YASHODA SHIKSHAN PRASARAK MANDAL, SATARA
YASHODA TECHNICAL CAMPUS
DEPARTMENT OF E &TC ENGINEERING

DEC 2022

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Department of Electronics & Telecommunication Engineering
Technical Magazine
(YASHOTECH-ELECTRONICS)
2022-23 [ODD SEM]

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TODAY'S READER CAN BE A TOMORROW'S LEADER !

President's Desk

i welcome you to YSPM's Yashoda Technical Campus, Satara, an Institution which inculcates true values while disseminating quality education for shaping the career of our students. All our institutes are approved by the concerned statutory bodies and fulfill all the norms and standards laid down by them. Our technical campus is located in a lush, green, pollution free, picturesque environment. Our institutes have well qualified, experienced and student caring faculty, well equipped laboratories, spacious lecture halls and tutorial rooms, well maintained rich library, e-library, Wi-Fi Campus, Computer with Internet Facility, and a play ground with sports facilities. We emphasize on overall personality development of our students. Our faculty pays attention to each students a platform to excel not only in academics but also in co-curricular and a multi disciplinary study culture. Amenities provided by our institutes include transport facility, hostel facility, reprographics facility, canteen, STD PCO, medical centre, sports centre etc.

We are committed to import value based quality education along with development of positive attitude, skills and abilities to apply knowledge in order to meet the challenges of future. I extend my best wishes for your bright and prosperous future.

Prof. Dasharath Sagare
Founder President
YSPM - YSS, Satara

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Department of Electronics and Telecommunication Engineering

Vision of the Department

To be an excellent technological hub in the field of Electronics and Telecommunication Engineering ensuring state of the art knowledge transfer through teaching and research activities to meet educational, societal, ethical need of the nation.

Mission of the Department

· To provide cutting edge platform to explore innovative, creative and entrepreneurial leadership qualities among the students.
· To be hungry for academic excellence through innovative procedure.
· To inculcate leadership quality and ethical values.
· To accept/ face technological challenges through the continuous efforts in collaboration with industry.

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PEOs

Graduates will able to–

·To equip graduates with a strong foundation in engineering sciences and Electronics & Telecommunication Engineering fundamentals to become effective collaborators, researchers and real-time problem solver with technical competencies.

·Perceive the limitation and impact of engineering solutions in social, legal, environmental, economic and multidisciplinary contexts.

·Excel in Industry/technical profession, higher studies, and entrepreneurship exhibiting global competitiveness.

PSOs

·Apply basic knowledge related to Electronic Circuits, Embedded & wireless communication Systems and Signal Processing to solve engineering/ societal problems in the field of Electronics and Telecommunication Engineering.

·Recognize and adapt to technical developments and to engage in lifelong learning and develop consciousness for professional, social, legal and ethical responsibilities.

·Excellent adaptability to the changing industrial and real world requirement.

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POs

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge)
2. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem Analysis)
3. 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. (Design and Development of Solutions)

4. 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. (Conduct Investigations of Complex Problems)
5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. (Modern Tool Usage)
6. 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. (The Engineer and Society)

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7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. (Environment and Sustainability)
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. (Individual and Team Work)

10. Communicate effectively on complex 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. (Communication)
11. 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. (Project Management and Finance)
12. 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. (Life-long learning)

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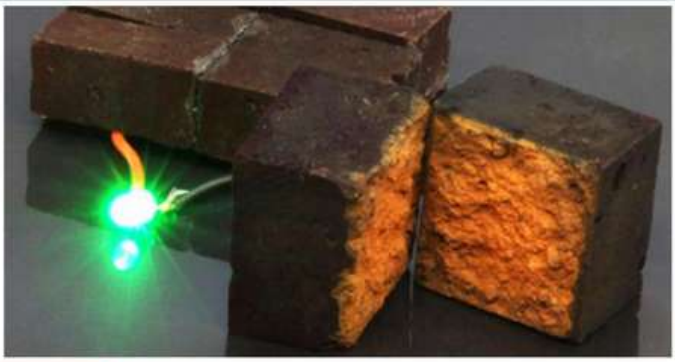
ENERGY STORING BRICKS

Scientists have found a way to store The researchers developed a method to
energy in the red bricks that are used to convert red bricks into a type of energy build houses. storage device called a supercapacitor. This
Researchers led by Washington University in involved putting a conducting coating,
St Louis, in Missouri, US, have developed a known as Pedot, onto brick samples, which method that can turn the cheap and widely then seeped through the fired bricks' porous available building material into "smart bricks" structure, converting them into "energy
that can store energy like a battery. storing electrodes".
Although the research is still in the proof-of- Iron oxide, which is the red pigment in concept stage, the scientists claim that walls the bricks, helped with the process, the made of these bricks "could store a substantial researchers said.
amount of energy" and can "be recharged WASHINGTON UNIVERSITY hundreds of thousands of times within an ST LOUIS hour".



MANE ANURADHA DILIP, SY

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GREEN ELECTRONICS CLUB

-- Green electronics refer to electronics that are biodegradable, sustainable, and recyclable.

-- Electronics produced through environmentally-friendly processes are Green electronics. They take into account the consumption of energy and production of carbon.

-- A world filled with green electronics is a team effort. Not only do companies need to develop and provide more sustainable devices, but consumers need to purchase them as well.

-- Look for energy efficient devices and appliances by checking the EPEAT rating for sustainability. When getting rid of old devices, ensure they are being processed by a responsible recycling facility (every town has different resources).

-- By working together, consumers, manufacturers and the government can properly promote the development and use of greener electronics with the overall goal of a cleaner and safer planet for us all and the future generations to come.

-- Environmentalists are recommending the following to minimize e-waste and reduce pollution:

Prioritize – Ask yourself, "do I need this?" before buying the latest electronic advertised

Take Care Of Your Electronics – Work to extend the life of your electronics by being careful to not let them get damaged

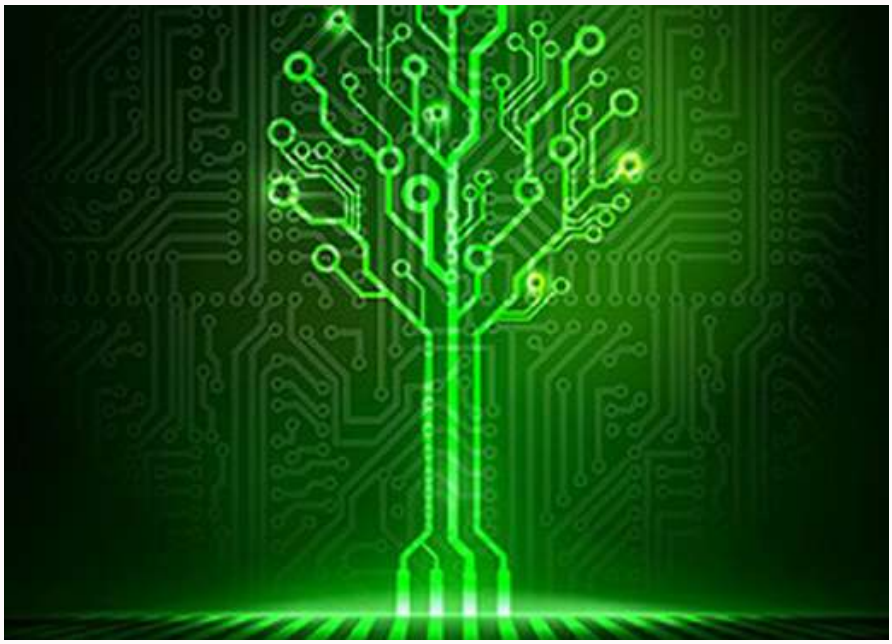
Buy Green – Many manufacturers are beginning to develop green electronics,

Manufacture Green – The Government is doing everything they can to make manufacturing green electronics beneficial for you, so take advantage of it

Recycle E-Waste Properly – If you have any electronics you don't want anymore recycle them with an environmentally-friendly facility

To this effect, the department works towards creating awareness in students and faculty about the effects of pollution due to e-waste, which is delivered through various professional body programs. These are implemented for the students and the staff (teaching, non- teaching and support).

They include: Biocompatible electronics, Biodegradable conductors, Biodegradable dielectrics, Biodegradable semiconductors, Biomaterials, Borosilicate glass, Carbon nanotubes and nanofibers, CNF – Cellulose nanofibers, Graphene, OFETs – Organic field- effect transistors, OLEDs – Organic light-emitting diodes, OPVs – Organic photovoltaic, Organic electronics, Polymer electrodes, Shellac, Synthetic organic semiconductors, Synthetic biodegradable polymers



SHINDE SRUSHTI HARISH, SY

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IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. IEEE and its members inspire a global community through its highly cited publications, conferences, technology standards, and professional and educational activities.

IEEE has:

members in more than 160 countries, more than 60 percent of whom are from outside the United States 343 Sections in ten geographic Regions worldwide 2,615 Chapters that unite local members with similar technical interests

FOR THE STUDENTS...

3,565 Student Branches at colleges and universities in over 100 countries 3,182 Student Branch Chapters of IEEE technical Societies

608 affinity groups; IEEE affinity groups are non-technical sub-units of one or more Sections or a Council.

The affinity group patent entities are the IEEE-USA Consultants Network, Young Professionals (YP), Women in Engineering (WIE), Life Members (LM), and IEEE Entrepreneurship

Has 39 technical Societies and seven Technical Councils representing the wide range of IEEE technical interests Has an active portfolio of 1,076 standards.

DIPALI PRAKASH MANE, TY

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Li-Fi

Li-Fi is the transmission of wireless data by using visible light as a medium of communication. Also known as Light Fidelity, Li-Fi uses subtle fluctuations in LED light to transmit data from the transmitter to the receiver. To encode the data, the LED light is switched on and off at an imperceptible speed creating slight fluctuations that is invisible to the naked eye. These fluctuations generate binary codes that are transmitted to the receiver which decodes the data back into digital form.

There are two main components of a Li-Fi system:

1. A transmitter that is often a high brightness LED light a receiver which is often a photodiode fitted into the receiver to convert light back into digital data.

Li-fi technology is much faster as compared to the traditional Wi-Fi technology. It is capable of transmitting data up to 100 Mbps. In some cases, by using parallel transmission, more than 10 Gbps of data can also be transmitted. This means that you can download high definition 1080p videos in mere seconds.

AKSHADA ANIL KADAM, TY

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THE BLOOM BOX

Everything in our world today totally depends on the power to keep them running.

At present we depend upon the power plants like coal fired hydro and bio gas which generate electricity by contributing harmful gases into our atmosphere.

Of course we have solar and wind energy, which are intermit and also not contributing major part of environmental-free electricity. so we need a technology which has the capability to produce clean electricity sufficiently without any interruption.

Dr. Sridhar introduced “Bloom Energy” as "It's the plug-and-play future of electricity". Bloom Energy, is about to make public its invention- a little power plant-in-a-box.

Unlike renewable energy technologies like solar and wind, which are intermittent, Bloom’s technology could provide renewable power 24x7. It converts air and nearly any fuel source, ranging from natural gas to a wide range of biogases into electricity through electrochemical process.

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What is bloom box?

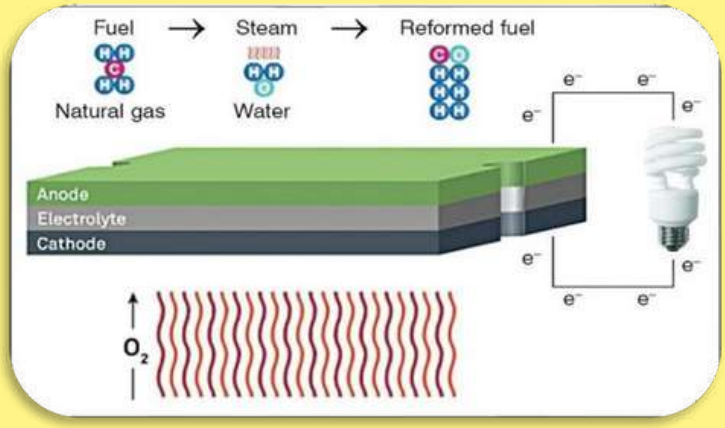
Bloom box is a collection of fuel cells, skinny batteries that use oxygen and fuel to create electricity with no emissions made of sand that is baked into diskette-sized ceramic squares and painted with green and black ink The fuel cells are stacked into brick-sized towers sandwiched with metal alloy plates

The Bloom Box consists of these fuel cell stacks that are housed in a refrigerator- sized unit. In Bloom's technology Solid Oxide Fuel Cells (SOFC) are implemented.

How does it work?

Oxygen is drawn into one side of the unit, and fuel (fossil-fuel, bio-fuel, or even solar power can be used) is fed into the other side

The two combine within the cell and produce a chemical reaction that creates energy with no burning, no combustion, and no power lines



Benefits

Lower your energy costs and eliminate volatility

Save the environment and save money

Improve your energy security and reliability Start small and "pay as you grow"

Get access to power quickly.

KENJALE ABHIRAJ DATTATRAY, B.TECH

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ULTIMATE TV

In the ever-evolving television real, the two key types of technologies competing for dominance are OLED and liquid crystal display (LCD). OLEDs offer flexibility, vivid colors and lifelike images, while LCDs – still the market leader – are less costly and render a decent image. In addition, some TV makers are using quantum dots (QD) in tandem with LCD to better compete with OLEDs' color and image quality. Quantum dots are semiconductor nanocrystal particles used to enhance LCD color gamut, rendering as much as a 30-percent increase in the visible spectrum. The easiest way to implement the QD is to coat them to a sheet of film inserted into the material stack. QD can also replace other elements, e.g., the LCD color filter and perhaps even the backlight itself at some point. The battle between these technologies will continue to inform the "ultimate TV" debate for at least the next three years – the industry remains divided as to which will prevail, particularly since LCD keeps finding new ways to maintain its position as the dominant display technology. One area where OLEDs have gained a foothold is smart phones. As they continue to grow in size and are used increasingly to view both live and streaming video content – becoming their own kind of ultimate TV – phones require the improved flexibility and battery life that OLED delivers. Tablets could also emerge as the ultimate TV: they are mobile, a lot less expensive and yet render a great experience in a single-user setting.

BORAWAKE AKSHAY SANJAY, B.TECH

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Electronic Schoolbooks

Educators, parents and governments want children to have access to knowledge from anywhere, at any time. While traditional books are great for learning math, they don't give the ability to view or learn from, say, a groundbreaking TED talk. China is taking a leading role in satisfying this thirst for education by enabling widespread use of eSchoolbooks – more than 100 companies are pursuing this vision in the region. An eSchoolbook is essential to keep up with reading and learning, by maintaining access to the latest and best information. What is the ultimate display for an eSchoolbook? Medical professionals have expressed concern about young children using devices with emissive displays, as it may harm their eyesight. Several device manufacturers already offer filters for blue light, and in Canada, some insurers are already offering free prescription glasses that filter blue light. Reflective ePaper is a potential choice for eSchoolbooks. The new ePaper 2.0 has all the advantages of traditional ePaper, including low cost and power consumption, as well as outdoor usability – with the addition of video and color, which are must-haves for eSchoolbook applications.

PATIL DIGVIJAY DEEPAK, B.TECH

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The Elephant Rope

A man was walking nearby to a group of elephants that was halted by a small rope tied to their front leg. He was amazed by the fact that the huge elephants are not even making an attempt to break the rope and
set themselves free.

He saw an elephant trainer standing beside them and he expressed his puzzled state of mind. The trainer said "when they are very young and much smaller we use the same size rope to tie them and, at that age, it's enough to hold them.

As they grow up, they are conditioned to believe they cannot break away. They believe the rope can still hold them, so they never try to break free."

Moral: It is the false belief of the elephants that denied their freedom for life time. Likewise, many people are not trying to work towards success in their life just because they failed once before. So keep on trying and don't get tied up with some false beliefs of failure.

PISAL ISHWARI AJAY, SY