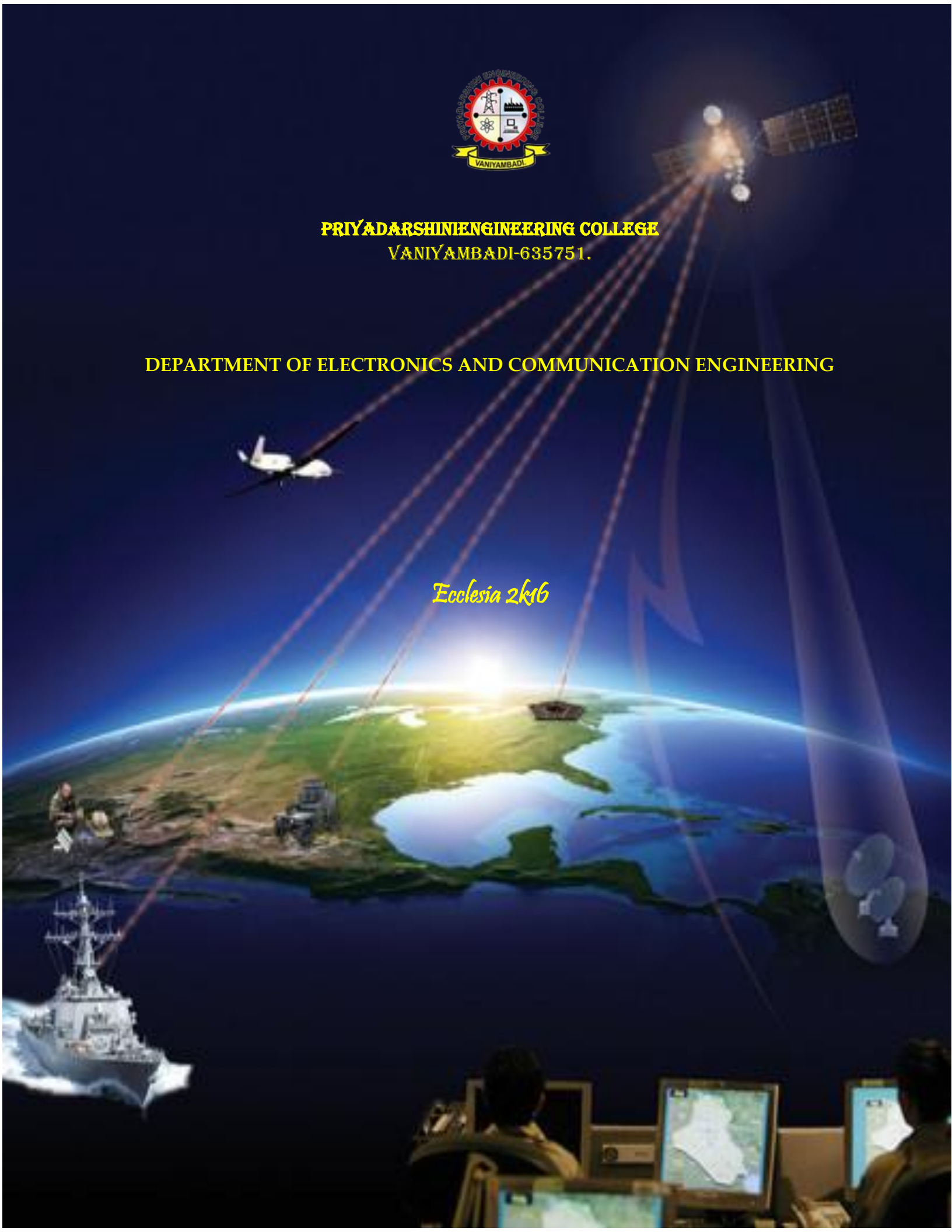




PRIYADARSHINI ENGINEERING COLLEGE
VANIYAMBADI-635751.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Ecclesia 2k16



About the College:

Moved by the sad plight of affairs which was prevailing among the rural based population of Vaniyambadi and nearby Village who were quite unaware of the technological explosion that was taking place in India, the philanthropist of Vaniyambadi and nearby villages came together and established Jai Barath Charitable Trust in the year 1994 and started Priyadarshini Engineering College in the year 1995 under its banner with their sumptuous contributions.

With the sole aim that the accomplishment of the Vision and Mission of the Trust does not get shattered, the matter was referred to the Honorable High Court of Madras for scheming. The Honorable High Court of Madras appointed Retired Justice V.Rengasamy as the Receiver of the Trust in the year 2004 which appointment was confirmed by the Honorable Supreme Court of India, New Delhi. Right from that time Honorable Justice V.Rengasamy with his efficient leadership, guidance and impeccable integrity is administering Priyadarshini Engineering College faithfully following the Vision and Mission of Jai Barath Charitable Trust in letter and spirit and has raised the college to greater heights.

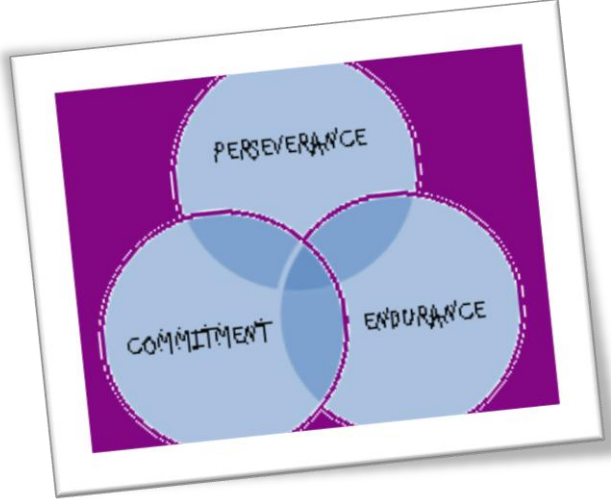
He took initiative to establish palatial buildings and labs in the college. He made it a point to fully equip the labs with the necessary software and our labs are deficient free as per the AICTE and Anna University norms. He introduced B.E (Civil) in Undergraduate Course and M.E (Power Systems), M.E (Engineering Designs), M.E (Communication System) and M.E (Computer Science Engineering) in Postgraduate course. He continues to administer the institution with full zeal and zest till date.

Vision

- ✦ To Inculcate In The Young Rural Minds The Aptitude To Compete With The Quality Technocrats

Mission

- ✦ To instill technical skills to compete for a sustainable world
- ✦ To impart holistic value based technical education
- ✦ To intensify international research and development (R & D) cooperation in technological development
- ✦ To imbibe core values of love for motherland, performance of duty, compassion, tolerance, honesty and integrity

COLLEGE MOTTO:

"கற்றலும், கற்றவை கேட்டலும், கேட்டதன்கண் நின்றலும்"

ABOUT THE DEPARTMENT

The Department of Electronics and Communication Engineering was started in PEC in the year 1995 with the intake of 60 students with the objective of imparting quality education in the field of Electronics and Communication and the intake was increased to 120 in the year 2013. The department started M.E. Communication System in the year 2014 with an intake of 24 students. At present, the department is offering an undergraduate course in Electronics and Communication Engineering and one post graduate course in Communication Systems. The department has well-equipped laboratories with the facility of working in various areas like Integrated circuits, Microprocessor and Microcontrollers with interfaces, Microwave and optical communication, Digital signal processing and VLSI etc. The department has dynamic and committed faculty members who have published and presented papers in various Journals, National and international conferences in the area of speech processing, image processing, wireless communication networks and neural networks. Original MATLAB 7.0 with signal processing tool box, ORCAD PSPICE 10.1 version, XILINX 9.1 version is added to the department to bring multi faceted knowledge among students in the ECE discipline. The department in association

with student professional bodies like ISTE, ICTACT has organized several workshops, conferences and other technical events.

The ultimate aim of the department is to foster the technical skills in the field of Electronics and Communication that will help the students to practically express their findings as products conducive to the society.

VISION OF THE DEPARTMENT

- ✦ To develop high quality, technically competent and socially responsible engineers in the field of communication from rural background.

MISSION OF THE DEPARTMENT

- ✦ To imbibe technical skills among graduates relevant to the area of electronics and communication engineering field.
- ✦ Making our students technologically superior and ethically strong.
- ✦ To instill skills among students to meet the industrial requirement.

ADMINISTRATOR'S MESSAGE



India has the world's largest population. It is not enough to only foster cognitive intelligence among the youth. The youth requires a mutual faculty endowed with multi dimensional intelligence. What are the objectives that the youth should work towards? These cannot be purely materialistic, materialistic Programme alone does not guarantee national security. What is essential is the character or integrity of the country's citizens. A national policy for integrating spiritual values and organization leadership can be achieved through measures by which we can create a modern Mindset among the youth. This will not only motivate them to acquire technical cognitive competence but also develop their emotional, moral , social, spiritual, environmental and innovational intelligence. This will make them more patriotic self-reliant individuals of high character, possessing a social conscience. Such an army of evolved youth will be the asset of the nation

PRINCIPAL'S MESSAGE



I am happy to meet all of you through this News Letter and I thank all the staff who strived to give professional education in a new perspective manner and achieve perfection in all the fields. The main reason for our tremendous performance in various activities is the involvement of the faculty members who motivated students whole heartedly to participate in the seminars, industrial visit, inter activity session and other

extracurricular activities to inculcate in them sound moral values, strong personality and eagerness to work in the society. Because of these efforts we have been successful in moulding the personality of our students and imbibe in them moral values and the spirit to team work. As a result 80 of our students leaving the ECE department in the year 2015 got Placed in reputed and renowned firms. I wish this solidarity continues for successive years and we would be proud to release many more news letter like this, highlighting our achievements. I have no doubts in near future PEC will be termed as one of the leading technical institutions in our district.

VICE PRINCIPAL'S MESSAGE



It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. The essential purpose of a college magazine is to inform, engage, inspire and entertain a diverse readership – including alumni, parents, students, faculty, staff and other friends of the college. The Department of ECE has seen a considerable growth since its inception in the year 1995. The well qualified faculty and courses of this department aid to prepare students for careers as professional engineers through an education in fundamental principles as well as in the context of real application and design environment. The department encourages all students to take advantage of the opportunities provided by the institute and participate in all the extracurricular activities that are offered.

I wish to emphasize the importance of few things that we always have to remember. Parents and teachers should remember that students should not be forced, but should be guided to achieve their goals in an easy and pleasing ways, so that we can discover the touch of genius in each one of them.

HOD'S MESSAGE



It gives me immense pleasure to state that the Department of Electronics & Communication Engineering (ECE) has been maintaining exemplary academic record consistently. The ECE department has been responsible for imparting quality education in various fields of Electronics & Communication Engineering including Advanced microprocessor, satellite communication, Networking, VLSI Technology etc. and other latest research oriented topics. The notable asset of our department is its highly motivated, technically qualified and well experienced faculty.

Class Toppers

Final Year ECE A & B students



Third Year ECE A & B students



T.SHANMUGAPRIYA



SUMITHA.S

ARTICLES

An Electronic Countermeasure

An electronic countermeasure (ECM) is an electrical or electronic device designed to trick or deceive radar, sonar or other detection systems, like infrared (IR) or lasers. It may be used both offensively and defensively to deny targeting information to an enemy. The system may make many separate targets appear to the enemy, or make the real target appear to disappear or move about randomly. It is used effectively to protect aircraft from guided missiles. Most air forces use ECM to protect their aircraft from attack. It has also been deployed by military ships and recently on some advanced tanks to fool laser/IR guided missiles. It is frequently coupled with stealth advances so that the ECM systems have an easier job. Offensive ECM often takes the form of jamming. Defensive ECM includes using blip enhancement and jamming of missile terminal homers.

First example of electronic countermeasures being applied in a combat situation took place during the Russo-Japanese war. On April 15, 1904, Russian wireless telegraphy stations installed in the Port Arthur fortress and on board Russian light cruisers successfully interrupted wireless communication between a group of Japanese battleships. The spark-gap transmitters in the Russian stations generated senseless noise while the Japanese were making attempts to coordinate their efforts in the bombing of a Russian naval base. Germany and United



Kingdom interfered with enemy communications along the western front during World War I while the Royal Navy tried to intercept German naval radio transmissions. There were also efforts at sending false radio signals, having shore stations send transmissions using ships' call signs, and jamming enemy radio signals.

World War II ECM expanded to include dropping chaff (originally called Window), jamming and spoofing



radar and navigation signals. German bomber aircraft navigated using radio signals transmitted from ground stations, which the British disrupted with spoofed signals in the Battle of the Beams. During the RAF's night attacks on Germany the extent of electronic countermeasures was much expanded, and a specialised organisation, No. 100 Group RAF, was formed to counter the increasing German night fighter force and radar defences. Cold War developments included anti-radiation missiles designed to home in on enemy radar transmitters.

Radar ECM

either "stealth" a high-value target or enhance reflections from a decoy. Dispersal of small aluminium strips called chaff is a common method of changing the electromagnetic properties of air to provide confusing radar echos.

-----T.Sughashini, II year ECE

Satellite TV

Satellite TV is a type of television programming that is wirelessly delivered to TV sets across the world via a network of radio signals, communications satellites, broadcast centers and outdoor antennas. Broadcast signals are transmitted from satellites orbiting the Earth and received by local and regional satellite TV systems.

How Satellite TV service works

Satellite TV technology makes use of specialized antennas known as satellite dishes. These satellite dishes transmit signals to a satellite receiver such as a set-top box or satellite tuner module within a TV set. The programming source transmits signals to a satellite provider broadcast center and these waves are then picked up by a compact satellite dish and broadcast onto television sets.

Overview of Satellite TV Video Content Delivery



Satellite TV service can also be referred to as direct-broadcast satellite (DBS or DBSTV) service. A DBS provider will select programming—often a wide range of channels and services—and will then broadcast this content to satellite TV subscribers as part of a larger TV package. DBS programming can either be sent to a digital satellite receiver or an analog satellite receiver. Analog satellite television is slowly being replaced by digital satellite programming. Digital satellite television has become increasingly available in better quality known as HD TV (high-definition television). Digitally-broadcast content is characterized by greater picture and sound quality.

Satellite stations and broadcast television stations both transmit TV programming through radio signals. Years ago, the first satellite television TV technologies were broadcast in the C-band radio frequency range. Today, digital satellite TV content is transmitted in the Ku frequency range.

To further understand the technology behind direct-broadcast satellite systems, it is important to review the top features and elements involved in direct-broadcast satellite TV video content delivery: programming sources, satellite provider broadcast centers, satellites, satellite dishes and the satellite receivers. Programming sources refer to networks or channels that offer TV shows and movies for the enjoyment of subscribers. A broadcast center plays an integral role in video content delivery. At broadcast centers, TV providers receive and send broadcast signals to satellites orbiting the Earth. Before sending out a signal, a broadcast center will convert programming into a digital stream of content. Once satellites have received and processed all of these uncompressed signals, they ultimately rebroadcast them to satellite dishes on Earth. Next, a subscriber's outdoor satellite dish will pick up the broadcast signal and transmit it to the satellite receiver located inside of a home. A satellite receiver then completes the information transmission by processing the signal and passing it on to a viewer's television set.

Reliability and Reception

If a satellite dish or antenna is knocked out of place by inclement weather, homeowners may need to climb a roof to adjust these settings

Bundle Services

Bundling services like television, Internet, phone and home security is often a very convenient option for customers. One advantage of bundled service is a single bill. While cable TV providers frequently offer bundles, satellite TV companies may need to partner up with other carriers in order to provide Internet, phone and other services to their customers.

Online Streaming Service

If you are interested in streaming live TV and watching video content online, you may want to carefully review package details to ensure you sign on with a provider—whether Internet, cable or satellite—that offers a wide array of live TV streaming content, both in-home and on-the-go. Do you want to stream your favorite TV shows and movies online or would you prefer to watch live TV on your mobile devices?

Direct broadcast via satellite

Direct broadcast satellite, (DBS) also known as "Direct-To-Home" can either refer to the communications satellites themselves that deliver DBS service or the actual television service. Most satellite television customers in developed television markets get their programming through a direct broadcast satellite provider. Signals are transmitted using Ku band and are completely digital which means it has high picture and stereo sound quality.



Programming for satellite television channels comes from multiple

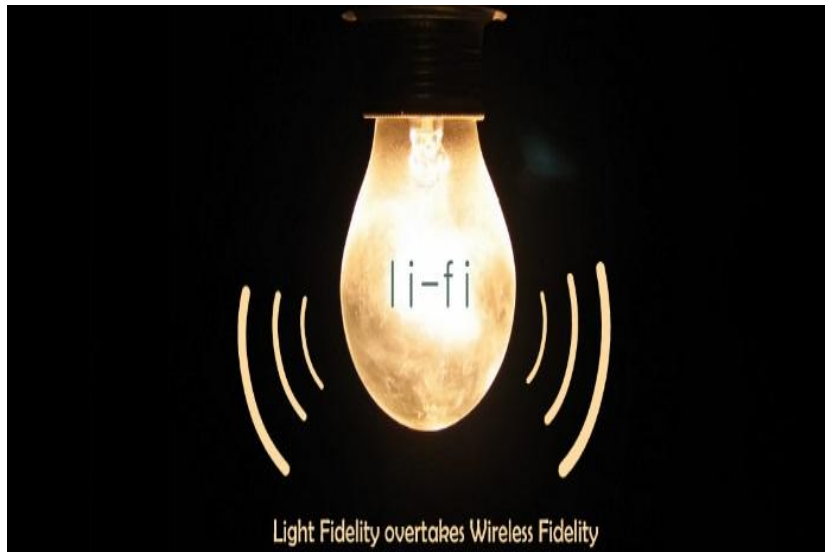
sources and may include live studio feeds. The broadcast centre assembles and packages programming into channels for transmission and, where necessary, encrypts the channels. The signal is then sent to the uplink where it is transmitted to the satellite. With some broadcast centres, the studios, administration and uplink are all part of the same campus. The satellite then translates and broadcasts the channels.

Most of the DBS systems use the DVB-S standard for transmission. With pay television services, the datastream is encrypted and requires proprietary reception equipment. While the underlying reception technology is similar, the pay television technology is proprietary, often consisting of a conditional-access module and smart card. This measure assures satellite television providers that only authorised, paying subscribers have access to pay television content but at the same time can allow free-to-air (FTA) channels to be viewed even by the people with standard equipment (DBS receivers without the conditional-access modules) available in the market.

-----M.Hari Krishnan, III Year ECE A

تعمیراتی

Li-Fi, a super-fast alternative to Wi-Fi, is finally moving from research labs to the real world after an Estonian startup implemented the technology within a commercial context. Velmenni, a recent finalist at the Slush 100 startup competition in Helsinki, revealed that it has begun trialling the technology within offices and industrial environments in Tallinn.

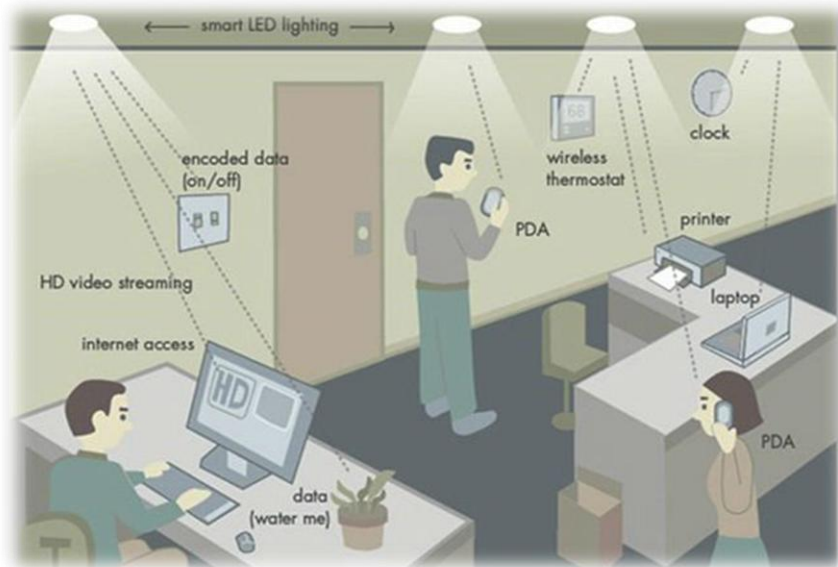


The Li-Fi technology used by Velmenni in the pilots is able to send data at up to 1GBps - more than 100-times faster than current Wi-Fi technologies. At these speeds, a high-definition film could be downloaded in just a few seconds. Li-Fi allows for greater security on local networks as light cannot pass through walls, which also means there is less interference between devices. Perhaps the most significant advantage is the speed

that the technology offers. Researchers have achieved speeds of 224 gigabits per second in lab conditions.

While Li-Fi may not completely replace Wi-Fi, the technologies could be used in parallel to create more efficient networks. The success of the pilot projects could see Li-Fi technology rolled out for consumers within the next three to four years, according to Solanki, allowing people to access the internet using the light bulbs in their home. Before mass adoption of Li-Fi can be realised, techniques need to be developed to retrofit current devices with the technology. "It is very difficult to create a whole new infrastructure for Li-Fi so somehow we need integrate our system with the current system," Solanki said.

The inventor of Li-Fi, Professor Harald Haas from the University of Edinburgh, has previously claimed that in the future every LED lightbulb could be used as an ultra-fast alternative to Wi-Fi. In a



TED talk describing the technology, Haas said that current infrastructure was suitable for the integration of Li-Fi.

"All we need to do is fit a small microchip to every potential illumination device and this would then combine two basic functionalities: illumination and wireless data transmission," Haas said. "In the future we will not only have 14 billion light bulbs, we may have 14 billion Li-Fis deployed worldwide for a cleaner, greener and even brighter future."

----- SUNILKUMAR P, III year ECE B

Antisleep Alarm



While actually giving in to our body's natural wants such as sleep, we're keeping the balance beam in an upright and neutral position — generally a good thing to do. But life comes and calls quite often, many times forcing us to put hunger, drowsiness, and other basic human needs on the back burner in order to seal the deal and get the job done.

So here's the scenario, you're sitting in your car getting ready for a big meeting that if completed will net

your company nice little multi-billion dollar deal. You're supposed to be going over your notes and preparing yourself for this staple achievement. But instead, you find yourself doing the whole bobble head thing, getting dangerously to the steering wheel with each and every bob. If only there were something to keep you awake.

Students: Maybe they forgot the exam was tomorrow, maybe they were out partying, or maybe they just waited until the last minute. In any case, college students always have the need to burn the midnight oil. If you don't want that to happen, then keep this reliable anti sleep alarm at your side.



Wearable Biosensors

Wearable sensors and systems have evolved to the point that they can be considered ready for clinical application. The use of wearable monitoring devices that allow continuous or intermittent monitoring of physiological signals is critical for the advancement of both the diagnosis as well as treatment of diseases. Wearable systems are totally non-obtrusive devices that allow physicians to overcome the limitations of ambulatory technology and provide a response to the need for monitoring individuals over weeks or months.



They typically rely on wireless miniature sensors enclosed in patches or bandages or in items that can be worn, such as ring or shirt. The data sets recorded using these systems are then processed to detect events predictive of possible worsening of the patients clinical situation or they are explored to access the impact of clinical interventions.

Each time the heart muscle contracts, blood is ejected from the ventricles and a pulse of pressure is transmitted through the circulatory system.

This pressure pulse when traveling through the vessels, causes vessel wall displacement which is measurable at various points. In order to detect pulsatile blood volume changes by photoelectric method, photo conductors are used. Normally photo resistors are used, for amplification purpose photo transistors are used. Light is emitted by LED and transmitted through the artery and the resistance of photo resistor is determined by the amount of light reaching it. With each contraction of heart, blood is forced to

Wearable physiological monitoring



Finger clip PPG
(Nonin, SPO)



Ring PPG
Asada et al, MIT



Camera PPG
(Azumio)



ECG Chest Straps
(Polar)



Watch ECG
(Mio)



Single Chip Sensor
(WSU)

10 mm

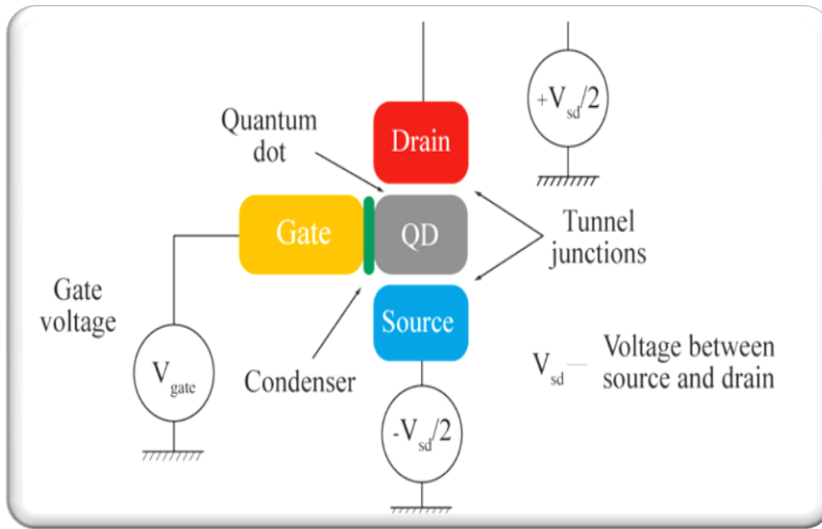
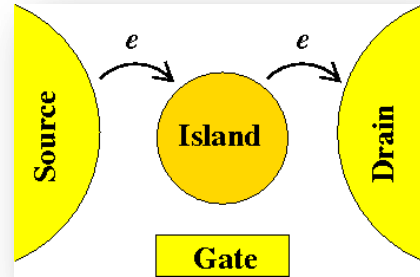
- For **continuous, wearable sensors**, key constraints are:
 - Size
 - No patient burden
 - Cost
 - Power consumption
 - Plug and play

the extremities and the amount of blood in the finger increases. It alters the optical density with the result that the light transmission through the finger reduces and the resistance of the photo resistor increases accordingly. The photoresistor is connected as a part of voltage divider circuit and produces a voltage that varies with the amount of blood in the finger.

Single Electron Transistor

Single electron transistor (SET) is a novel idea and has been intensively studied. This review gives a general picture of SET, such as its mechanism, fabrication, application and problems faced.

During 1980s, the main discoveries in mesoscopic physics are the tunneling of single electron and Coulomb blockade phenomena, which make many scientists predict that if the size of the quantum dots is reduced to several nanometers, it is highly possible to produce applicable single electron transistor (SET) which works above liquid nitrogen temperature, and this will bring a revolution to electronic science. Since then SET has been a hot research area. The breakthrough of nanotech as well as its successful combination with semiconductor technologies gives hope to SET, and some think that it will be a mature technique in the coming decade.



A conventional field effect transistor, the kind that makes all modern electronics work, is a switch that turns on when electrons are added to a semiconductor and turns off when they are removed. These on and off states give the ones and zeros that digital computers need for calculation. One then has a transistor that turns on and off again every time one electron is added to it; we call it a single electron transistor (SET). Furthermore, the behavior of the device is entirely quantum

mechanical.

Electron transport properties of individual molecules have received considerable attention over the last several years due to the introduction of single-electron transistor (SET) devices which allow the experimenter to probe electronic, vibrational or magnetic excitations in an individual molecule. In a three-terminal molecular SET

the molecule is situated between the source and drain leads with an insulated gate electrode underneath. Current can flow between the source and drain leads via a sequential tunneling process through the molecular charge levels, which the gate electrode is used to tune.

-----Soorya T, IV year ECE B

Transparent Electronics

Transparent electronics is an emerging science and technology field focused on producing invisible electronic circuitry and opto-electronic devices. Applications include consumer electronics, new energy sources, and transportation; for example, automobile windshields could transmit visual information to the driver. Glass in almost

any setting could also double as an electronic device, possibly improving security systems or offering transparent displays.

In a similar vein, windows could be used to produce electrical power. Other civilian and military applications in this research field include realtime wearable displays. As for conventional Si/V-based electronics, the basic device structure is based on semiconductor junctions and



transistors. However, the device building block materials, the semiconductor, the electric contacts, and the dielectric/passivation layers, must now be transparent in the visible a true challenge! Therefore, the first scientific goal of this technology must be to discover, understand, and implement transparent high-performance electronic materials.



The second goal is their implementation and evaluation in transistor and circuit structures. The third goal relates to achieving application-specific properties since transistor performance and materials

property requirements vary, depending on the final product device specifications. Consequently, to enable this revolutionary technology requires bringing together expertise from various pure and applied sciences, including materials science, chemistry, physics, electrical/electronic/circuit engineering, and display science.

-----S.Keerthana, IV year ECE A



Super Mom

Mom, you're a wonderful mother,
So gentle, yet so strong.
The many ways you show you care
Always make me feel I belong.

You're patient when I'm foolish;
You give guidance when I ask;
It seems you can do most anything;
You're the master of every task.

You're a dependable source of comfort;
You're my cushion when I fall.
You help in times of trouble;
You support me whenever I call.

I love you more than you know;
You have my total respect.
If I had my choice of mothers,
You'd be the one I'd select!

----- *M.Senthamizhlarasi*, IV ECE'B'

Because you are my friend

Because you are my friend,
my life is enriched in a myriad of ways.
Like a cool breeze on a sweltering day,
like a ray of sunshine parting glowering clouds,
you lift me up.
In good times, we soar,
like weightless balloons
over neon rainbows.
I'm a better person for knowing you,
so that everyone I interact with
is touched by your good effect on me.
You relax me, refresh me, renew me.
Your bounteous heart envelops me
in joy and love and peace.
May your life be filled
with dazzling blessings,
just as I am blessed
by being your friend.

-----*Shalini*, III Year ECE

Honor Our Military

Let's honor our military,
The men and women who serve,
Whose dedication to our country
Does not falter, halt or swerve.

Let's respect them for their courage;
They're ready to do what's right
To keep America safe,
So we can sleep better at night.

Let's support and defend our soldiers,

Whose hardships are brutal and cruel,
Whose discipline we can't imagine,
Who follow each order and rule.

Here's to those who choose to be warriors
And their helpers good and true;
They're fighting for American values;
They're fighting for me and you.

-----*Dhruva.V*, IV year ECE A

A Teacher for All Seasons

A teacher is like Spring,
Who nurtures new green sprouts,
Encourages and leads them,
Whenever they have doubts.

A teacher is like Summer,
Whose sunny temperament
Makes studying a pleasure,
Preventing discontent.

A teacher is like Fall,
With methods crisp and clear,
Lessons of bright colors
And a happy atmosphere.

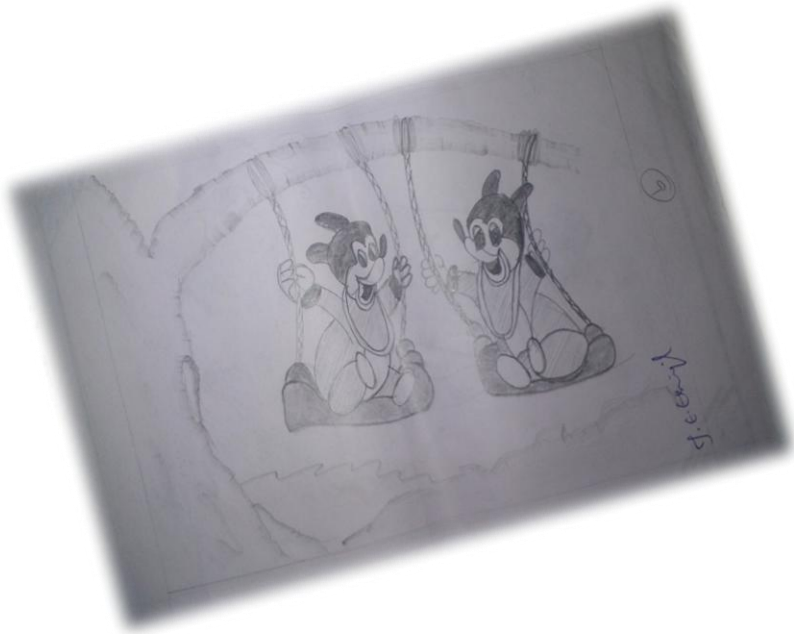
A teacher is like Winter,
While it's snowing hard outside,
Keeping students comfortable,
As a warm and helpful guide.

Teacher, you do all these things,
With a pleasant attitude;
You're a teacher for all seasons,
And you have my gratitude!

-----*S.Priya*, II Year ECE



PENCIL ART



ESAIKUZHIL,
IV Year ECE



ANUPRIYA, III Year ECE A

