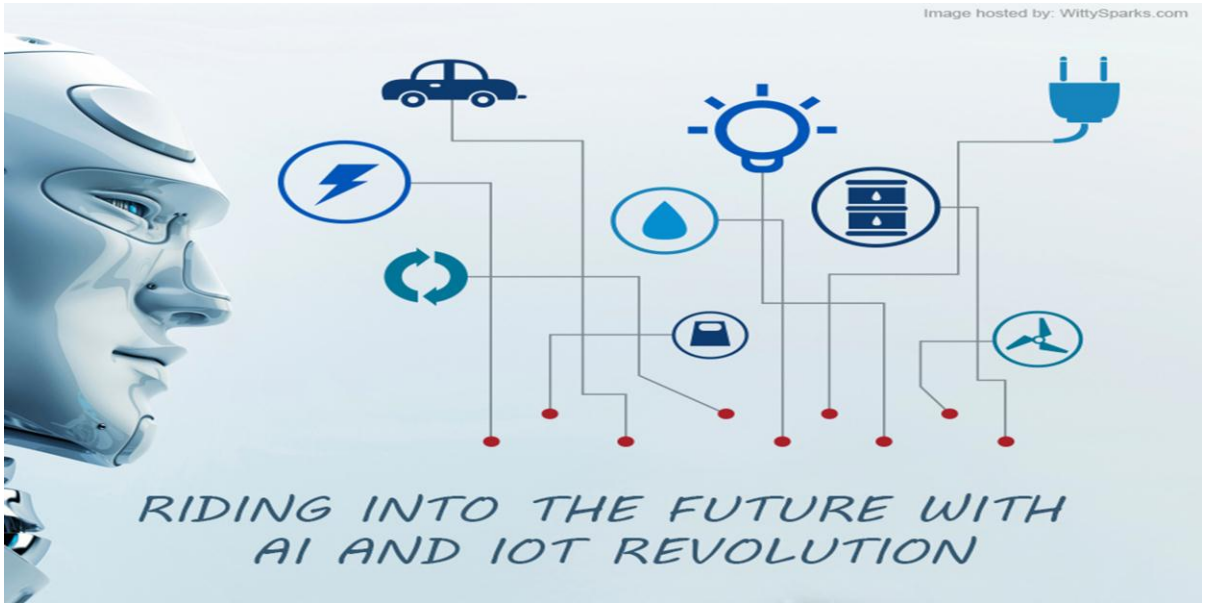
The maximum diagnosed instance of internet of bodies is a defibrillator or pacemaker, a small tool positioned in the abdomen or chest to assist patients with coronary heart conditions control atypical heart rhythms with electric impulses. In 2013, former United States of America vice chairman dick Cheney got his Wi-Fi-linked defibrillator changed with one withoutWi-Fi ability. It changed into feared that he might be assassinated by means of electric powered shock if a rogue agent hacked the tool.

A "clever tablet" is another IoB device. These tablets have fit for human sensors and laptop chips in them.



Once swallowed, these digital capsules can collect records from our organs and then send it to a far off device connected to the internet. The primary digital chemotherapy pill is now in use that mixes chemotherapy pills with a sensor that captures, statistics, and stocks information with healthcare carriers (with the patient's consent) regarding the drug dosage and time, plus other data on relaxation and hobby, coronary heart rate and more.

"Smart contact lenses" are being developed that combine sensors and chips that may display health diagnostics based totally on records from the eye and eye fluid. One clever contact lens in development ambitions to monitor glucose tiers that will optimistically allow diabetics to monitor their glucose levels without repeated pinpricks during the day.



Taking it up a notch is the brain computer interface (BCI), where someone's brain is surely merged with an outside tool for monitoring and controlling in actual-time. The ultimate aim is to assist restore function to people with disabilities with the aid of the usage of brain signals instead of conventional neuromuscular pathways.

- **Mrs. M. Vidhya**
Assistant Professor / CSE

How Transport Will Transform??

Connected and autonomous vehicle technology will help optimize roadway utilization, potentially saving billions in future infrastructure expansion.

The transportation systems around which the modern world has been built are on the verge of a significant transformation. Intelligent transportation systems (ITS) are making driving and traffic management better and safer for everyone.

THE PROMISE OF ITS

"Cities are struggling with transportation today and will struggle even more in the future," said Bill Ford, Jr., executive chairman of the Ford Motor Company, while addressing the ITS World Congress in Detroit. "We need to redefine what mobility is for the coming century."

According to the U.S. Department of Transportation, ITS improves transportation safety and mobility by integrating advanced, wireless communications technologies into transportation infrastructure and vehicles. The purpose of ITS is to process and share information that can prevent vehicle collisions, keep traffic moving and reduce environmental impacts.

Coordinating traffic signals, giving signal priority to transit lanes, electronic information signs and variable speed limit signs are all part of the burgeoning ITS industry. Also part of ITS is the ability to automatically distribute real-time traffic data to websites, social media feeds, mobile apps, and local TV and radio stations.

Instead of a bunch of independent systems on the local, national or even global level, ITS creates a transportation network that works like the Internet, where everything is connected, but also open for standards-based communication, which reduces costs and creates value for everyone involved in managing traffic.

Instead of a bunch of independent systems on the local, national or even global level, ITS creates a transportation network that works like the Internet, where everything is connected, but also open for standards-based communication, which reduces costs and creates value for everyone involved in managing traffic.

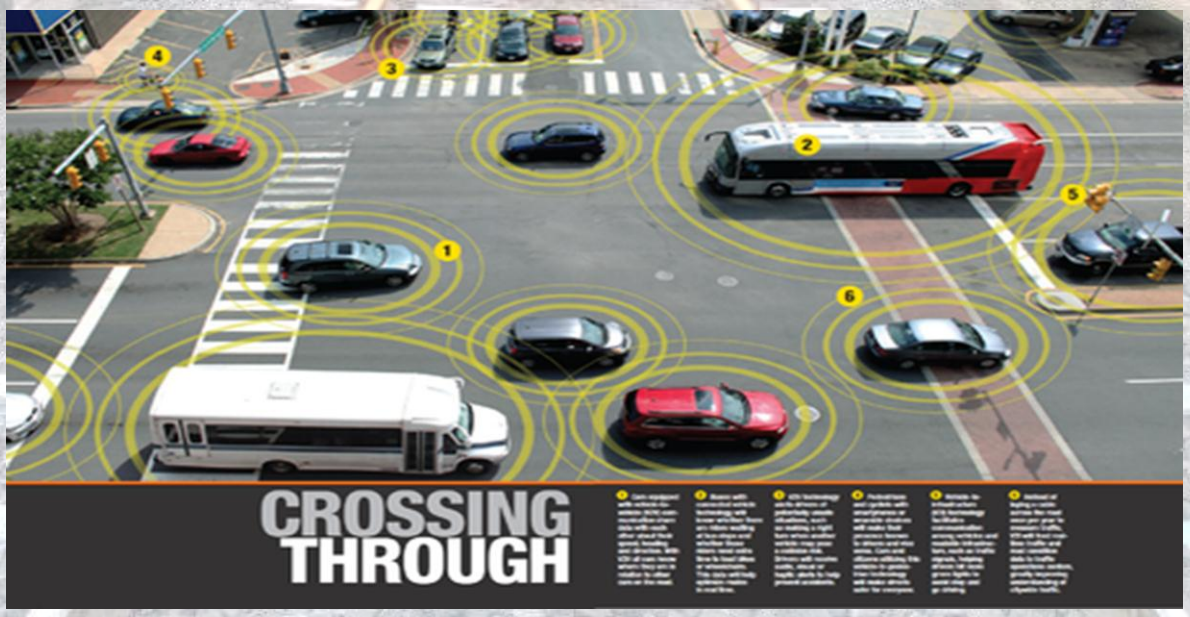
AUTONOMOUS AND CONNECTED VEHICLES

Perhaps the most anticipated element of ITS is the connected vehicle. The imminent arrival of connected vehicles is one reason for new visions of transportation within a metro area.

Connected technology focuses on wireless communication: vehicle-to-vehicle (V2V), vehicle-to-pedestrian (V2P) and vehicle-to-infrastructure (V2I), collectively referred to as V2X. Intended primarily to improve safety, V2V technology allows cars to continually communicate to the vehicles around them so each are aware of the others' speed, heading

and direction. Connected vehicles also help in recognizing and alerting drivers to dangerous situations. By adding communication points in hazardous road areas and intersections, V2I technology extends crash-reduction capabilities by allowing automatic control of signal timing, speed management, and operation of transit and commercial vehicles.

A different but related technology is that of autonomous vehicles, perhaps the most famous example of which is the Google self-driving car. Autonomous cars use a combination of LIDAR (similar to sonar but with laser light), GPS, optical cameras and big-time processing power to analyze millions of possible roadway scenarios and then take the appropriate action. The ultimate goal for autonomous vehicle technology is to make the vehicle so intelligent that no driver input is needed. However, truly autonomous vehicles, wherein the driver can give up complete control to the car, remain on the distant horizon.



According to Ford, it is incremental technological advancement that will one day lead to driverless cars.

- **Dr. W. Gracy Theresa**
Associate Professor / CSE

ALUMNI TALK

Ms. A. SEYED ALISHA
BATCH 2014-2018
Doing M.E CSE.
Got Placement in PHILIPS.

It feels nostalgic to turn the pages of life's most important phase, my undergrad days at Panimalar Institute. Engineering was not in my to-do list, but like many other successful people as engineers, I learnt to pursue in what I was made to do. But as days passed, my interest towards the field grew bigger and better. I passed out in the year 2018. A student who just missed the distinction as well as the rank by a small notch, but did take home a new way of seeing my career ahead and with memories that I would cherish from day one at this amazing place. Panimalar thought me two major things in life that I couldn't have earned anywhere else. The Discipline in doing a work and the Intellectual view to seeing the world in a different perspective. From waking up early, to following a clean slate schedule to cope up with my work, to keeping up with the ordinance, it felt like a perfect routine for a well living. With a very transparent hierarchy of staffs, I had a very strong support system that kept up with the students' agenda and were great guides.

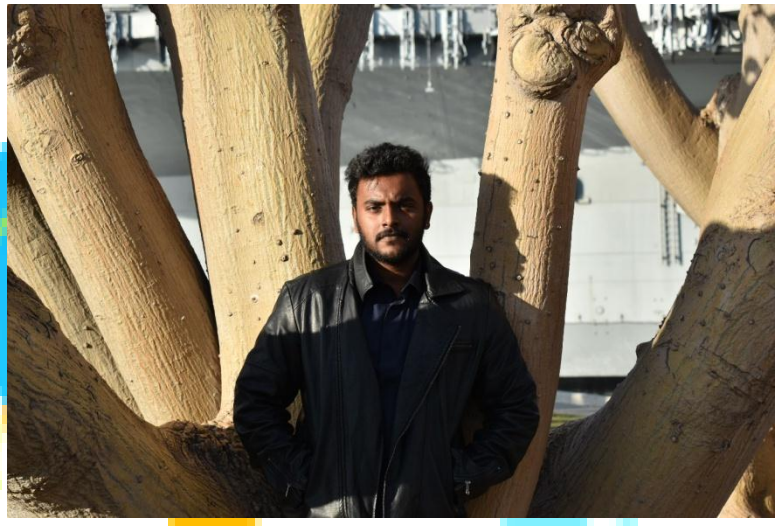
The elaborate features such as placements, entrepreneurship, higher studies and certified courses were eye openers for me to accomplish various skillset.

I went on to study my higher studies and now placed in one of the biggest MNCs. No word could express my happiness. Gratitude is a very small word to give back to every staff who moulded me and helped me be who I am today. Once again, when I think back about the best memories of life, I could only think of Panimalar.

Prathvin Kumar Reddy Thanamala
(2015 – 2019)

Panimalar Institue Of Technology was more than a college to me. It's a privilege to be connected to this institution. A place where I gained knowledge, best needed for the survival in outer world and confidence. Right from day 1 energy and enthusiasm is what I experienced, be it faculty or students. I am what I am this day because of the curriculum, the teaching methodology adopted by the professors. The computer Lab was our innovation center/lab and the problems solved there were the most complicated problems solved till date. An Amazing institution which teaches you self-discipline, confidence and problem solving an essential traits to start your journey .

ALUMNI TALK



Immanuel Joseph Antony
2013-2017
Master's in computer science
California State University, San Marcos

College atmosphere is an integral part of a student's life. Panimalar Institute of Technology, albeit made fun of or felt frustrated by the strict management while studying, I understand now that I was the one who got benefited through that by being disciplined and focused in the outside world. Coming to the computer science department of our college. I was given the opportunity to be part of classes taken by some of the most efficacious professors. Notable mentions were Sathyamoorthy Sir, who laid the foundations for me in terms of coding by taking classes on data-structures/Algorithms which happens to be everything in the field of computation. And Hemamalini ma'am , who happened to take just one class throughout my 4 year journey, Internet Programming. And lastly, HOD Dr.V Subedha, she was strict and she gave me vibes of fear during my second semester, but it all changed when she took class for our batch in the 3rd year. And we saw her other face, the not so strict and helpful face. She by her behaviour taught us equally and through lectures on how to face the harsh realities and outside world. It was all a foundation to the next step for everyone, for I understood that after passing out and moving out to the real world. I'm doing a specialization on Artificial Intelligence in my Masters Program working on projects related to Autism and Tutoring Systems using Machine Learning. I'd proudly say that Panimalar laid the bedrock for my growth in terms of studies and behaviour in outside world. Thank you would be so less of a word to the experience I gained in those 4 years.

Panimalar Institute of Technology

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Innovation distinguishes between a leader and a follower