



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
Maisammaguda, Dhulapally, Secunderabad – 500 010, Telangana

A.Y : 2019-20 VOL.2

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 activities 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-2 of the Technical magazine INSUPERON in A.Y 2019-20. 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: 2019-20, 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. Madhatee Latha
Principal

HOD'S MESSAGE

It is an occasion of immense pleasure for the department of IT, MRECW to bring out the volume-2 of the technical magazine-INSUPERON. It gives me great satisfaction to note that the response to the magazine has been overwhelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining, interesting and absorbing. I applaud the contributions for their stimulated thoughts and varied hues in articles contributed by them.



**Dr. INDUMATHI KRISHNAN
LAKSHMI**
HOD

FACULTY ARTICLES

CyberSecurity:

Cyber security focuses on protecting computer systems and networks from cyberthreats and attacks. As companies continue storing information on the cloud and conduct operations online, the need for improved cybersecurity also grows.

Individuals, businesses, and governments experience significant financial losses due to cyberattacks. For example, the ransomware attack in the eastern U.S. in May 2021 cost the Colonial Pipeline about \$5 million and inflated gas prices for consumers.

Most industries, including healthcare, financial institutions, and insurance, need better cybersecurity technologies to protect their proprietary and customer data. Because of this demand, the BLS projects a 31% job growth rate for information security analysts from 2019 to 2029. Information security analysts earned a median annual salary of \$103,590 as of 2020.

Cybersecurity specialists work at consulting firms, computer companies, and business and financial organizations. Major employers include Apple, Lockheed Martin, and Capital One.

Potential Jobs:

- Information Security Analyst
- Chief Information Security Officer
- Information Security Consultant
- IT Security Manager



G. Bhanu Prasad
Associate Professor

Single Sign-On mechanism allows the individual user to login only once by using a single credential in order to access multiple resources. Here, their identities are verified automatically by each application they wish to access afterwards. There are several secure sign-on models. Nowadays, the most of the application requires the user to maintain the various kinds of credentials such as username, password or tokens for each service the user wish to access. More than that, the user have to memorize the different credentials and they have to remember the appropriate credential while accessing the services from that particular application. By analyzing the practical situation, this method is very difficult for a user to maintain the various set of credential for various service providers. This will increase the processing workload of both the users and the service providers. To overcome this problem, the Single Sign-On scheme is introduced. In distributed systems and networks, the user authentication plays an important role. Authentication is nothing but giving assurance that the two communicating parties such as the user; who is getting the resources and the resource provider; who is providing the resources, are authentic. The mutual authentication should be established between the two communicating entities such as the user and the service provider. This could avoid the illegal servers to access the services.

Mr Anil P Jawalkar
Asst Professor



STUDENT ARTICLES

EAR PRINT

Fingerprint has been the gold standard of securing confidential info and data. This method of verifying the unique finger whorls made it difficult for someone to breach the security until it was confirmed that fingerprints can be hacked using conductive ink. Researchers from Michigan State University found a method to surpass the smart phone's fingerprint scanner by using conductive silver ink and AgIC paper.

It has been studied and described as a part of procedures to establish the identity of criminals and victims of crimes and accidents. Not only the auricle itself showed potential for establishing the identity of criminals, but also its prints. When perpetrators of crimes listen at, for instance, a door or window before breaking and entering, oils and waxes leave prints that can be made visible using techniques similar to those used when lifting fingerprints. These prints appear characteristic for the ears that made them.

KAMASANIBHAVANA
(18RH1A1222)



BIG DATA

A Big data is a combination of structured, semistructured and unstructured data collected by organizations that can be mined for information and used in machine learning projects, predictive modeling and other advanced analytics applications. Systems that process and store big data have become a common component of data management architectures in organizations. Structured data, such as transactions and financial records;

- unstructured data, such as text, documents and multimedia files;
- semistructured data, such as web server logs and streaming data.

As big data is huge different strategies are used in order to analyze the data generated from the big data. We can, not only find the customer wish product but also predict the market demand and many more.

K.ROSHINI
(18RH1A1223)



CRYPTO CURRENCY

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology—a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

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 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. The term cryptocurrencies comes from the cryptographic processes that developers have put in place to guard against fraud. These innovations addressed a problem faced by previous efforts to create purely digital currencies: how to prevent people from making copies of their holdings and attempting to spend them twice. Individual units of cryptocurrencies can be referred to as coins or tokens, depending on how they are used. Some are intended to be units of exchange for goods and services, others are stores of value, and some are mostly designed to help run computer networks that carry out more complex financial transactions.

KARANAMVENKATA SRI SOWJANYA
(18RH1A1224)



TRICORDERS

For decades, tricorders have been medical technology's version of the flying car: its origins are in science fiction, and the concept is both elegant and eminently useful. A medical tricorder is a handheld portable scanning device to be used by consumers to self-diagnose medical conditions within seconds and take basic vital measurements. As far back as the 1960s, tricorders were imagined to be palm-sized devices that could quickly and accurately monitor a wide array of vital signs, while also performing simple diagnostics. Unlike flying cars, however, tricorders have finally made the leap from the screen and into users' hands.

While some companies have attempted to craft workable prototypes, none have passed FDA approval or made it to the market yet. However, the race is on as several medical device companies are vying to win the 10 million Qualcomm Tricorder XPRIZE competition. The first workable device that can accurately diagnose 13 medical conditions without the need for a physician, as well as monitor five vital signs, will win the grand prize.

SAI PRIYA KOKAPEKA
(18RH1A1226)



CAMFECTING ATTACK

Most of us have in-built cameras on our phones, tablet, laptop, desktop or use webcam for work. On browsing, you will find certain hacked wireless home security cameras list. Anyone can hack your webcam if they know the commands and programming. Hackers can take selfies from your webcam without letting you know. In normal cases, when we open our webcam we can see a light near the webcam it means your webcam is on. But when your webcam gets hacked then you won't see any light near the webcam. More over won't open any kind of links which you get in your whatsapp or anywhere else. Because there are some tools from which the hackers will take the selfie of you and they will post in social media or in other sites.

With those tools the hacker will generate the link and will send it to the victim. When the victim clicks on that link then automatically the selfie camera will capture the picture of you and it will send it to the hacker. Until he stops, your camera will capture your selfie. By using those pictures, he will post on dating sites and other sites where he can attract other people by posting your pics in those apps. If you have any antivirus which is a paid one, not a trial once then you will get the alerts whenever you are connected to the internet. When some exploits try to enter into your system then the antivirus will stop those exploits from entering into your device. I'm not saying that Anti-Virus will stop you but it will alert you when any website is trying to access your webcam. Sometimes no antivirus will alert you while it is accessing the webcam because some malware or virus can't be detectable to the antiviruses also.

KOPPUVARAVURI SRI LAKSHMI
(18RH1A1228)



EDGE COMPUTING

Formerly a new technology trend to watch, cloud computing has become mainstream, with major players AWS (Amazon Web Services), Microsoft Azure and Google Cloud Platform dominating the market. The adoption of cloud computing is still growing, as more and more businesses migrate to a cloud solution. But it's no longer the emerging technology trend.

Edge computing is designed to help solve some of those problems as a way to bypass the latency caused by cloud computing and getting data to a data center for processing. It can exist "on the edge," if you will, closer to where computing needs to happen. For this reason, edge computing can be used to process time-sensitive data in remote locations with limited or no connectivity to a centralized location. In those situations, edge computing can act like mini datacenters.

Edge computing will increase as use of the Internet of Things (IoT) devices increases. By 2022, the global edge computing market is expected to reach \$6.72 billion. And this new technology trend is only meant to grow and nothing less, creating various jobs, primarily for software engineers. Edge computing is a distributed computing paradigm that brings computation and data storage closer to the sources of data. This is expected to improve response times and save bandwidth.

KOTHA REETHIKA
(18RH1A1231)



ANGULAR

AngularJS was one of the first modern JavaScript front-end frameworks. It came to market in 2010 and rapidly became the most popular JavaScript MVC (Model-View-Controller) framework. AngularJS quickly became popular because of features like dependency injection, routing, and two-way data binding. It significantly changed how Front-End Developers wrote code. Five years later, Angular 2 (or Angular) was released. Unlike AngularJS, which is written in JavaScript, Angular is written in TypeScript.

Until Angular's release, jQuery was the main JavaScript library most developers used for front-end web development. This was because jQuery made manipulating the DOM (Document Object Model) of a web page simple and easy across different browsers. Still, its non-binding structure often led to spaghetti code.

MVC in Angular

MVC is a code pattern with a long history, and it's used by many frameworks — both front-end and back-end. In Angular, a web application is broken up into these three parts:

1. Model
2. View
3. Controller

Routing in Angular

Applications built with Angular are called Single Page Applications (SPAs). SPAs run in a web page without requiring a page reload but require a URL to function. Routing is what translates the URL in the web browser to a specific state in the web app.

Traditionally, in back-end web applications, this URL would be parsed by the web server, which would then determine what page would be generated for this URL and return it to the user.

Angular adds structure and design patterns to front-end development, allowing developers to create more advanced web applications that are easier to maintain and update.

MALIGIREDDY LIKHITHA
(18RH1A1234)



DATA VISUALIZATION

Data visualization is an important component of many company approaches due to the growing information quantity and its significance to the company. Data visualization is the representation of data or information in a graph, chart, or other visual format. It communicates relationships of the data with images. This is important because it allows trends and patterns to be more easily seen. With the rise of big data upon us, we need to be able to interpret increasingly larger batches of data. Machine learning makes it easier to conduct analyses such as predictive analysis, which can then serve as helpful visualizations to present. But data visualization is not only important for data scientists and data analysts, it is necessary to understand data visualization in any career. Whether you work in finance, marketing, tech, design, or anything else, you need to visualize data. That fact showcases the importance of data visualization. We need data visualization because a visual summary of information makes it easier to identify patterns and trends than looking through thousands of rows on a spreadsheet. It's the way the human brain works. Since the purpose of data analysis is to gain insights, data is much more valuable when it is visualized. Even if a data analyst can pull insights from data without visualization, it will be more difficult to communicate the meaning without visualization. Charts and graphs make communicating data findings easier even if you can identify the patterns without them. In undergraduate business schools, students are often taught the importance of presenting data findings with visualization.

M.SRILAKSHMI
(18RH1A1235)



MIXED REALITY

Mixed reality is the next wave in computing following mainframes, PCs, and smartphones. Mixed reality is going mainstream for consumers and businesses. It liberates us from screen-bound experiences by offering instinctual interactions with data in our living spaces and with our friends. Online explorers, numbering in the hundreds of millions around the world, have experienced mixed reality through their handheld devices. Mobile AR offers the most mainstream mixed reality solutions today on social media. People may not even realize that the AR filters they use on Instagram are mixed reality experiences. Windows Mixed Reality takes all these user experiences to the next level with a combination of truly stunning holographic representations of people and high fidelity holographic 3D models and the real world around them.

Mixed reality is a blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions. This new reality is based on advancements in computer vision, graphical processing, display technologies, input systems, and cloud computing.

M.SAI HARSHITHA
(18RH1A1236)



PAPER BATTERY

New 0.4-MM-Thick 'Paper Battery' Can Power a Small Fan for 45 Minutes And it's only as thick as two human hairs.Scientists from Nanyang Technology University (NTU) in Singapore developed paper-thin biodegradable zinc batteries, a press statement reveals.

They believe the new material could sustainably power flexible wearable electronics of the future.The new zinc batteries are made up of electrodes that are screen-printed onto both sides of a sheet of hydrogel-reinforced cellulose paper. A layer of gold thin foil is coated on the electrodes to increase the conductivity of the battery. The battery is about 0.4mm thick, which is roughly the thickness of two strands of human hair.Impressively, once the battery has reached the end of its lifespan, it can be buried in soil, where it will break down completely within a month.

MUSTAYALA HEMASREE
(18RH1A1239)



IMPLANTATION OF REVOLUTIONARY ARTIFICIAL VISION BRAIN IMPLANT

The Intracortical Visual Prosthesis (ICVP), an implant that bypasses the retina and optic nerves to connect directly to the brain's visual cortex, has been successfully surgically implanted in the ICVP study's first participant at Rush University Medical Center this week. This surgery is part of a Phase I Feasibility Study of an Intracortical Visual Prosthesis for People With Blindness.

The ICVP system was developed by a multi-institution team led by Philip R. Troyk—executive director of the Pritzker Institute of Biomedical Science and Engineering at Illinois Institute of Technology, professor of biomedical engineering—and represents the culmination of nearly three decades of Illinois Tech research dedicated to ultimately providing artificial sight to those with blindness due to eye disease or trauma.

The Intracortical Visual Prosthesis System is the first intracortical visual implant to use a group of fully implanted miniaturized wireless stimulators to explore whether individuals with blindness can utilize the artificial vision provided by this approach.

N.ANVIKA
(18RH1A1240)



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)



PLASTIC SOLAR CELL

Solar cells that are primarily of the conventional type. Photovoltaic (PV) cells are comprised of unique materials called semiconductors, the most common of which being silicon. When light strikes the cell, some of it is absorbed by the semiconductor material. This indicates that the absorbed light's energy is transmitted to the semiconductor. Electrons are knocked loose and allowed to move freely as a result of the energy. In addition, all PV cells feature one or more electric fields that act to push electrons released by light absorption to travel in a specific direction. We can pull this current off the top and bottom of the PV cell and use it externally by installing metal contacts on the top and bottom of the cell. For example, the current can power a calculator. This current, together with the cells voltage, defines the power that the solar cell can produce. Conventional solar cells are made up of polycrystalline silicon or in the case of high efficiency one crystalline gallium arsenide. However, it has been discovered that only 35% of the sun's total energy falling on it can be used wisely by this form of solar cell. This fundamental flaw prompted researchers to consider developing a new form of solar cell that incorporates nanotechnology. This involves a technique that is nearly identical to the one described previously.

B.SAI SREE
(19RH1A1227)



STELLINA SMART TELEPHONE

The Stellina smart telescope is a fully automated tabletop telescope that makes astrophotography a breeze. Stellina is a fully automated astrophotography telescope about the size of a backpack. You can quickly and easily set it up anywhere, even in places with copious amounts of light pollution, like New York City. Using Stellina requires virtually no knowledge of astronomy or how to use a telescope.

All you need is a smartphone and a little patience, and you can capture stunning images of galaxies, nebulas and star clusters. When you turn this telescope on, it automatically aligns itself by looking around the sky and identifying objects in the star field. Once the initialization is complete, you simply select an object from the catalog in the Stellina app on your phone; then, kick back and relax while Stellina does all the rest of the work for you. Astrophotography doesn't get any simpler than this.

As the telephone captures multiple shorts exposures, it stacks them all into one image and you can watch the stacking happen in realtime. You can also scroll through all the individual exposures and see how final product improves with each newly stacked image .It is the most user friendly.

CHAVA NUTHANA
(19RH1A1229)



FULL STACK DEVELOPMENT

A full-stack developer is a web developer or engineer who works with both the front and back ends of a website or application – meaning they can tackle projects that involve databases, building user-facing websites, or even work with clients during the planning phase of projects.

It refers to the development of both front end(client-side) and back-end(server-side) portions of web application. They work on the frontend, backend, database and debugging of web applications or websites.

Full stack development involves the creation of both client-side and server-side software and it is expected to be one of the most popular technologies in 2021.

The internet, relatively new technologies, was growing around the global as the 21st century began. Web development now-a-days includes both a front end and a back end. Websites have a client-side the website that you see and a server-side the website that you corporation controls especially in industries.

CH. CHANDANA
(19RH1A1233)



IT SECURITY AT HOME

You probably can't provide security for workers at home that matches that of your office, but you can come close. Here are some ideas.

When the COVID-19 quarantine hit in Mid-March, it created an unprecedented situation in which the number of remote workers skyrocketed beyond anything anticipated.

We had to figure out how to operate without the office for nearly a month, He (Gallagher) says. But that is very regionally specific. This is a much broader problem.



CH.RUCHITA

(19RH1A1238)

ATTENDANCE MONITORING INTELLIGENT CLASSROOM

“An investment in knowledge pays the best interest”.

India has the largest population in the world in the age bracket of 5–24 years, along with a great network of higher education institutions in the world and it has shown its potential through its persistent efforts, though there is potential for further development.

The Education sector has seen a scope towards reforms and improved financial outlays that could potentially transform the country into a knowledge haven.

Researches so far have traced that a child’s attendance and punctuality influence their academic success and helps in shaping their development.

TRADITIONAL CLASSROOM STYLE

In the traditional classroom, the teacher records the attendance of students, by naming usually; the teacher prints a name list of students, calls these names one by one, but there were many shortcomings to the traditional system including bunking, irregularities, absenteeism, proxies and a more time-consuming task for the teachers.

The modern world is surrounded by digitalization, making revolution, as similar to adding sound to pictures and color to pictures.

There is an increasing trend for educational institutions towards monitoring students’ attendance, on the assumption that higher attendance leads to better retention, applauding scores, and a satisfactory educational experience.

G.HARSHITHA
(19RH1A1259)



5G TECHNOLOGY

The eventual goal of the forthcoming 5G wireless networking is to have relatively fast data speeds, incredibly low latency, substantial rises in base station's efficiency and major changes in expected Quality of Service (QoS) for customers relative to the existing 4G LTE networks. In order to deal with state-of-the-art technologies and connectivity in the form of smart cell phones, internet of things (IoT) devices, autonomous vehicles, virtual reality devices and smart homes connectivity, the broadband data use has risen at a fast rate. Further, to meet the latest applications, the bandwidth of the system needs to be increased widely. This development will be accomplished by using a modern spectrum with higher data levels. In particular, the fifth-generation (5G) mobile network seeks to resolve the shortcomings of previous telecommunication technologies and to be a possible primary enabler for future IoT applications. This paper briefly discusses the architecture of 5G, following by the security associated with the 5G network, 5G as an energy-efficient network, various types of efficient antennas developed for 5G and state-of-the-art specifications for IoT applications along with their related communication technologies. We have also outlined the broader usage of 5G and its future impacts on our lives. Furthermore, at the end of each subtopic, the necessary recommendations are given for future work.

ROHINI
(20RH5A1205)



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](http://ScienceCommons.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/>

INSPERON



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