

BURGLAR
ALARM
PUZZLE
ORGANIC
LED



NEXUS

Volume:1 Issue:2 March 2013

THE ECE DEPARTMENTAL NEWS LETTER

EAGLES



Electronics Association of Great Laborious Engineering Students

Electronics Association of Great Laborious Engineering Students was formed with a motto to provide technical support to her clients who are interested in the vast areas of electronics engineering. This departmental association came into existence in the year 2012 by renaming E-NOVA, it's former form. It serves as a vibrant association in Vimal Jyothi by taking initiative for a lot of technical programs and activities. This dominant association is now on its workshop to channelise the potential of its members to develop their technical as well as soft skills.



It's a great pleasure to bring out second issue of the Newsletter of the electronics and communication engineering department. This Newsletter comprises the chronicle of the activities and achievements of the college. Creativity is one dimension of the mind that cannot really be researched because it goes beyond logic and the system. It cannot be purchased nor can it be made a subject of scientific study and research. It is available for those who discover it within themselves and make use of it. May this newsletter from eagles be a platform for the same.

Mrs. Roshini T.V.
HOD

FEATURE

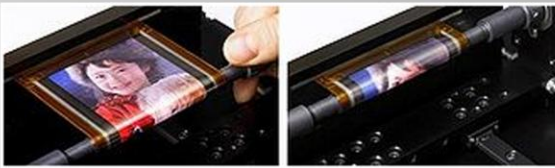
“ELECTRONIC PAPER” : THE ORGANIC LIGHT EMITTING DIODES - Sibin John S6 ECE

Can you imagine an electronic display like an ordinary paper- thin, light weight, flexible and so on...Then I have an answer – the organic LED display(OLED), called the electronic paper.

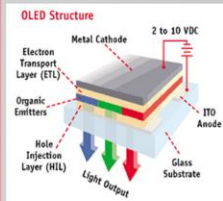
Liquid Crystal Displays, invented in 1963 and envisioned as a slimmed-down replacement for bulky cathode ray tube. Despite this, however, remains high production and commercial expenses that have never come down enough to successfully mass market these displays, leaving the technology vulnerable to new innovations. The need for new lightweight, low-power, wide viewing angled, handheld portable communication devices such as e-books, smart networked household appliances, the flat panel industry is now looking at new displays known as Organic Light Emitting Diodes (OLED).

Organic Light Emitting Diode technology, pioneered and patented by Kodak/Sanyo, enables full color, full-motion flat panel displays with a level of brightness and sharpness not possible with other technologies.

Unlike traditional LCD's, OLED's are self-luminous and do not require backlighting. Essentially, the OLED consists of two charged electrodes sandwiched on top of some organic light emitting material. This eliminates the need for bulky and environmentally undesirable mercury lamps and yields a thinner, more versatile and more compact display. Their low power consumption provides for maximum efficiency and helps minimize heat and electric interference in electronic devices. Armed with this combination of features, OLED displays communicate more information in a more engaging way while adding less weight and taking up less space.



How it works



The basic OLED cell structure consists of a stack of thin organic layers sandwiched between a transparent anode and a metallic cathode. The organic layers comprise a hole-injection layer, a hole-transport layer, an emissive layer, and an electron-transport layer. When an appropriate voltage (typically between 2 and 10 volts) is applied to the cell, the injected positive and negative charges recombine in the emissive layer to produce light (electroluminescence). The structure of the organic layers and the choice of anode and cathode are designed to maximize the recombination process in the emissive layer, thus maximizing the light output from the OLED device.

ADVANTAGES OF OLED TECHNOLOGY:

• LIGHT WEIGHT & FLEXIBLE PLASTIC SUBSTRATES

OLED displays can be fabricated on flexible plastic substrates leading to the possibility of flexible organic light-emitting diodes being

fabricated or other new applications such as roll-up displays embedded in fabrics or clothing. As the substrate used can be flexible such as PET, [52] the displays may be produced inexpensively. Demonstration of a 4.1" prototype flexible display from Sony.

• ROBUST DESIGN

OLED's are tough enough to use in portable devices such as cellular phones, digital video cameras, DVD players, car audio equipment and PDA's.

• VIEWING ANGLES

Can be viewed up to 160 degrees, OLED screens provide a clear and distinct image, even in bright light.

• HIGH RESOLUTION

High information applications including videos and graphics, active-matrix OLED provides the solution. Each pixel can be turned on or off independently to create multiple colors in a fluid and smooth edged display.

• “ELECTRONIC PAPER”

OLED's are paper-thin. Due to the exclusion of certain hardware goods that normal LCD's require, OLED's are as thin as a dime.



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CROSSWORD PUZZLE

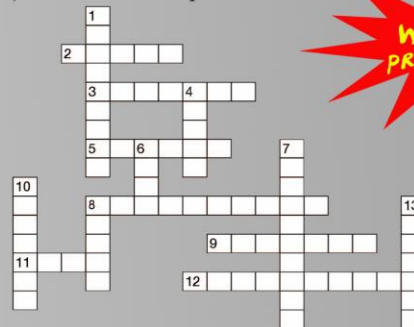
CLUES

Down

- 1) Next after gigahertz
- 4) % Modulation AKA Modulation _____
- 6) Zero Vector
- 7) Opposite of amplifier (-dB)
- 8) Similar to a LASER (operates with microwave frequencies)
- 11) dB
- 14) James Clerk _____ (think coffee)

Across

- 2) Multiple antennae arranged in an - _____
- 3) 'Spread Spectrum' AKA Frequency _____
- 5) Diode like the Chunnel
- 9) _____ waveguide (metric)
- 10) _____ plot = imaginary vs. real frequency response
- 12) _____ plot = magnitude vs. phase
- 13) The inverse of impedance



Send your answers to vjeceagles@gmail.com

EDITORIAL



To reach the great height a person needs to have great depth

Dear Readers, The memories of the past keep up our confidence and the hope of the future is what we live for, but the present is the one that keeps our essence alive. This is what the VJECians believe in-living in the present with a penchant for excellence in every sphere of activity with confidence and vision of the future. We are extremely glad to bring forth to you the 2nd issue of News-letter "NEXUS" of Department of Electronics & Communication Engineering. The NEXUS brings forth a spectrum of multifarious activities in the Electronics & Communication Engineering department.

This issue covers the news from June 2012 to March 2013.

We express our gratitude towards our Principal Dr. Benny Joseph and our Head of the Department Mrs. Roshini T.V for their constant support and encouragement.

Asst. Prof. Adarsh K.S
ECE Department
(Staff Editor)

Dear friends,

We all are heading towards the end of another semester. We are happy to put forth a Newsletter before you which summarises the paradox of departmental activities last year. Time's up to lift the veils, get into it with great enthusiasm.

Student editor
Mr. Melvin Mathew

STUDENTS ACHIEVEMENTS

→ Placement Winners



Ms. Swetha James
S8 ECE-soft nations



Ms. Abhirami Neeraja
S8 ECE - UST global

→ Ms. Rani Mariya C Philip of S6 ECE elected as vice chairman of the college union for the year 2012-2013.

→ Mr. Jilin Jose of S8 ECE elected as Sports Secretary of college union for the year 2012-2013

→ Mr. Sujith Antony Chacko of S6 ECE got selected to get industrial training in Airport Authority of India (AAI)

CHECK THIS OUT

We have witnessed a handful of concept designs for cellular phones earlier. Now, some designer named Tao Ma has designed an imitably different concept phone that has got the looks of a bracelet. When this bracelet phone receives any message, it starts vibrating and making or receiving a phone call is just too easy.

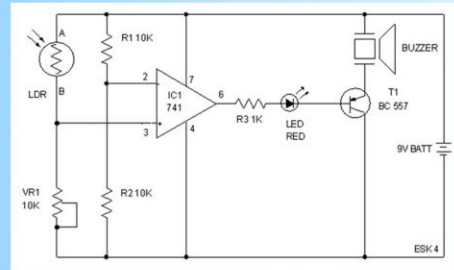
To read the message, take the bracelet out of your wrist and press the diamond-like keystroke.

Whoa... It's not just another run-of-the-mill concept. Instead, the bracelet phone comes with a built-in MP3 player. With this phone on

BANDI CHOR GONNA BREAK THIS.....???

NO WAY !!!

- Mr. Diljo
S4 ECE

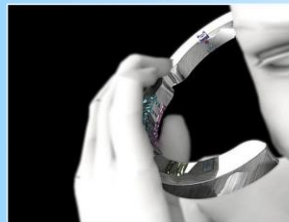


Introducing ... the circuit of a simple burglar alarm that produces a loud beep when somebody crosses a protected area or door. The circuit is highly sensitive and can detect the shadow of the moving person from a distance of 1 meter. We can adjust the sensitivity of the circuit by the help of the variable resistor.

Working Principle:

Op Amp IC μ A 741 is used as a voltage comparator. Its inverting input pin 2 receives half supply voltage through the potential resistors R1 and R2. The non inverting input pin 3 gets a variable voltage through LDR and VR. Normally when the LDR gets light, its resistance will be low and it conducts and provide a high voltage to the non inverting input of IC. This makes the output of IC high. The high output from IC is given to the base of T1 through a current limiting resistor R3. T1 is PNP transistor and it conducts only when its base becomes negative. Here normally the base of T1 will be high due to the high output from IC. So T1 remains off and Buzzer and LED connected to its emitter remains off. When a person passes in front of LDR, the shadow of the person reduces the resistance of LDR and the voltage at the non inverting input of IC decreases. This makes the output of IC low. Immediately T1 conducts activating Buzzer and LED indicating the entry of a person.

your wrist, you are definitely going to rock the party and make others green-eyed.



ENGINEERS DAY CELEBRATED

15 September 1860 happened to be the birthday of one of the greatest engineers of India. He is none other than Dr. M Visveswaraya, often called Sir M.V. The department of electronics and communication engineering conducted a technical quiz competition on this occasion and students from each batch were invited. About 50 students participated in the quiz competition which was coordinated by Mr. Sandheep Radhakrishnan Asst. Professor of ECE dept, and was anchored by Ms. Patcy Maria Fernandez of S7 ECE . Mr.Sujith Antony Chacko from S5 ECE won the first prize in the competition. Assistant professor, Mr. Anoop B.K spoke on “Ethics in engineering” which was an eye opening session for budding engineers.



Mr. Niju from Quest Innovatives solutions introducing PIC microcontroller to S6 ECE students.

EDUCATIONAL TOUR CONDUCTED

One of the most beautiful memory is the excursion to Bangalore, Hogenakkal and Kodaikanal. In the midst of our busy academic schedule ,those three days were certainly unforgettable. This trip was conducted during 20 to 23 september 2012 exclusively for S5 ECE students as a part of their course. We enjoyed each and every moment with great excitement and pleasure. Three days were in fact a very short time. The tour was conducted as a part of our curriculum activities and we made it successful in all possible manner. The first two days were in Bangalore and Hogenakkal. The very essence of nature and its atmosphere was so attractive that we all were amazed. The most fulfilled rides made our friendship bonds stronger as we enjoyed it the most, which are now memorable scenes of yesterday still fresh in our minds. Still remaining as everlasting memories of college life.

HERE COMES SMART BIKE TO RULE THE ROAD

We will screw the drunk drivers..... says Mr. Binoy George, Mr. Stinson Stephen, Mr. Jiline Jose, Mr. Varun Saban, Mr. Ajay K Joseph from S8 ECE. They had introduced a unique technology to prevent drunk driving in their main project. A control system inserted in the helmet will detect the pressure difference when the driver put on his helmet. An alcoholic presence detector will check whether the driver is alcoholic. The bike can be started only when the result is negative. So let's wait for the days in which smart bikes rule the road.

CAREER ORIENTATION PROGRAM

A career orientation program was conducted by EAGLES on 12/09/2012 exclusively for S5 students of ECE department. The session handled by three eminent staffs- Mrs.Lineeta Gloria, Mr.Sandeep R, and Mr.Adarsh, enlightened the students about their future career prospective. The session was motivational and inspired the students to think about their future career & also on the preparation of resumes.

The session started with a video on “EAGLES” opened the minds of the students to the challenges that are to be faced in the real world. It inspired the students to survive in this competitive world without failure. Another motivational video instilled in the minds of the students that success is the fruit of hard work.

The resume of a person is in itself a complete picture of the person. It provides personal information, achievements, subject knowledge, hobbies, etc of a person. Hence resume plays a vital role in interviews. The layout of a resume is also very important as a person is judged by their resume. The program provided a clear view on the need for preparing a good resume. The program also included mock interviews which helped the students.

INDUSTRIAL TRAININGS & VISITS

Breaking the monotony of the engineering view point, apart from the theoretical aspects, acquiring knowledge through practical sessions has a great role. Industrial training program aims to achieve industrial exposure and practical skills.

Students from S7 ECE had their industrial visit to ISRO on October 2012. They could familiarize to the various technology and devices in satellite launching and it's making.

The first batch from S5 ECE attended internship program conducted by KELTRON center, Trivandrum, belonging to Keltron group of companies. The training was based on embedded system designing with the microcontroller “Arduino” as the platform, which was developed Keltron.

The second batch of students attended training by a Central Government institution, FOREMEN TRAINING INSTITUTION (FTI). Bangaluru from 24th to 28th December 2012. The training was based on 8051 microcontroller and its application ranging from controlling engines in modern automobile to controlling other computer peripherals.

The remaining students did their internship program at KELTRON equipment complex, a public undertaking company situated at Karakulam, Trivandrum. The training was based on the products manufactured mainly for Government companies, Indian Navy and many other private companies. Processor based ground mines for Navy were manufactured for the first time in the country with technology from, NSTL.

Students from S3 ECE had their industrial visit to KELTRON ,Kannur ,a public sector enterprise. The making of various active and passive components and technology used behind it was really exciting to them.