VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN
(Approved by AICTE, Affiliated to JNTU, Hyderabad)
KONDAPUR VILLAGE, GHATKESAR MANDAL, MEDCHAL DISTRICT - 501 301.

NEWS LETTER

TECHINNOVATION

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Volume - 11

" One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man. "

EDITORIAL DESK

Hello!!! We are happy to welcome you all aboard the fledgling 11th edition for the scintillating year 2018. TECHINNOVATION is the newsletter of the ELECTRONICS &COMMUNICATION ENGINEERING which aims to bring forward the buzz from the department in the past few months. the edition demystifies the realms of Electronics & Communication Engineering and also provides insight to the latest technology adopted in the field Hope our deeds would ignite everyone's life!!!

HOD'S DESK

It is theme of happiness to articulate with all of you through this 11th newsletter within these pages you will find much news related to Diverse activities from the whole faculty and students of ECE department. Iam cheerful for the initiatives taken by the faculty to disseminate knowledge by organizing various activities in the department. I hope everyone will find this news letter Exciting and interesting

ECE DEPARTMENT

Department of Electronics and Communication Engineering was started since the inception of VIGNAN'S Institute of Management and Technology for Women during 2008 with an initial intake of 60. The strength was enhanced to 120 during 2005. The Department had added Post graduate program in VLSI during the year 2012 and Embedded Systems during 2014 with an intake of 18 each. The Department is headed by well qualified

VISION

To transform the students into technologically competent professionals, with abilities to address the societal challenges of the time through innovative technical practices in electronic& communication engineering.

MISSION

M1: To foster inquisitive - driven advanced knowledge building among students for reinforcing the domain knowledge, develop capabilities, skills and solve complex engineering problems

M2: To prepare industry - ready graduates for global Electronics as well as communication based engineering companies by conducting training programs, workshops and industry visits.

M3: To build leadership qualities, research aptitude among students for the contribution of economic and technological development in cutting edge technologies in national and as well as in the global arena.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: To develop the student's ability on technical concepts to design, simulate, and synthesize various electronic and communication circuits & systems for their research advancements.

PEO2: To impart analytical skills and to prepare the students excel in applying state of the art hardware and software tools to solve complex engineering problems for R&D, Industry and societal requirements.

PEO3: To prepare students to work in teams, take independent decisions and integrate engineering issues for successful career in multi-disciplinary environment.

PEO4: To promote entrepreneurship among the students to become successful entrepreneurs with professional ethics.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO1: Professional Skills Ability : Identify, design electronics & communication circuits and conduct experiments with electronics & communication systems, analyze and interpret data,formulate and solve electronics & communication engineering problems.

PSO2: Industrial Skills Ability: Design digital and analog systems, algorithms, firm ware, modern engineering tools, software, etc. as per needs and specifications and work in laboratory and multi disciplinary tasks.

PSO3: Ethical and Social Responsibility: Communicate effectively in both verbal and written form, will have knowledge of professional and ethical responsibilities and will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues

PROGRAM OUTCOMES

Po1: Engineering knowledge :

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems

Po2: Problem analysis:

Identify, formulate review research literature and analyze complex engineering problems reaching substantiated conclusions using first principle of mathematics, natural science and engineering science

Po3: Design/Development of solutions :

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

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Po4: Conduct investigations of complex problems :

Use research-based - knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

Po5: Modern tool usage :

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

Po6: The engineer and society :

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

Po7: Environment and sustainability :

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable - development

Po8: Ethics :

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

Po9: Individual and Team Work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

Po10: Communication :

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

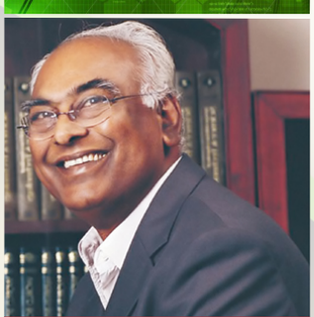
Po11: Project management and finance :

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

Po12: Life-long learning :

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

CHAIR PERSON MESSAGE



DR. L. RATHAIAH
Founder & Chairman
Vignan Group

MILESTONES IN THE JOURNEY OA LIFE DEDICATED TO THE CAUSE OF EDUCATION

I am glad to know that VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN is publishing a newsletter / online edition. the newsletter will highlight the academic and other activities of the college which is fast developing into one of the best technical institutions in telangana. i congratulate the faculty and students for their efforts to achieve excellence and wish them all the best for the future.

Faculty Technical Article : Title - " PAPER BATTERIES " written by B. Udayasri

Introduction

The continuously advancing technology of portable electronic devices requires more flexible batteries to power them. Batteries power a wide range of electronic devices including phones, laptop computers and medical devices such as cardiac pacemakers and defibrillators. With the ever increasing demand for efficiency and design, there is a need for ultrathin, safe and flexible energy storage options. A paper battery is a flexible, ultra- thin energy storage and production device formed by combining carbon nanotubes with a conventional sheet of cellulose based paper. A paper battery acts as both a high energy battery and supercapacitor, combining two components that are separate in traditional electronics. This combination allows the battery to provide long term, steady power production and bursts of energy. Through the use of super capacitors, batteries can be made that will deliver renewable energy from bodily fluids such as blood or sweat. This technology can be greatly utilized by medical devices. It combines two essential materials, cellulose and carbon nanotubes (CNTs), that fit the characteristics of spacer and electrode and provide inherent flexibility as well as porosity to the system. Cellulose, the main constituent of paper and an inexpensive insulating separator structure with excellent biocompatibility, can be made with adjustable porosity. CNTs, a structure with extreme flexibility, have already been widely used as electrodes in electrochemical devices. By proper integration the output power of paper batteries can be adapted to required level of voltage – current. Researchers used ionic liquid, essentially a liquid salt, as the battery's electrolyte, as well as naturally occurring electrolytes such as human sweat, blood and urine. Patients with implanted medical devices will also benefit from the flexibility because previous devices may cause discomfort for person due to a larger solid power source. As this technology is adapted it will prove to be extremely useful and could even save not only cost but lives also.

History of Paper Batteries:

The creation of this unique nanocomposite paper drew from a diverse pool of disciplines, requiring expertise in materials science, energy storage and chemistry. In August 2007, a research team at Rensselaer Polytechnic Institute (led by Drs. Robert Linhardt, the Ann and John H. Broadbent Senior Constellation Professor of Biocatalysis and Metabolic Engineering at Rensselaer; Pulickel M. Ajayan, professor of materials science and engineering; and Omkaram Nalamasu, professor of chemistry with a joint appointment in materials science and engineering) developed the paper battery.Senior research specialist Victor Pushparaj, along with postdoctoral research associates Shaijumon M. Manikoth, Ashavani Kumar and Saravanababu Murugesan, were co-authors and lead researchers of the project. Other co-authors include research associate Lijie Ci and Rensselaer Nanotechnology Center Laboratory Manager Robert Vajtai.

Cont...

Definition Of Paper Battery:

A paper battery is a flexible, ultra-thin energy storage and production device formed by combining carbon nanotube s with a conventional sheet of cellulose-based paper. A paper battery acts as both a high-energy battery and supercapacitor , combining two components that are separate in traditional electronics . This combination allows the battery to provide both long- term, steady power production and bursts of energy. Non-toxic, flexible paper batteries have the potential to power the next generation of electronics, medical devices and hybrid vehicles, allowing for radical new designs and medical technologies. Paper batteries may be folded, cut or otherwise shaped for different applications without any loss of integrity or efficiency . Cutting one in half halves its energy production. Stacking them multiplies power output. Early prototypes of the device are able to produce 2.5 volt s of electricity from a sample the size of a postage stamp

Use Of Paper Battery:

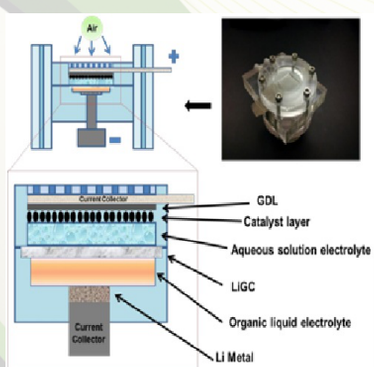
While a conventional battery contains a number of separate components, the paper battery integrates all of the battery components in a single structure, making it more energy efficient.A paper battery is a battery engineered to use a paper-thin sheet of cellulose infused with aligned carbon nanotubes. nanotubes act as electrodes; allowing the storage devices to conduct electricity.Functions as both a lithium-ion battery and a super capacitor, can provide a long,steady power output comparable to a conventional battery, as well as a supercapacitor's quick burst of high energy.Integrates all of the battery components in a single structure, making it more energy efficient.Paper battery extreme flexibility; the sheets can be rolled, twisted, folded, or cut into numerous shapes with no loss of integrity or efficiency, or stacked, like printer paper (or a Voltaic pile), to boost total output.Can be made in a variety of sizes, from postage stamp to broadsheet. The paper-like quality of the battery combined with the structure of the nanotubes embedded within gives them their light weight and low cost, making them attractive for portable electronics, aircraft, automobiles, and toys .Ability to use electrolytes in blood make them potentially useful for medical devices such as pacemakers & do not contain any toxic materials and can be biodegradable; a major drawback of chemical cells .

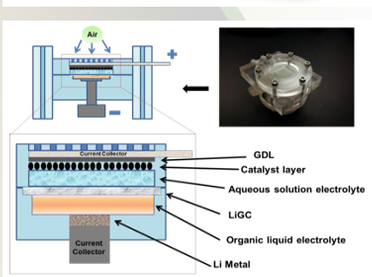
Construction Of Paper Batteries:

A zinc and manganese dioxide based cathode and anode are fabricated from proprietary links.Standard silkscreen printing presses are used to print the batteries onto paper and other substrates.Power Paper batteries are integrated in to production and assembly processes of thin electronic devices.The paper is infused with aligned carbon nano tubes, which gives the device its black color.The tiny carbon filaments or nano tubes substitute for the electrode used in conventional battery.Use an ionic liquid solution as an electrolyte- the two components which conduct electricity.They use the cellulose or paper as a separator- the third essential component of battery.

Working Of Paper Batteries:

the nano tubes acting as electrodes allow the storage device to conduct electricity.Chemical reaction in battery is occurs between electrolyte and carbon nano tubes.Battery produce electrons through a chemical reaction between electrolyte and metal in the traditional battery.Electrons must flow from the negative to the positive terminal for the chemical reaction to continue. Ionic liquid, essentially a liquid salt, is used as the battery electrolyte.The organic radical materials inside the battery are in an “electrolyte-permeated gel state”, which is about halfway between a solid and a liquid. This helps ions to smooth move, reducing resistance, allowing the batteries to charge faster. We can stack one sheet on top of another to boost the power output. It's a single, integrated device. The components are molecularly attached to each other: the carbon nano tube print is embedded in the paper and the electrolyte is soaked in to the paper.





Conclusion:

A paper battery is a paper like device formed by the combination of carbon nanotubes and a conventional sheet of cellulose-based paper which act as a flexible ultra-thin energy storage and energy production device. In addition to using the aqueous and RTIL (Room Temperature Ionic liquids) electrolytes, the device operates with a suite of electrolytes based on bodily fluids. It suggests the possibility of the device being useful as a dry-body implant or for use under special circumstances. As a precedent, a urine-activated battery was recently demonstrated for bio-MEMS device applications. Body sweat, composed of water, Na, Cl and K ions, used as electrolyte (a drop of sweat placed on the film gets sucked into the porous cellulose) in the RTIL-free nanocomposite affords good capacitive behavior for the device (specific capacitance of 12 F/g, operating voltage of 2.4V). Blood (human whole blood in K2 EDTA from Innovative Research, Southfield, MI) worked even better as an electrolyte, enhancing the capacitive behavior of the supercapacitor, resulting in a specific capacitance of 18 F/g. As this technology is adapted it will prove to be extremely useful and could even save not only cost but lives also.

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Student Technical Article : Title - " OLED " Written by : Mounika

ABSTRACT :

OLED is a solid state devicecomposed of thin films of organic molecules that create light with the application of electricity.OLEDs can provide brighter.crisper displays on electronic devices and use less power than conventional light emitting diodes(LEDs)used today.

following parts:

• Subtrate • Anode • Organic layers • Cathode

OLEDS emit light through a process called electrophosphorescene.

Different types of OLEDs are

•Passive-matrix OLED •Active-matrix OLED

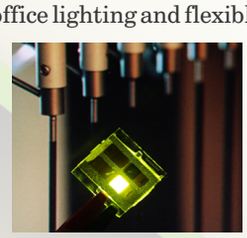
•Transparent OLED •Foldable OLED

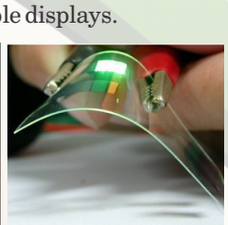
•Top-emitting OLED •White OLED Applications

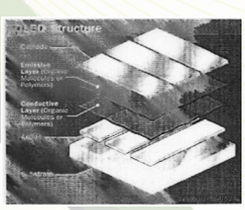
Currently.OLEDs are used in small-screen devices such as cell phones,PDAs and digital cameras.Research and development in the field of OLEDs is proceeding rapidly now and may lead to future applications in heads-up displays,automotive dash boards etc.

INTRODUCTION: Can we just imagine of having a TV which can be rolled up? Would' nt you l ike to be able to read off the screen of your laptop in direct sunlight? Your mobile phone battery to last much, much longer? Or your next f lat screen TVto be less expensive, much f latter, and even f lexible? We know, ordinary LED emits l ight when e lectic current i s passed through. **Advantages:** the screen is lightweight and flexible, so that it can be rolled up. Research and development in the field of OLED is proceeding rapidly and may lead to future applications in heads-up displays, automotive dashboards, billboard-type displays, mobile phones, television screen, home and office lighting and flexible displays.

Can we just imagine of having a TV which can be rolled up? Would' nt you l ike to be able to read off the screen of your laptop in direct sunlight? Your mobile phone battery to last much, much longer? Or your next f lat screen TVto be less expensive, much f latter, and even f lexible? Well, now i t i s possible by an emerging technology based on the revolutionary discovery that, l ight emitting, fast switching diode could be made f rom polymers as well as semiconductors. We know, ordinary LED emits l ight when e lectic current i s passed through. Organic displays use a material with self luminous property that e l iminates the need of a back light. These result in a screen based on PolyLEDs has obvious advantages: the screen is lightweight and flexible, so that it can be rolled up. With plastic chips you can ensure that the electronics driving the screen are integrated in the screen itself. One big advantage of plastic electronics is that there is virtually no restriction on size. Research and development in the field of OLED is proceeding rapidly and may lead to future applications in heads-up displays, automotive dashboards, billboard-type displays, mobile phones, television screen, home and office lighting and flexible displays.







HOW OLED HAS EMERGED ?

Conventional semiconductor components have become smaller and smaller over the course of time. Silicon is the base material of all microelectronics and is eminently suited for this purpose.However, the making of larger components is difficult and therefore costly. The silicon in semiconductor components has to be mono crystalline; it has to have a very pure crystal form without defects in the crystal structure. This is achieved by allowing melted silicon to crystallize under precisely controlled conditions. The larger the crystal, the more problematic this process is. Plastic does not have any of these problems, so that semiconducting plastics are paving way for larger semiconductor components. Kodak first discovered that organic materials glow in response to electrical currents, in the late 1970s. Since then Kodak has been working for the improvement of this technology In the late 1970s. Eastman Kodak Company scientist Dr.Ching Tang discovered that sending an electrical current through a carbon compound caused these materials to glow. Dr.Tang and Steven Van Slyke continued research in this vein. In 1987, they reported OLED materials that become the foundation for OLED displays produced today. The first colour they discovered in this early OLED research was green. As early as 1989, the Kodak research team demonstrated colour improvements using fluorescent dyes, or dopants, to boost the efficiency and control of colour output.

OLED COMPONENTS

Like an LED, an OLED is a solid-state semiconductor device that is 100 to 500 nanometers thick or about 200 times smaller than a human hair. OLEDs can have either two layers or three layers of organic material; in the latter design, the third layer helps transport electrons from the cathode to the emissive layer. In this article, we will be focusing on the two layer design.

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FDP ON OUTCOME BASED EDUCATION

Date	OBE Expert	Title
9thJune 2018	Prof. BanshidharMajhiM.Tech, PhD Director, IIITDM Kanchipuram,Chennai	Process for development of Vision, Mission and PEO's in OBE, Bloom's taxonomy levels and CO's development
10thJune 2018	DrK.KishanRao, Retired Principal, NIT, Warangal	Significance of Faculty information and contributions in OBE , Evaluation of attainment of CO's and PO's

ECE TOPPERS

ECE I YEAR TOPPER

S.No.	Roll No.	Name of the Student	Aggregate/SGPA
1	17UP1A0474	MAMILLAPALLY MOUNIKA	8.31

ECE II YEAR TOPPER

S.No.	Roll No.	Name of the Student	Aggregate/SGPA
1	16UP1A0465	GOVINDU SHIVANI	8.35

ECE III YEAR TOPPER

S.No.	Roll No.	Name of the Student	Aggregate/SGPA
1	15UP1A0419	JAKKIDI PRANAYA	79.09

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PLACEMENTS

NAME OF THE COMPANY	ON/OFF CAMPUS	IT/NON IT	DATE	NO OF STUDENT'S PLACED (ECE)	SALARY PACKAGE
ENTHSQUARE	ON CAMPUS	IT	2/8/2018	3	1.8 LPA
TCSL	OFF CAMPUS	IT	2/9/2018	2	336875 LPA
JKM AUTOMOTIVE(DYNAMATIC TECHNOLOGIES LIMITED)	ON CAMPUS	NIT	14/9/2018	0	2.4 LPA
TVARANA SOFTWARE SOLUTIONS PVT LIMITED	ON CAMPUS	IT	18/9/2018	0	4 LPA
MAHIRA TECH SOLUTIONS PRIVATE LIMITED	ON CAMPUS	ITES	12/10/2018	10	2.4-3 LPA
UNIQUE PLACEMENTS				15	

MAHIRA TECH SOLUTIONS

CRICKET GROUND

THROWBALL RUNNERS AT KURUKSHETRA-2K19 IN KPRIT

THROWBALL WINNERS AT SPL-2K19 IN SAMSKRUTHI

KABADDI GROUND

CULTURAL ACTIVITIES : TRADITIONAL DAY

Students of ECE celebrated Traditional Day with much enthusiasm, on 5 -OCT 2018. The colorful traditional attire of young women brought a festive look to VMTW the students used the occasion to present a humorous skit and presentations on the greatness of one's tradition and mother tongue, HOD and faculty members watched the students' talent show and appreciated them.