



MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Autonomous Institution – UGC, Govt. of India

Accredited by NBA & NAAC with 'A' Grade

NIRF Indian Ranking, Accepted by MHRD, Govt. of India | Band – Excellent, National Ranking by ARIIA

Maisammaguda, Dhulapally, Secunderabad – 500 010, Telangana

A.Y : 2021-22 VOL.1

Under
Student Chapter ISTE, CSI & Technical Association Electro Spikes

INSPERON

HALF YEARLY TECHNICAL MAGAZINE

**DEPARTMENT OF
INFORMATION TECHNOLOGY**

IT

DEPARTMENT VISION

To emerge as a center of excellence in the department of IT is to empower students with new wave technologies to produce technically proficient and accomplished intellectual IT professionals specifically to meet the modern challenges of the contemporary computing industry and society.

Providing the students with most conducive academic environment and making them towards serving the society with advanced technologies.

Vision



DEPARTMENT MISSION

The mission of the department of Information Technology is to afford excellence education for students, in the conventional and modern areas of information technology and build up students with high-quality principled trainings, thus manifesting their global personality development.

To impart holistic technical education using the best of infrastructure, outstanding technical and teaching expertise.

Training the students into competent and confident world class professionals with excellent technical and communication skills.

To provide quality education through innovative teaching and learning process that yields advancements in state-of-the-art information technology.

To inculcate the spirit of ethical values contributing to the welfare of the society by offering courses in the curriculum design.

Mission



ABOUT THE DEPARTMENT

The Dept. of Information Technology with an intake of 180 in B.Tech Programme The programmes ensure that the student effectively meets the highest benchmarks of competence required by the industry.

The Department has state of the art laboratories with latest software's like Windows 2008, Visual Studio 2012, Eclipse, WinRunner, QTP, J2EE, .NET, Fedora & Weka Tool.

The Dept established IEEE & ISTE student chapters and department Technical Association - CYNOSURES under which it organizes National level Technical Symposium - FUTURE SASTRA and State level Technical Symposium - MEDHA every academic year and Student Development Programmes like Workshop on Web Designing, Android & its Application, ADOBE PhotoShop, Ethical Hacking and HTML5.

The Department also organizes Pre-placement training programmes on C-Skills, Java Skills and Project Based training programmes on C, C++, JAVA and Web Technologies and also organizes Intra College Student Conferences on Network Security and Data Base Management Systems and Recent Advancements in Computer Science and also organizes regular student seminar sessions of two hours per week for I - IV B.Tech student to enhance their all round performance.

The Department also offers Value added Certification Courses BEC, Microsoft and CISCO certification through Business English Certification in association with Cambridge University, London, U.K., Microsoft & CISCO Certification through Center for Development of Communication Skills, Microsoft Innovation Center and CISCO Networking Academy respectively. More than 85% of students are placed in MNC s like Campgemini, WIPRO, TCS, IBM, NTT Data, HCL, Tech Mahindra, etc. The Department also publishes the Registered Journal "International Journal of Research in Signal Processing, Computing and Communication-System design (IJRSCSD) with an ISSN: 2395-3187.

PO'S

PO1	Engineering knowledge	An ability to apply knowledge of mathematics (including probability & statistics and Mathematical Foundation of Computer science and Engineering.
PO2	Problem analysis	An ability to design and conduct experiments, as well as to analyze and interpret data including hardware and software components.
PO3	Design / development of solutions	An ability to design a complex computing system or process to meet desired specifications and needs.
PO4	Conduct investigations of complex problems	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering actives with an understanding of the limitations.
PO5	Modern tool usage	An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
PO6	The engineer and society	An ability to understanding of professional, health, safety, legal,cultural and social responsibilities.
PO7	Environment and sustainability	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and demonstrate the knowledge need for sustainable development.
PO8	Ethics	Apply ethical principles, responsibility and norms of the engineering practice
PO9	Individual and team work	An ability to function on multi-disciplinary teams.
PO10	Communication	An ability to communicate and present effectively
PO11	Project management and finance	An ability to use the modern engineering tools, techniques, skills and management principles to do work as a member and leader in a team, to manage projects in multi-disciplinary environments
PO12	Life-long learning	A recognition of the need for, and an ability to engage in, to resolve contemporary issues and acquire lifelong learning

PSO'S

The graduates of the department will attain:

PSO1: The ability to analyze a problem, design algorithm, identify and define the computing requirements within realistic constraints in multidisciplinary areas by understanding the core principles and concepts of Information Technology

PSO2: Knowledge of data management system like data acquisition, big data so as to enable students in solving problems using the techniques of data analytics like pattern recognition and knowledge discovery.

PSO3: Effectively integrate IT based solutions into the user environment.

PEO'S

PEO1

- Apply current industry computing practices and emerging technologies to analyze, design, implement, test and verify IT based solutions to real world problems.

PEO2

- To produce employable graduates who will be placed in various engineering positions in the computational world in firms of international repute.

PEO3

- To pursuit of advanced degrees in engineering at different levels of research and consultancy. They get exposed to several other domains resulting in lifelong learning to broaden their professional knowledge.

PEO4

- Use theoretical and practical concepts of various domains to realize new ideas and innovations, entrepreneurship, employment and higher studies.

MESSAGES

Founder Chairman's Message



Ch. Malla Reddy

Founder Chairman, MRGI
Hon'ble Minister, Govt. of Telangana
State

MRECW has made tremendous progress in all areas and now crossing several milestones within a very short span of time and now I feel very happy to know that the students and faculty of the IT department of MRECW are bringing out the volume-1 of the Technical magazine INSUPERON in A.Y 2021-22. As I understand this magazine is intended to bring out the inherent literary talents in the students and the teachers and also to inculcate leadership skills among them. I am confident that this issue will send a positive signal to the staff, students and the persons who are interested in the educational and literary activities

Principal's Message

I congratulate the department of IT, MRECW for bringing out the first issue of the prestigious half yearly department technical Magazine INSUPERON under A.Y: 2021-22, I am sure that the magazine will provide a platform to the students and faculty members to expand their technical knowledge and sharpen their hidden literary talent and will also strengthen the all round development of the students. I am hopeful that this small piece of literary work shall not only develop the taste for reading among students but also develop a sense of belonging to the institution as well. My congratulations to the editorial board who took the responsibility for the arduous task most effectively. I extend best wishes for the success of this endeavor.



Dr. Y. Madhavee Latha
Principal

HOD'S MESSAGE

INSUPERON-2022, Our Department magazine show cases the various achievements and talents of students. The primary objective of the department has been to impart quality technical education to the students. We providing the students with most conducive academic environment and making them towards serving the society with advanced technologies. Our department provides training sessions, workshops, hands-on, webinars, Industrial visits, Internships and Personality development classes. I am privileged to offer my best wishes. I congratulate students who have contributed their articles in huge volume.



Dr. SUBBA REDDY BORRA
HOD

FACULTY ARTICLES

A TALK ON UNAUTHORIZED COMMUNICATION OF INFORMATION

Communication is the biggest task that anyone will handle which includes communicating interpreting and receiving, quoted that “People tend to reply rather than listening” Which is the major barrier for miscommunications , stated that communication at formal environment is governed by curtain set of standards and restrictions.

Authorization play a vital role in the Communication of information; unauthorized communication of information leads to disasters at times, and even creates chaos, across the group or at individual unauthorized communication of information is more tend be wrong approach of certain decisions.



Dr.B.SUBBA REDDY
HOD
(Dept. of IT)

Li – Fi TECHNOLOGY

INTRODUCTION

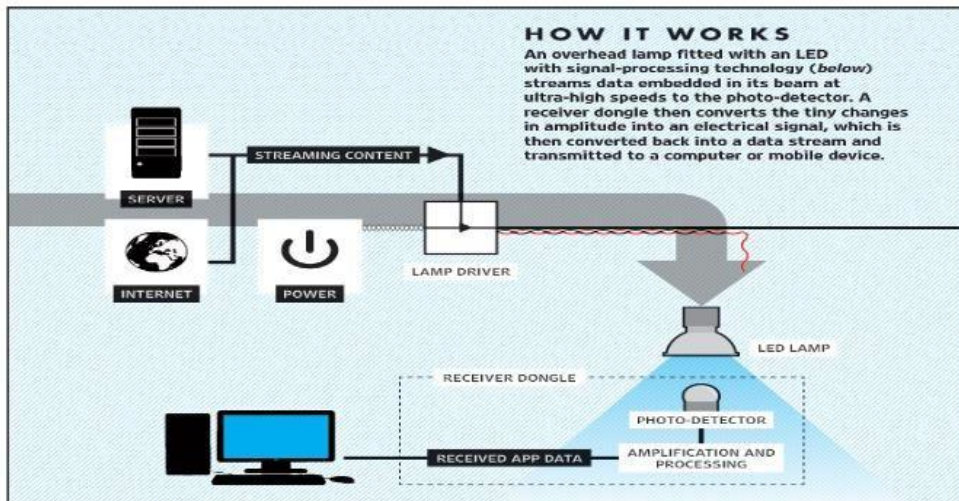
Li-Fi stands for Light-Fidelity. The technology is very new and was proposed by the German physicist Harald Haas in 2011. Li-Fi provides transmission of data through illumination by sending data through an LED light bulb that varies in intensity faster than human eye can follow. Wi-Fi is useful for general wireless coverage within buildings while Li-Fi is ideal for high density wireless data coverage in confined areas where there are no obstacles.

Li-Fi is a wireless optical networking technology that uses light emitting diodes (LEDs) for transmission of data. The term Li-Fi refers to visible light communication (VLC) technology that uses as medium to deliver high-speed communication in a manner similar to Wi-Fi. Li-Fi provides better bandwidth, efficiency, availability and security than Wi-Fi and has already achieved high speeds in the lab.

GENERAL WORKING PRINCIPLE

Light emitting diodes (LEDs) can be switched on and off faster than the human eye can detect since the operating speed of LEDs is less than $1 \mu\text{s}$, thereby causing the light source to appear to be continuously on. This invisible on-off activity enables data transmission using binary codes. Switching on an LED is binary '1', switching it off is binary '0'. It is possible to encode data in light by varying the rate at which LEDs flicker on and off to give different strings of 1s and 0s. Modulation is so rapid that humans cannot notice it. A light sensitive device (photo detector) then receives the signal and converts it back into original data. This method of using rapid pulses of light to transmit information wirelessly is technically referred to as Visible Light Communication (VLC). The term Li-Fi has been inspired due to its potential to compete with conventional Wi-Fi. The VLC uses visible light between 400 THz (780 nm) and 800 THz (375 nm) as the optical carrier for data transmission and for illumination.

Data rates of greater than 100 Mbps can be achieved by using high speed LEDs with adequate multiplexing. Parallel data transmission using arrays of LEDs where each LED transmits a separate stream of data can be used to increase the VLC data rate. Though the lights have to be kept on in order to transmit data, they can be dimmed to the point that they are not visible to humans but still be capable of transmitting data.



COMPARISION OF LI-FI AND WI-FI

Parameter	LI-FI	WI-FI
Speed	High	High
Spectrum	10,000 times broader than that of Wi-Fi	Narrow spectrum
Data density	High	Low
Security	High security due to non-penetration of light through walls	Less secure due to transparency
Reliability	Medium	Medium
Bandwidth	High due to broad spectrum	Low
Transmit/receive power	High	Medium
Ecological Impact	Low	Medium
Device-to-device connectivity	High	High
Obstacle interference	High	Low
Bill of materials	High	Medium
Market maturity	Low	High
Latency	In the order of microseconds	In the order of milliseconds

CONCLUSION

With the above benefits encouraging us to adopt this new technology, the actual need for Li-Fi can be confirmed from Cisco’s Visual Network Index which suggests that user demand is increasing faster than gains in spectral efficiency. By 2015, traffic from wireless devices is expected to exceed that from wired devices. Such increases in network traffic require significant changes in how we think of wireless communication and Li-Fi may be the change that we need.

Dr. AR SIVAKUMARAN

Professor,
 Department of Information Technology
 Malla Reddy engineering college for
 Women, Secunderabad



STUDENT ARTICLES

SMART NOTE TAKER

The Smart note taker is such a supportive gadget, to the point that fulfils the requirements of the general population in today's busy and quick life. The smart note taker allows its user to take quick and simple notes in the air. The composed notes can be stored onto the memory chip on the device. The smart note taker is great as you don't have to look for a screen or a piece of paper to take your quick notes. Instead, you just start writing in the air. This gadget can change the way teachers present their topics in the classroom. The server computer can broadcast the drawn shapes and text through network to the entire computer which is present in the room. This product is simple but powerful. This gadget can store detected 3D shapes and movements that client tries to draw. Later the detected data is prepared and stored on the memory chip on the device and then the notes can be viewed on almost any device that has a screen, including smart phones. Notes which were taken before on application program like word document or any image file can also be displayed. Software program will identify the figures that were drawn in the air, the required character will be imprinted on the word document.

CHITIMIREDDY LAKSHMI MADHAVI
(18RH1A1210)



CRYPTOCURRENCY

Cryptocurrencies are digital assets created using computer networking software that enables secure trading and ownership. Bitcoin and most other cryptocurrencies are supported by a technology known as the blockchain, which maintains a tamper-resistant record of transactions and keeps track of who owns what. Public blockchains are usually decentralized, which means they operate without a central authority such as a bank or government. Most cryptocurrencies are based on blockchain technology, a networking protocol through which computers can work together to keep a shared, tamper-proof record of transactions. The challenge in a blockchain network is in making sure that all participants can agree on the correct copy of the historical ledger. Without a recognized way to validate transactions, it would be difficult for people to trust that their holdings are secure. There are several ways of reaching "consensus" on a blockchain network, but the two that are most widely used are known as "proof of work" and "proof of stake. Proof of stake is another way of achieving consensus about the accuracy of the historical record of transactions on a blockchain. It eschews mining in favor of a process known as staking, in which people put some of their own cryptocurrency holdings at stake to vouch for the accuracy of their work in validating new transactions. Some of the cryptocurrencies that use proof of stake include Cardano, Solana, Ethereum.

MUNNOLA PREETHI
(18RH1A1238)



5G TECHNOLOGY

5G is the fifth-generation wireless technology with the potential to transform communication systems. It offers higher speeds, low latency and other benefits that will open up and power a wide range of existing and emerging technologies. The 5G network delivers faster connections with much larger capacity and low latency (less than 1 millisecond compared to 30 milliseconds for 4G and 100 milliseconds for 3G). The next technology trend that follows the IOT is 5G. Where 3G and 4G technologies have enabled us to browse the internet ,use data driven services ,increased bandwidths for streaming on Spotify and you tube and so much more ...

5G services are expected to revolutionize our lives by enabling services that relay on advance technology like AR and VR, alongside cloud based gaming services like google stadia ,NVidia GE force now and much more .It is expected to be used in factories, HD cameras that helps improve safety and traffic management , smart grid control and smart retail too..

Providers promise theoretical speeds up to the maximum of 10Gps, which is about a hundred times to the 100Mbps 4G peak speed . Although the actual speeds will vary according to a range of factors and are unlikely to reach the maximum, technology will offer a much better experience and oppurtunities than existing wireless technology .

Today, a good number of technology companies and provider are developing and deploying thesenetworks either in trail or commercial setups . Among the many possible use cases mobile broadband deployment is currently leading and enabling high speed mobile transfers for mobile devices.

D.KEERTHI
(18RH1A1215)



SEMANTIC WEB

The Semantic Web is a vision about an extension of the existing World Wide Web, which provides software programs with machine-interpretable metadata of the published information and data. In other words, we add further data descriptors to otherwise existing content and data on the Web. As a result, computers are able to make meaningful interpretations similar to the way humans process information to achieve their goals.

The ultimate ambition of the Semantic Web, as its founder Tim Berners-Lee sees it, is to enable computers to better manipulate information on our behalf. He further explains that, in the context of the Semantic Web, the word “semantic” indicates machine-processable or what a machine is able to do with the data. Whereas “web” conveys the idea of a navigable space of interconnected objects with mappings from URIs to resources.

S.SRINIDHI
(19RH1A12G6)



BIO-COMPUTING

Computation can be broadly defined as the formal procedure by which input information is processed according to pre-defined rules and turned into output data. Since this definition does not specify the type of information and rules involved in the process, it is applicable to electronic devices as well as to biological systems. In other words, biological systems do perform computations. While the computational ability of biological matter has been explicitly described a number of times along the twentieth century (Bennett, 1982), it was Leonard Adleman who showed the feasibility of implementing human-defined computations with molecular (i.e., genetic) hardware (Adleman, 1994).

Cells are able to process input information in many different and intricate ways. For the sake of clarity, in this article we propose to group the processing of information into two types of computing (i.e., genetic and metabolic) depending on the nature of the input and components thereof. To date, most of the biocomputing developments in synthetic biology dealt almost exclusively with genetic material and parts.

Natural cellular pathways are rarely based on genetic or metabolic activities alone. Thus, the concept of heterotic computing (i.e., the coordination between different types of computing), is intrinsic to biological systems. However, synthetic circuits are not often exploiting the full computational power of the cellular machinery. Although the type of processes is very different, the cooperation between them could pave the way to a new generation of whole-cell circuits with enhanced abilities. This aspect is what we refer to as high-performance Biocomputing

V.KAVYA
(19RH1A12H2)



PHISHING TECHNOLOGY

Phishing is a type of cybersecurity attack during which malicious actors send messages pretending to be a trusted person or entity. Phishing messages manipulate a user, causing them to perform actions like installing a malicious file, clicking a malicious link, or divulging sensitive information such as access credentials.

An attack can have devastating results. For individuals, this includes unauthorized purchases, the stealing of funds, or identify theft. Moreover, phishing is often used to gain a foothold in corporate or governmental networks as a part of a larger attack, such as an advanced persistent threat (APT) event. In this latter scenario, employees are compromised in order to bypass security perimeters, distribute malware inside a closed environment, or gain privileged access to secured data.

A.JYOTHSNA
(20RH5A1201)



SPANDAN LIVE MONITORING

Spandan employs a 3-chest lead ECG monitoring system. Unlike the normal 12 lead ECG machines, our portable ECG device allows you to track your heart health by sequentially moving the 3 chest leads through a single channel. Be it at your home for personal heart monitoring or at a remote location in the hills for a medical camp or during trekking on some long trail, Spandan can serve as the perfect travel partner to analyze your heart anytime, anywhere.

Portable ECG machine acts as the perfect alternative for emergency medical usage be it for primary clinics or Spandan generates ECGs that can be printed directly on A4 sheets. This presents as the perfect alternative in emergencies. Generate the report, connect to any printer, and get the hard copy of your ECG in no time.

CH. SWATHI
(20RH1A1235)



AUTOMATIC STREET LIGHT CONTROL SYSTEM

Automatic Street Light Control System is a simple yet powerful concept, which uses transistor as a switch. By using this system manual works are 100% removed. It automatically switches ON the sunlight goes below the visible region of our eyes. This is done by a sensor called Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the sunlight comes, visible to our eyes. by using this system energy consumption is also reduced because nowadays the manually lights are not switched off even the sunlight comes and also switched on earlier before sun set. In this project, no need of manual operation like ON time and OFF time.

CH. HIMA BINDU
(20RH1A1237)



HAWK-EYE

In the present days it is found that all sports go hand in hand with technology. To be more appropriate sports and technology are two sides of the same coin. One such interesting technological feature, mainly used in Cricket and Tennis, is the Hawk-eye Technology. Hawk Eye technology is a system which visually captures the path or trajectory of a ball in games that involve balls, such as as tennis, badminton, rugby union, cricket, football soccer, volleyball, etc. The graphical representation of the trajectory is called Shot Spot. Hawk Eye technology is based on the principle of triangulation by deploying visual images, timing data extracted from high-speed video cameras. The cameras are placed at various locations, so that the path of the ball can be viewed from any angle. The number of cameras vary from game to game. The number of cameras and their placement depends on the playing area, rules of the game, ball size, etc. The Hawk-Eye captures 600 frames per second on the Goal Line in football. The Goal Line Technology is based on the principle of hawk-eye.

CHERUKURI KAVYA
(20RH1A1238)



EMBEDDED WEB SERVER USING ARM

The www (World Wide Web) continuously develops through fundamental technologies for simply browsing the web. For different applications, web browsers are used as a standard interface like real-time applications of an embedded system like the Acquisition System of Remote Data. The web server can be developed with the help of HTML and it includes different web pages.

The embedded web server can be developed through embedded c language that is helpful for different applications like mission-critical, ATM, acquisition systems for remote data & controlling devices like DC motor, servo motor, stepper motor, control the stereo sets, use like dimmer stat for controlling intensities of light.

D.SPANDANA REDDY
(20RH1A1242)



TESLA'S AUTOPILOT MODE SAVES DRIVER'S LIFE

In a recent incident, a Tesla car saved a man's life while he was driving the car on autopilot on a narrow road when a van came swerving into him.

From a report by Teslarati blog, Tesla has reported one accident for every 3.7 million miles driven when the autopilot is engaged. In comparison, the National Highway Safety Administration (NHTSA) has reported one accident for every 475,000 miles driven for all US vehicles. Tesla has improved the safety of the drivers and passengers more than 7 times when on autopilot, compared to self-driven cars. Even by the company's own reports, it has improved its cars' autopilot to an extent that the Tesla owners had 18 per cent fewer accidents in 2020 compared to the previous two years, when on autopilot.

G. KEERTHI
(20RH1A1256)



WIRELESS USB

Wireless USB was a short-range, high-bandwidth wireless radio communication protocol created by the Wireless USB Promoter Group which intended to increase the availability of general USB-based technologies. It is unrelated to Wi-Fi

In February 2004: The Wireless USB Promoter Group was formed to develop the technical standards for wireless universal serial buses. In May 2005: The Wireless USB Promoter Group unveiled the complete wireless USB technology standard.

Up to 127 wireless devices can be connected to the host. W-USB can be used as either a W-USB device or a host. In order to connect to a common wired USB device, the W-USB specification defines a device line adapter. In addition, the W-USB device has a fully compatible USB interface.

In order to allow common wired USB devices to be connected, the specification defines *device wire adapters*. Likewise, hosts connect to W-USB systems through use of a host wire adapter.

G. TEJASWI
(20RH1A1257)



FLYING ROBOT GENERATES AS MUCH POWER AS A FLAPPING INSECT

A small robot with wings like an insect can fly and generate more power than a similarly sized animal in nature.

Most flying robots, whether they use wings or propellers, have motors and gears and transmission systems to connect the components, but these can weigh the robot down and fail.

Now, Tim Helps at the University of Bristol, UK, and his colleagues have designed a small robot that uses an electric field – and a droplet of oil that increases the strength of the field – to flap the wings directly, avoiding the need for a motor or a transmission system. Helps and his team tested the mechanism for a million wing flaps and found it had a steady power output that was slightly better than that of an insect muscle of the same weight.

G. SWETHA
(20RH1A1260)



ENCRYPTION JUST ISN'T ENOUGH: CRITICAL TRUTHS ABOUT DATA SECURITY:

The high-techworld uses a centuries old tradition to protect your information. It encodes, or encrypts, your data. That encryption is why you see "HTTPS" with a green padlock in the URL bar. Notice the "s" at the end. It means "**secure** hypertext transfer protocol", telling you the data on this website is encrypted to ensure its security.

In other words, you're told you can transmit confidential personal, financial or health data if needed, without fearing hackers will intercept and read your information. What relatively few people know is that this "security" of the website is relative. There's still a way for malicious actors to breach the toughest of encryption. And these cyber-thieves know it.

CHAPPIDI CHANDANA PRIYA
(21RH5A1204)



5G WIRELESS TECHNOLOGY

The search engine major Google has already confirmed that the smartphone user base has surpassed the desktop userbase. If we go back a few years, the maximum RAM in a smartphone was in a few MBs only but now, even the smartphone configurations are competing with personal computers. It is evident that smartphone usage without the internet is barely minimum. With the increased dependency on IoT, internet speed plays a pivotal role.

The majority of companies think of future needs, innovations, services that could give a better life to mankind. Keeping this in mind, 5G thoughts were rolled a decade back even before the 4G technology was in place. Of course, the 4G has been a base to implement 5G. We will discuss countrywide 5G rollout further in this article.

G. SWEJREDDY
(20RH1A1259)



ARTIFICIAL INTELLIGENCE

Now the world is looking towards artificial intelligence simply it is also called as AI, because our talented engineers are invented and introducing many new things to this world. So, this article is going to you brief information about artificial intelligence.



Artificial intelligence is a ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment. The computer or computer-controlled robot to perform task commonly associated with intelligence begins. The term is frequently applied to the project of developing systems endowed with the intelligence processes.

Characteristics of humans, such as the ability reason, discover meaning, generalize, or learn from past experiences. Since the development of the digital computer in the 1940s, it has been demonstrated that computer can be programmed to carry out very complex tasks.

There are a lot of applications in Artificial intelligence field now a days every technology is connected with each other so, by using AI many technologies are introduced. AI is needed to this world to world

G. ARCHANA
(20RH1A1262)

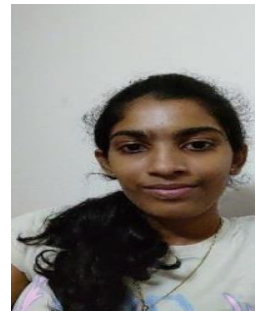


MACHINE LEARNING

Machine learning is a field of study that looks at using computational algorithms to turn empirical data into usable models. The machine learning field grew out of traditional statistics and artificial intelligences communities. From the efforts of mega corporations such as Google, Microsoft, Facebook, Amazon, and so on, machine learning has become one of the hottest computational science topics in the last decade. Through their business processes immense amounts of data have been and will be collected.

There are several open-source implementations of machine learning algorithms that can be used with either application programming interface (API) calls or nonprogrammatic applications. Examples of such implementations include Weka, Orange, and Rapid Miner. The results of such algorithms can be fed to visual analytic tools and a such as Tableau and Spotfire to produce dashboards and actionable pipelines

K.SAI SINDHURA
(20RH1A1273)



IMPORTANT WEBSITES

www.ieee.org/india

www.engineering.careers360

www.technologyreview.com

www.mathworks.in/products/matlab/

www.microwaves101.com/

www.ece.utoronto.ca/student-life-links

<https://www.ece.org/>

Science Commons.org

[MathGV.com:](http://MathGV.com)

<http://www.engineeringchallenges.org/>

<http://engineering.stanford.edu/announcement/stanford-announces-16-online-courses-fall-quart>

<http://www.tryengineering.org/>

<http://www.engineergirl.org/>

<http://www.discoverengineering.org/>

<http://www.eng-tips.com/>

<http://efymag.com>

<http://efymagonline.com/>

<http://electronicsforu.com>

www.dspguide.com

www.howstuffworks.com

<http://nptel.iitm.ac.in>

<http://www.opencircuitdesign.com/>

<http://www.futuresinengineering.com/>

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