BVRIT HYDERABAD
College of Engineering for Women
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B-SMART

EDC

We Explore We Exhibit

WISE

IoT

INCUBATION CENTRE

IMAGE PROCESSING

ATL

Name to Fame
Hackathon Stories
Technical Trends

B-SMART

(**B**VRITian **S**tudent **M**agazine on **A**dvanced **R**esearch & **T**echnologies)

VISION

To emerge as the best among the institutes of technology and research in the country dedicated to the cause of promoting quality technical education.

MISSION

Empowerment of women engineers and technocrats with emphasis on academic excellence, life skills and human values.

B-SMART is here to keep the students and the faculty members informed with the latest development in the area of science, engineering & technology. It also inculcates the habit of reading among students about new trends in technology and emerging areas and to provide a platform to the student for sharing knowledge.

Principal's Message

Dr. K. V. N. Sunitha,
Principal, BVRITH

"Curiosity is the wick in the candle of Learning."

- William Arthur Ward

Welcome all curious minds to the 8th Edition of BSMART, the Technical Magazine of BVRIT Hyderabad. BVRITH is now in the laurels of having got accredited by The National Board of Accreditation, at its young age of 6 years. The efforts that we have taken to inculcate Quality, was very well appreciated by the National bodies. I, Dr. K.V.N.Sunitha, Principal of BVRITH share this Pride and Happiness with all the readers.

2019 is born with a lot of achievements for BVRITians. BVRIT Hyderabad is short listed as ***'The only college which adopts Best practices in approved colleges in Telangana'***, by AICTE.

Our Alumnae, who work in different parts of the world have always been appreciated by their employers and other experts. Our former student Damini Satya, who is currently working with Salesforce was interviewed by US based Magazine called STEMher, and is a great matter of Pride for us. This time we have her interview presented as 'Name to Fame' in BSMART.

We are in the second semester now. Even-semesters are meant for Technical celebrations - Hackathons, JHUB and so many other events to ignite the students' curious minds!! Even though this is only the beginning of the semester, our students have already started keeping up the legacy of winning prizes in those technical events. BSMART has 4 cover stories this time, about the Prize Winning presentations in the recently held Hackathons.

I appreciate the students who contributed articles and designs and also the faculty and student coordinators who worked passionately for the magazine.

With Best Wishes
Dr. K.V.N. Sunitha,
Principal

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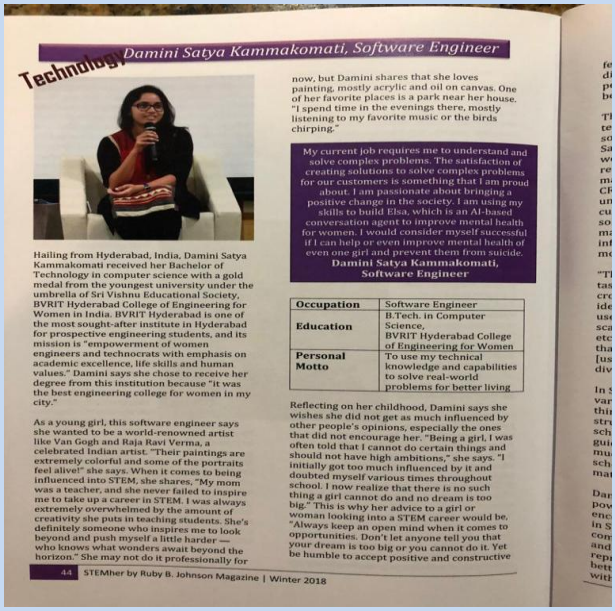
‘*Name to Fame*’



Technology

Damini Satya Kammakomati, Software Engineer

Hailing from Hyderabad, India, Damini Satya Kammakomati received her Bachelor of Technology in computer science with a gold medal from the youngest university under the umbrella of Sri Vishnu Educational Society, BVRIT Hyderabad College of Engineering for Women in India. BVRIT Hyderabad is one of the most sought-after institute in Hyderabad for prospective engineering students, and its mission is "empowerment of women engineers and technocrats with emphasis on academic excellence, life skills and human values." Damini says she chose to receive her degree from this institution because "it was the best engineering college for women in my city."

As a young girl, this software engineer says she wanted to be a world-renowned artist like Van Gogh and Raja Ravi Verma, a celebrated Indian artist. "Their paintings are extremely colorful and some of the portraits feel alive!" she says. When it comes to being influenced into STEM, she shares, "My mom was a teacher, and she never failed to inspire me to take up a career in STEM. I was always extremely overwhelmed by the amount of creativity she puts in teaching students. She's definitely someone who inspires me to look beyond and push myself a little harder — who knows what wonders await beyond the horizon." She may not do it professionally for now, but Damini shares that she loves painting, mostly acrylic and oil on canvas. One of her favorite places is a park near her house. "I spend time in the evenings there, mostly listening to my favorite music or the birds chirping."

My current job requires me to understand and solve complex problems. The satisfaction of creating solutions to solve complex problems for our customers is something that I am proud about. I am passionate about bringing a positive change in the society. I am using my skills to build Elsa, which is an AI-based conversation agent to improve mental health for women. I would consider myself successful if I can help or even improve mental health of even one girl and prevent them from suicide.

Damini Satya Kammakomati, Software Engineer

Occupation	Software Engineer
Education	B.Tech. in Computer Science, BVRIT Hyderabad College of Engineering for Women
Personal Motto	To use my technical knowledge and capabilities to solve real-world problems for better living

Reflecting on her childhood, Damini says she wishes she did not get as much influenced by other people's opinions, especially the ones that did not encourage her. "Being a girl, I was often told that I cannot do certain things and should not have high ambitions," she says. "I initially got too much influenced by it and doubted myself various times throughout school. I now realize that there is no such thing a girl cannot do and no dream is too big." This is why her advice to a girl or woman looking into a STEM career would be, "Always keep an open mind when it comes to opportunities. Don't let anyone tell you that your dream is too big or you cannot do it. Yet be humble to accept positive and constructive

44 STEMher by Ruby B. Johnson Magazine | Winter 2018

feedback. STEM is not as difficult or complex as people make it out to be."

This woman in technology works as a software engineer at Salesforce, one of the world's top customer relationship management platforms. CRM helps companies understand their customers' needs and solve problems by better managing customer information and interactions. Damini is self-motivated and passionate about her work.

"The zeal to automate day-to-day mundane tasks is what makes me stand apart from the crowd," she says. "So far, I have contributed ideas and solutions to automate tasks such as user management for online portal, cloud scale data center infrastructure management, etc. User experience design, is another skill that I leverage at my job, ensuring that our [user interface] score high on accessibility for diverse users."

In STEM education, students are exposed to a variety of courses to help them in critical thinking and design processes. "I used to struggle with mathematics," Damini says. "My school teacher helped me by providing extra guidance. In my current role, I don't need too much math like the one we studied in high school but rather some discrete or statistical math."

Damini believes that STEM sisterhood is powerful and is making big contribution in encouraging and sustaining women and girls in STEM. "These days there are various communities and groups arranging events and programs to improve women's representation in STEM. There is a need for better coordination between various groups with a common vision to get more out of our efforts," she says. "Women bring important perspective in product design. I would personally prefer them to get some professional training and courses on designing that can help them package it well. Apart from it, it often depends on individual preference. Whatever additional skill they have can be built upon and complement the work in STEM. So embrace and hone those skills," she encourages.

Sunday evenings for Damini are family time. "Having dinner and conversations with family is a good way to end a weekend," she says. After an interaction with her, she says she would like them to feel cheerful and uplifted. "If I motivate them to believe that they can bring the best out of themselves, I would feel that I have contributed something to them," she concludes.

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STEM for Her, formerly known as Women in Technology Education Foundation, is a non-profit foundation, based in the Maryland, Virginia, and Washington D.C. Mission is to promote education to create awareness, excitement, and opportunities among girls and young women to launch successful STEM-related careers.

Women and girls are vastly under represented in STEM fields despite their talent and potential to be successful in these areas. While women make up more than half the population, they account for only 24 percent of the STEM workforce. Influential organizations, like STEM for Her, are striving to bridge the gender gap to create a stronger and more globally competitive and productive workforce.

By providing scholarships, mentoring, tools, speakers, and supporting school-sponsored and community-based programs, STEMHer is able to foster technology interest in girls and young women ages 12-25.

We’re proud to share that our alumni Damini Sathya has been interviewed for an article in STEMher by Ruby Johnson Magazine, Winter 2018. She has been passionate to emerge as women technocrat from her college days and always aspired to stand out from the crowd. With lot of consistency, strived hard to fulfill her dreams and her hard work is reflected by being the first Indian Woman to be interviewed by STEMher magazine.

“The only way to do great job is to love what you do.”

Damini spoke about the encouragement she received from her mother to choose a STEM related career and also showed her gratitude for the support she received from her faulty and mentors in the college. Her constant hard work and aspiration to fulfill her dreams made her stand as a role model to women to pursue STEM related profession. And she also shared the unknown side of her undying love and passion for painting. She always dreamt of being a world famous painters like Ravi Varma. This shows how she does her best to chase her passion and also fulfill her professional aspirations.

Tips on Mentoring

Advice on seeking a mentor: Look for similarities in one's thought process and goals. Communicate clearly with your mentor about your aspirations (short- and long-term) and seek feedback. Good mentors are selfless and will appreciate you and your aspirations without looking at you as a threat in any way. Choose a mentor who is frank, good at identifying your weakness and strengths and communicates the same in a constructive way. Advice on being a mentor: Listening is the most important aspect of mentorship. Inspire to aim higher and provide confidence to your mentee and make them believe that they can achieve it. A mentor should not make decisions for the mentee, instead help the mentee to come to their own decisions and strive to make them independent decision-makers. Mentorship is a two-way journey and there are a lot of things that a mentor could also learn from mentee.

— Damini Satya Kammakomati, Software Engineer

Having multiple mentors in life is absolutely critical to success. No one started out their career being a master and knowing exactly how to do their job. Learning from those around you will build your skill base. Listening to their advice will give you perspectives you did not initially consider. Then as you yourself gain life and work experience, you can pay it forward by mentoring those finding their path, as well.

— Jenna Padilla, Geologist

As someone who struggled for multiple years without a mentor, trying to be the mentor I wish I'd had is a huge personal goal. Although it seems obvious, I think it is important to remember that as scientists, we push the boundaries of human knowledge together. Petty competition or general unpleasantness are simply a waste of energy in a field that is plenty challenging on its own. I therefore think that whether seeking a mentor or being a mentor, the most important thing to do is consider how both people involved can grow and benefit from the interaction. This involves very careful self-reflection — I personally have to continually remind myself of how lost and scared I was when beginning research, but now, walking into the lab is as routine for me as getting out of bed in the morning. My biggest advice for someone seeking a mentor is to work with someone you get along with — never settle for anything less or someone who is not a decent human being to you. And while it can be intimidating to reach out to someone for mentorship, it is important to remember that person started out where you are now. If it helps, remember that showing an interest in someone's work can only be seen as a compliment. I've never had a professional researcher be anything less than enthusiastic when I've contacted them about their work. After spending my first few years of scientific interest feeling completely lost without a mentor, I've wanted to do what I can to prevent others from going through a similar ordeal. My attempts to start a chapter of the ManyMentors nonprofit at Dartmouth are completely based on a desire to make it easier for underrepresented students to find a mentor who can provide guidance and insight into what it is like to be in STEM.

— Hannah Margolis, Undergraduate Researcher

We wish her 'All the Very Best' to continue to achieve her dreams.

"Success is not final, failure is not fatal: it is the courage to continue that counts"

COVER STORY – 1

First prize winner of "Smart Machines for Industry 4.O", 36 hour hackathon conducted by JHUB held in JNTUH university. This Team of III EEE students stood first among 90 teams.

Title :

Predictive Maintenance of Industrial Duct Fans using Machine Learning

Team Members:
Ms P. Divya
Ms K. Preethi
Ms K. Srinija
(EEE III year)

Mentor :
Mr.A.V.RamanaReddy,
Asst.Professor, EEE Dept

In this robotic world of sciences, when the advancements in the artificial intelligence are mushrooming at a whistle-stop pace, the machine learning has become very significant. Our problem statement stimulates from the perspective of industries, the obstructions or debris in fan and air passage system of industrial duct fans leads to improper flow of air in to the building leading to discomfort and eventually suffocation. So, condition monitoring of such duct fans is an increasing concern. The clogging of duct fans is a function of run time and level of dust being accumulated. This is not being considered while carrying out maintenance activities. The system doesn't proactively alert the operations personnel based on the performance of duct fans. There is no framework to continuously monitor the minute performance of duct fans from remote location.

The proposed solution for this existing problem with features is a predictive maintenance algorithm which alerts the operations personnel on the condition of duct fan. The algorithm differentiates between obstructions to airflow and dust deposit on the impeller blades. Besides this, the status (running/stalled) of the duct fan is continuously logged to cloud for remote monitoring. The technology architecture for the above proposed solution is designed based on MATLAB/Simulink which is used to develop the control algorithm and state flow for scheduling the events. Vibration of the motor fan is monitored using accelerometer and spectral analysis is performed initially. A machine learning algorithm is developed to classify vibration signal with respect to dust accumulation/obstruction to air flow.

A machine learning algorithm is developed to classify vibration signal with respect dust accumulation/obstruction to air flow.

COVER STORY - 2

First prize winner of J-HUB hackathon at VNR VJIET. This Team stood first among 36 teams.

Title :
Smart Temperature and Seizures Monitoring

Team Members:
Y. Prathyusha
Y. Pranusha
B. Poojitha
K. Harini
(ECE IV-year)

Mentor :
Mrs.Siva.S.Sinthura,
Asst.Professor, ECE Dept

We, the ECE IV-year students of BVRIT HYDERABAD , participated in J-HUB hackathon at VNR VJIET. It was a wonderful opportunity to present our idea on a challenging platform. On the first day of hackathon we introduced our idea and according to the domain, exchanged our thoughts with different college teams. Entertainment is also a part of the hackathon. On the second day, the volunteers approached us and asked to explain the project, later they raised questions and gave suggestions to implement further. Meanwhile, we got equipped with the missing part. In the evening we had evaluation with juries and explained about our idea. In the night, the results were announced in which we stood in the first place and we are awarded certificates and gold medal. We are so happy for the first prize among the 36 teams.

Our idea is about Smart Temperature and Seizures Monitoring. It is based on the survey in 2012, in which many children died due to high body temperature and seizures. So, we found the above solution by using which we can detect the child facing with febrile seizures. Here we used Arduino, temperature sensor and vibration sensor. So, it works if the body temperature is increased beyond the limit and the buzzer rings and it indicates that the child should be taken care and it also detects fits. It is less expensive and wearable device.

"Success is the result of perfection, hard work, learning from failure, loyalty, and persistence.

COVER STORY – 3

Third prize winner of Hack2Hire, a 12 hour IoT Hackathon organised at T-Hub, Hyderabad

Competing with highly experienced professionals in the field, ***Pujitha Jaji*** *came out with flying colors in hack2hire hackathon conducted by Germany based company Merck and convened by T-hub. Joe, Executive Director appreciated PujithaJaji for her sharp brain and proficiency in technical skills.*

Pujitha shares her experience of participating in Hack2Hire

Merck is a leading science and technology company in the fields of health, life sciences and high performance materials. Approximately 50,000 employees around the world work to develop life-enhancing technologies. Founded in 1668, Merck is the world's oldest pharmaceutical and chemical company.
Many working professionals and some students from states all over India signed up for this Hackathon, from which only 100 were shortlisted. Two days before the hackathon,we were asked to build teams of four members. For this they had created a WhatsApp group having all the participants and some coordinators as members. Using this WhatsApp platform, we introduced ourselves sharing profiles, projects done and skillset.And finally after a lot of hustling I was able to build a team just before one day for the actual Hackathon.Hence I became Team Leader for the Team-Evengers.Forming a team is a bit difficult as I have to choose efficient members from people who approached me making sure that it is multi disciplinary. On the day of hackathon, teams were challenged to design, build, and develop a working product and evaluated based on the following criteria: Working prototype, Uniqueness of the solution, Strength of execution, Presentation skills and Team Coordination. I have done Data Acquisition, layed out Rule Engine, did Analytics. Mentors were provided to us. We kick-started our work urging forward to win. We were the first to finish Feature 1 and received goodie. There was continuous monitoring and evaluation during the entire hackathon by their team. Though it was team, the hiring is for the individuals so they were keen enough to observe who was doing what and which. At the end they declared prizes for teams and individuals. And among 100 participants I won 3rd prize. Out of 25 teams we got consolation prize.

COVER STORY - 4

Firstprize in JHUB HACKATHON LEAGUE competition at Nallamallareddy College of Engineering

Title :

SOLAR SEED FLING MACHINE

Team Members:

M. Sarica,
C. Jahnavi Sai Sirisha,
N. Sai Chandana
(II – ECE A)

Mentor :
N.M.Saikrishna,
Asst.Professor,ECE Dept

In the agricultural field, seed planting operation is very time consuming in farming process. s. The conventional seed sowing machines require more seed and quantity of seed per unit area increases and this affects the yield. A seed sowing machine is developed to overcome these problems. This machine plants the seed at specific distance with specific quantity and reduces the requirement of seed per unit area and this operates on clean energy.

Using our machine we can plant different types that was out during ploughing. The feature that enlights this machine is the weed cutter designed in the front part of the machine which automatically cuts the weed present near it whenever the machine is on. This machine can also be simply operated by solar energy which is captured and stored by the solar panel, that acts like a sunflower and tilts in the direction of sun rays, which is placed on top of it. All these features contribute to increased planting efficiency and accuracy. The machine is very cheap and very usable also for small scale farmers who are about 79% of total farmers and can be easily manufactured at nearly available workshops. For effective handling of the machine and to reduce labour costs, a bluetooth module is connected to it which can be controlled very easily by any farmer or by any untrained worker just by giving a voice command using phone. An ultrasonic sensor is placed on the funnels and water tank further connected to wi-fi module which immediately sends message to the farmer when the seed level and water levels decrease respectively. This seed plantation machine has great potential for increasing the productivity of the planting, as by using this machine we can achieve flexibility of distance and control depth variation for different seeds.

TECHNICAL TRENDS

"WAND" for NEUROLOGICAL DISORDERS:

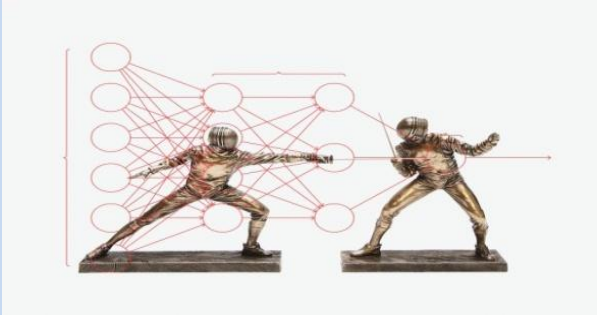
K.Monika
1st year, IT

Wand is a device which stimulates electric current in the brain; useful for the doctors to identify the patients suffering with epilepsy and parkinson diseases related to disturbance of brain. 'WAND ' stands for 'wireless artifact –free neuro modulation device ' which is wireless and autonomous .I.e., if it gets signals once from any tremor or seizure , it can adjust itself for stimulation parameters on its own and prevents the upcoming unwanted movements in brain.

This is developed by a Biomedical engineer, ricky Muller at university of California,Berkley. WAND works like ripples in a pond i.e; stimulating and recording electrical signals in the brains. Muller first found that WAND can record the full signal from subtle brain waves and the strong electrical pulses. By this device, the doctors can easily know about what exactly happening in the brain of the patient and can provide the therapy. For the cure of neurological disorders like epilepsy and Parkinson's type of disorders, it costs high and also takes long time.

Reference: www.sciencedaily.com

DUELING NEURAL NETWORKS



Why It Matters: This gives machines something akin to a sense of imagination, which may help them become less reliant on humans—but also turns them into alarmingly powerful tools for digital fakery.

It's been discovered that when two neural networks "duel", they're able to learn incredibly quickly and can create ultra-realistic images and sounds. In other words, they can develop something similar to an imagination. The practical use: Take the example of a self-driving car. As of now, AI can identify pedestrians, but it isn't terribly good at producing images of them. If the computer were able to automatically produce thousands of imaginary pedestrians, it could teach a car to drive and avoid them.

"It is better to fail in originality than to succeed in imitation."

Research also adds that it “may help them become less reliant on humans—but also turns them into alarmingly powerful tools for digital fakery.” Research is currently underway at Google Brain, Deep Mind, and Nvidia.

Reference: www.latesttechnologies.com

A.Yasaswini
3rd year,IT

APPLICATIONS AND ADVANTAGES OF USING LI-FI FOR DATA TRANSFER

Light Fidelity (Li-Fi) is a technology which uses visible light for communication is 100 times faster than Wi-Fi which uses radio frequency.

It transmits far more data than a cellular tower. Scientists have achieved speeds of 224 gigabits per second in the lab using Li-Fi. The lab-based record of 224 gigabits per second - that's 18 movies of 1.5 GB each being downloaded every single second.Visible light communication (VLC) is a data communication method that uses visible light between 400Tera Hertz and 800Tera Hertz frequency. It is a subset of optical wireless communication technologies. It works basically like an incredibly advanced form of Morse code – just like switching a torch on and off

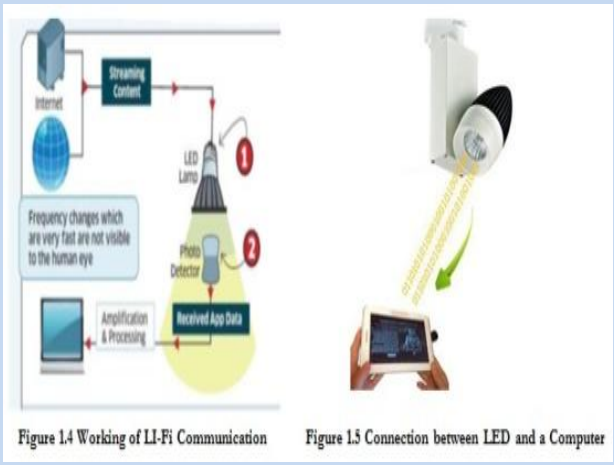


Figure 1.4 Working of LI-Fi Communication

Figure 1.5 Connection between LED and a Computer

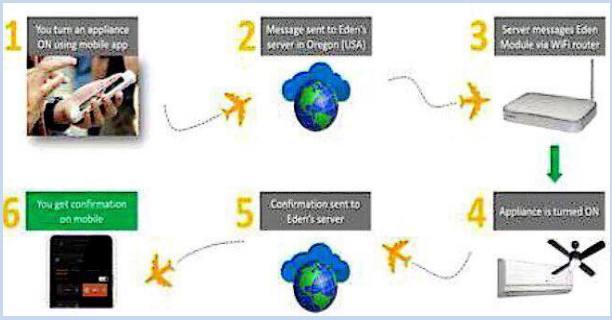
according to a certain pattern can relay a secret message, flicking an LED on and off at extreme speeds can be used to write and transmit things in binary code. Lights for streets, building, and transportation will be able to communicate wirelessly. Li-Fi will relieve public wireless congestion as an offloading facility for radio frequencies. Soon, Li-Fi will enable vehicle to vehicle communication. The technology is well suited for aviation too.

References: https://www.sciencealert.com

A.Vidruma
3rd year,ECE

"Opportunities don't happen. You create them."

LOW-COST SMART HOME SOLUTION

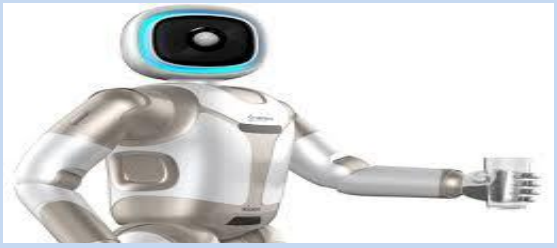


Home automation is an emerging market in india. Pranjalkacholia, a third year IIT Delhi student, has plans to change that with his indigenous, cost-effective smart home solution. He found that vendors were quoting as much as Rs.8lakh for home automation. Eden's solution involves installing small hardware modules behind switch boards which allows all appliances in a house-from fans and lights to ACs and geysers to be controlled via a smartphone app. The Eden Smart modules take a mere 15 minutes to install.Once installed, the modules connect with a house's Wi-fi router and offers smart home functions via a mobile app.When you give a command to turn on/off an appliance, the Wi-fi router relays message to be issued remotely from anywhere.

Reference:
https://www.newsbytesapp.com

Bommakanti Sanjana
1st year, CSE-A

SMART MICRO ROBOTS THAT CAN ADAPT TO THEIR SURROUNDINGS:



Scientists at EPFL and ETH Zurich have developed tiny elastic robots that can change shape depending on their surroundings.One day we may be able to ingest tiny robots that deliver drugs directly to diseased tissue, thanks to research being carried out at EPFL and ETH Zurich.

The group of scientists -- led by Selman Sakar at EPFL and Bradley Nelson at ETH Zurich -- drew inspiration from bacteria to design smart, biocompatible microrobots that are highly flexible. Because these devices are able to swim through fluids and modify their shape when needed, they can pass through narrow blood vessels and intricate systems without compromising on speed or maneuverability.

In an article appearing in *Science Advances*, the scientists describe the method they have developed for "programming" the robot's shape so that it can easily travel through fluids that are dense, viscous or moving at rapid speeds.

Reference:www.robotics.com

A.Aishwarya
2nd year,EEE

If you really want to do something, you'll find a way. If you don't, you'll find an excuse."

TELLSPEC FOOD SCANNER TECHNOLOGY

Tellspec.inc is a data company that provides predictive intelligence about food.

Today, a lot of diseases – long term and short term are caused mostly due to food or lack of physical activity and food is the only way in which we can prevent many such diseases from harming us. 'Tellspec' is trying to do its best for beaming one's health up! At this point of time, it has become essential to build a healthier and greener world-empowering people to make the right choices about the food they choose to eat, is one of the ways.On its way of continuing to build food trust, Tellspec's enterprise food scanner technology is one great innovation!

Using Texas instruments' '**Digital light Processing'** technology where images are created by micro mirrors, a display system

based on optical micro-electro-mechanical technology was created.

The system consists of three parts –Food sensor, Cloud-based patented analysis engine,Mobileapp.

All of these worked together to scan food, identify its composition and later provide detailed analysis about the scanned food.

Reference: tellspec.com

N.Pravallika
1st year, IT

BRAIN READING COMPUTER

Computers will be able to read people's brains. Neuroscientists are working on teaching computers to read words straight out of human brain. The goal is to one day make it possible for people who've lost the ability to speak due to amyotrophic lateral sclerosis or similar conditions through a computer-to-brain interface.

The first paper describes an experiment in which researchers played recordings of speech to patients with epilepsy who were in the middle of brain surgery. . As the patients listened to the sound files, the researchers recorded neuronsfiring in the parts of the patients' brains that process sound.

"Many of life's failures are people who did not realize how close they were to success when they gave up."

Instead of training computers deeply on each patient, these researchers taught an artificial neural network to convert the neural recordings into audio, showing that the results were at least reasonably intelligible and similar to the recordings made by the microphone.

The third paper relied on recording the part of the brain that converts specific words that a person decides to speak into muscle movements.

Reference:livescience.com

R.SaiHarshitha

1st year, CSE

LAZY GLASSES:

At the end of a working week, sitting up to watch a long film or reading a novel can see like too much effort. But now there are glasses that allow apathetic telly addicts and lethargic book worms to kick back and watch their favorite shows lying down.

They work a little like a periscope, using mirrors to bounce light from one place to another to allow a wearer to effectively see in an unnatural direction.

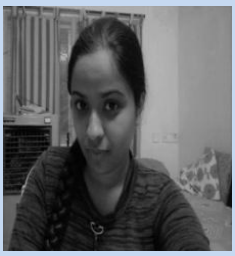
The light bounces from a mirror placed at 45 degrees in the main body of the glasses and then out to a person's eye.

Retailer Think Geek describes the Lazy glasses as having 'special mirrored lenses' but also says that the spectacles can be worn over prescription glasses. Talking about watching a film or playing a game on a computer, It said: 'Your screen, sitting upright, is minus-90 degrees from your field of view.

They were designed to make it easier for people to read in bed. The words from the page were beamed to the reader's eyes using mirrors so the reader could lie on their back and not have to strain their neck.

Reference:
www.dailymail.com

P.Haritha
1st year,CSE



"If you set your goals ridiculously high and it's a failure, you will fail above everyone else's success."

ORGAN PAINTING:

Tissue engineering has been a promising field of research, offering hope for bridging the gap between organ shortage and transplantation Organ printing is defined as computer aided additive bio fabrication of 3D cellular tissue constructs, has shed light on advancing this field into new era. Organ printing takes advantage of rapid prototyping (RP) technology to print cells, biomaterials, and cell laden bio materials , individually or in tandem, layer by layer or directly creating 3D tissue like structures.

A computer aided bio additive manufacturing process has emerged to deposit living cells together with hydrogel-based scaffolds for 3D tissues and organ fabrication.Bio printing or direct cell printing is an extension of tissue engineering, as it intends to create de novo organs. It uses bioadditive manufacturing technologies including laser-based writing, ink-jet based printing and extrusion-based deposition. Bioprinting offers great precision on spatial placement of the cells themselves, rather than providing scaffold support alone.

Reference:www.researchgate.net

V.Sravya

1st year,ECE

ECO-ROBOTICS:

The world population is expected to hot a whooping number of 9billion by 2050. It is expected to follow a dramatic rise of in agricultural production, doubling to meet the coming demand. This need has caused farmers to turn to robotics as a solution for the coming future. EcoRobotix is a solar powered robot that looks like a table on wheels which scans the rows of crops with its camera, identifies weeds and zaps them with jets of blue liquid from its mechanical tentacles. Powered by the sun, this lightweight GPS, fully autonomous drone has the ability to use its solar power to run all day. The robot uses its complex camera system to target and spray weeds.

Because of its very precise arms, the robot uses 90% less herbicide, making it 30% cheaper than traditional treatments.

"If you really want to do something, you'll find a way. If you don't, you'll find an excuse."

A fleet of these robots could easily replace human farm labour down the road.EcoRobotics is the first ever completely autonomous machine for a more ecological and economical weeding of row crops, meadows and intercropping cultures.

Reference: www.ecotech.com

Sai shreyaswi
1st year,CSE

ROBOT FOR PARALYSED HAND:

Scientist have developed a system that can read brain signals to help users control an artificial hand just by thinking – an advance that could help stroke patients regain the ability to move their fingers. Spinal injuries or stroke often leaves a person partially paralysed. Such disabilities leave them disconnected from their families and community.The team, which includes researchers from Indian Institute of technology (IIT) Kanpur, developed a brain-computer interface (BCI) that can 'read' a person's brain waves and convert them to computer signals. BCI is a direct communication pathway between an enhanced or wired brain and an external device.

The researchers developed an exoskeleton for the hand, which is connected with the

computer. The command from the computer will move the robotic exo skeleton.The researchers tested this on 21 patients. Out of which, 14 patients have shown improvement.

Reference:www.timesofindia.com/homescience

K.SaiManasa
1st year, ECE

THE NATICK PROJECT:

Microsoft has developed a submarine – like data centre into the water off the coast of Orkney, a group of islands located off Scotland. This project is named as 'NATICK'. The aim is to improve internet speeds in areas that are close to the water, where infrastructure is often lacking. Things like video streaming/ gaming rely on stronger processing infrastructure to connect to the internet.

With this, there is a great benefit of enjoying smoother web browsing while businesses can enjoy Artificial Intelligence driven technologies.Microsoft has launched a prototype in California in 2015. The company's latest unit contains 12 racks of computers with 864 servers in total. It will be powered by an underwater cable linked to EMEC [European Marine Energy Centre]. The company even told that it uses a small amount of megawatt whenoperating at full capacity. The tech giant said that the unit can hold data and process information for upto 5 years without maintenance.

Reference:www.natick.research.microsoft .com

SparshaAbhinetri
1st year,ECE

NANOTECHNOLOGY IN CARS:

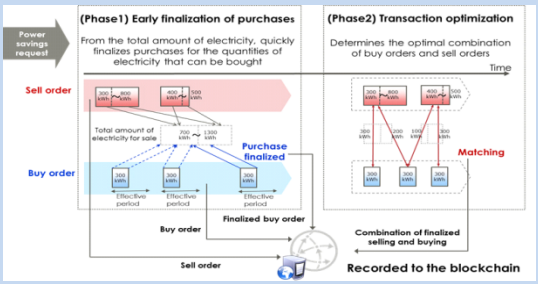
The global expectations for lower emissions and fuel economy are creating huge demands for lightweight, durable, and low-cost materials to replace expensive metals and composites, and nanotechnology can help meet those demand. Nanotechnology will help automotive manufacturers make the paint last longer, decrease the rust factor, make windows easier to clean, make stronger tires, and make bodies lighter weight and thus, more fuel efficient. Nanotechnology could help you out because several companies are producing scratch-resistant products that could be built into your car's paint job or applied aftermarket. These products use nanoparticles that form

chemical bonds to the car surface, creating a longer-lasting coating. One company, PPG, produces a scratch-resistant clear coat called Cerami Clear that helps a car's paint stay glossy longer. Some aftermarket products containing nanoparticles may also be useful for protecting your car's paint job. Matrix Micro Coatings has a product called Nano Gloss that uses hydrophobic nanoparticles to repel water and make cars easier to clean. Some aftermarket products containing nanoparticles may also be useful for protecting your car's paint job.

Reference:www.nanowerk.com

G.Sravanya
3rd year,ECE

BLOCKCHAIN TECHNOLOGY IN ELECTRICITY:

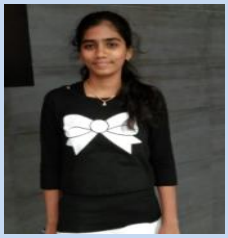


Japanese IT firm Fujitsu used blockchain to increase the success rates of power sharing, which is administered through a process known as Demand Response (DR).Demand response (DR) is a scheme in which electric utilities and consumers of electricity cooperate to control the amount of electricity used during periods of expected peak demand. An issue, however, is that the success rate for DR controls can be low. Fujitsu has now devised a system in which electricity consumers can efficiently exchange the electricity surpluses they have produced among themselves the electricity surpluses. The company then applied blockchain, and with the cooperation of ENERES Co., Ltd., the system was used in a simulation using the actual data of electricity consumption. The result was an approximately 40% improvement to the DR success rate.

Improvement to the DR control success rate is expected to lead to more consumers participating in DR schemes..

Reference:http://www.fujitsu.com/global/about/resources/news/press-releases/2019/0130-01.html

P.Alekhya
2ND year, EEE



NEEDLE FREE DIABETES CARE DEVICE:

Diabetes affects over 422 million people worldwide. Diabetics have to test their blood sugar several times a day, usually by pricking their finger with a lancet. This can be uncomfortable and painful for many people. The glucose levels are extracted by a non-invasive technique which transmits low-power radio waves through a section of the human body, such as the area between the thumb and forefinger or the earlobe. These areas have adequate blood supply and are thin enough for waves to pass through the tissue.

"Don't let the fear of losing be greater than the excitement of winning."

These signals are then received by a sensor on the opposite side of the GlucoWise device, where the data about the characteristics of the blood within the flesh are collected and analyzed. GlucoWise utilized twounique technologies to achieve unprecedented accuracy in non-invasive glucose measurements. First, it utilizes high-frequency radio waves around the 65 GHz

range. These waves are large enough to allow penetration through the tissue. Second, the sensors have integrated Nano-composite films which temporarily make the skin transparent to the radio waves when a measurement is initiated. This ensures consistent readings across all people independent of age, or skin type and colour.

Reference: www.healthtechnology.com

T.Sowmya
3rd year,ECE

YOUR EVERYDAY SMART GLASSES:

The world's first pair of smart glasses that are stylish and discreet. This glasses may collect information from internal and external sensor. It can control or retrieve from other instruments or computer. It may support wireless technology like bluetooth, WIFI, and GPS. Some smart glasses models, also feature life logging. Some of our early experimental features are Nod to answer a call, Tilt your head to cycle, songs, Shake your head to ignore a call, detect your standing and sitting posture and many more

Security application: smart glasses can be used as body camera. The police were using smart glasses to take photos which are compared against a government database using facial
recognition to identify suspects, retrieve an address, and track people moving beyond their home areas.

Healthcare applications: Lucian Engelen started research on the usability and impact on Google glass in health care. His research consisted of taking pictures, streaming videos to other location.

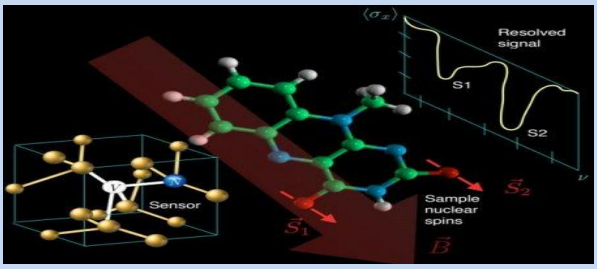
"If the only tool you have is a hammer, every problem looks like a nail.."

And also he conducted his research in operating rooms, ambulances, a trauma helicopter, general practice, and home care as well as the use in public transportation for visually or physically impaired.

Reference:www.kickstarter.com

Salma Begum
3rd year,ECE

QUANTUM SENSORS:



Scientists have produced a series of protocols for quantum sensors that could allow images to be obtained by means of the nuclear magnetic resonance of single biomolecules using a minimal amount of radiation.Nuclear magnetic resonance (NMR) is the technique behind a variety of applications, such as medical imaging, neuroscience or detection of drugs and explosives. With the help of quantum sensors, NMR has been adapted to work in the nanoscale regime.

"The protocol is robust and requires less energy than previous techniques. This not only extends the operation regime of the sensor to stronger magnetic fields, but also prevents the heating of biological samples that would result when using conventional protocols and microwave powers.As a consequence, this work opens a new research line and paves the way for the safe use of nanoscale NMR in the study of biological samples and large biomolecules".

Ch.Deeksha
II year EEE

NITROGEN SENSORS:

Nitrogen is one of the key ingredients in any good crop fertilizer. The chemical enhances crop production for plants that take in the fertilizer, process it and release it back into the air. The trouble is that nitrogen from fertilizers not taken up in the air can end up in groundwater.

This not only contributes to climate change, but can also be harmful to fish and other marine life. Too much nitrogen can also injure the crops themselves. The hand-held device as well as the boom-mounted version include an optical sensor that measures plant health so that farmers can use fertilizer efficiently. The sensor sends bursts ofred and infrared light to the crops and measures the lights that the plants reflect back. The greater the light reading, the healthier the plant and the less need for fertilizer.

Reference:

https://electronics.howstuffworks.com/everyday-tech/10-high-tech-tools-farm4.html

T.Neeraja
Ist year, CSE-A

XENXO S – RING:
A MULTI- FUNCTION RING THAT SIMPLIFIES YOUR LIFE

Xenxo in old Greek means, 'The protector of the family'. It is nothing but a smart ring which has many out - of - the - box features including the ability to send 'Save our Souls'(SOS) messages to parents and neighbours during times of distress. It helps nab rapists on the spot without their knowledge and prevents crime against women.

" Smart has never been this Smart." The xenxo S - ring is a one compact smart ring that is crafted with real solutions to answer multiple flaws that today's smart wearables haven't been able to address till now.

Advantages:

You can take calls directly and talk privately, Stores your important files, Changes music right of your finger, You can make payments on the go..

- You can call for help without alerting stranger.
- It access doors with bluetooth key.
- It wakes you up without disturbing Others.
- You can know the current time.
- You can talk to your personal assistant.

It consists of a powerful microcomputer with more than 94 micro components, 4 - sensors and 32 - bit controller while maintaining the size as same of an ordinary ring.

References:

https://www.kickstarter.com

RahelaMahenaz
II year CSE

LASERS IN CANCER TREATMENT

The term "LASER" stands for amplification by stimulated emission of radiation. Ordinary light has many wavelengths and spreads in all directions. Laser light, on the other hand has a specific wavelength. This powerful beam of light may be used to cut through steel or shape diamonds. As lasers can focus very accurately on tiny areas, they can also be used for very precise surgical work or cutting tissues.Lasers can be used to shrink or destroy tumors or precancerous growths. They are most commonly used to treat superficial cancers such as basal cancer, skin cancer, cervical, penile, vaginal, lung cancer. They are also used to relieve symptoms like bleeding, obstruction.

Laser therapy is often given through a flexible endoscope. The endoscope is fitted with optical fibers. It is inserted through an opening in the body such as mouth, nose, anus, vagina. Laser is then precisely aimed to cut or destroy a tumor.

Three types of lasers are used to treat cancer: Carbon dioxide (CO2) lasers, argon lasers, neodymium: Yttium aluminium garnet lasers. Each of them can shrink and can be used with endoscopes. CO2 & argon lasers can cutskin's surface without going into deeper layers. Hence, they are used to remove superficial cancers as skin cancer. Lasers are more precise than standard surgical tools, so they do less damage to normal tissues. As a result, patients usually have less pain, bleeding, swelling, Scarring.

Ch.Praharsha
1st year, EEE

QUANTUM COMPUTING:

Quantum computing refers to the use of quantum mechanical phenomena likesuperposition, entanglement etc, to perform computing. Traditional computing works withbits. That is all information is processed and exchanged in 1, 0 /true-false signal whichcomprises a bit. That is bit is the unit of information in traditional computing. In quantumcomputer qubits are used instead.

The idea behind it:-

The main idea of quantum computing stems from the idea of qubits which is a contraction ofthe words quantum bits. qubits are the basic unit of quantum information, a qubit is a two state quantum mechanicalsystem.a complex linear combination of a 0 state and a 1 state is the "superposition"a qubit corresponds to a unit vector in the 2-d Hilbert space

Applications:-

. Quantum computing is known to have applications in cryptography.

Reference:

https://www.dwavesys.com/quantum-computing

A.SHALINI
I year CSE

THOUGHTS ON LEARJET LIMO:

Mankind and its third penchant for engineering masterpieces is one that is never-ending. This learjet limo is one such engineering marvel, featuring a custom design, transforming what was once a desirable aircraft into a club on wheels. This is a one-off vehicle, built by two men over the last 12 years .Dan Harris and frank De Angelo , based out of Minnesota, USA conceived the idea in 2006 and got to work immediately . It took them 12 years to complete the Learjet Limo as they did it all by themselves.

The Learjet Limo is based on a Learjet 28 private aircraft that was produced between 1977 and 1982.Learjet is one of the best manufacturers in the business of private aircraft and their aircraft are used by billionaires and even the top military brass of a few nations. Dan and Frank got to work on the Learjet and took off the wings from both the sides. The landing gear was stripped and the aircraft was then fitted with axles at the front and rear. The biggest mechanical change though was the addition of a LS-based General MotorsVortV8 engine to drive the rear wheels.

Reference:
: www.drivespark.com

G.AISHWARYA
I year EEE

BLOCK CHAIN TECHNOLOGY

Here comes an interesting technology which changes 21st era drastically. In everyday life we make transactions for our purposes. Each day transaction is an exchange of value. In this case, block chain makes more transactions in a better way. What exactly this block chain means? It is related to kind of blocks, where each block contains many sub blocks in it. So, if you want to change information in a block you don't need to rewrite instead we put them in a new block. It is a distributed database, which is a client sharing environment .The data present in it is transferred to many users and it is safe from hackers as they can't access thousands of computers at the same time. Let's have a clear idea about block chain, for example if you want to transfer money, you need a mediator preferably bank, here block chain plays an important role by transfering your money without any mediator. You will have a stamp on the name called block chain on the transacted paper. As trust is native to technology block chain is called as "trust protocol". It "decentralizes" the data and creates trust in the data. Even the ledger is publicly accessible, the details of every person involved in transaction remains completely anonymous. To know more about block chain, we must know about "Bitcoin". Bitcoins are like digital payment which actually means crypto-currency but they don't exist like dollars. They are like "digital currency" and used like cash when transferred between people through the web. Here transactions are made directly without any intermediary rather we can say it is peer-to-peer network based. Bitcoins can exist only in cloud like paytm, paypal. Bitcoins are limited to 21 millions. Block chain can play its role better than bank transaction through its decentralization system and transacting each individuals payment safely without any intermediary. Bitcoins are mainly created only when a block containing valid transaction are added to block chain.

Reference:
www.googleweblight.com

SaniaThahaseen
2nd year , CSE

ARTIFICIAL INTELLIGENCE DEVELOPING TODAY'S BUSINESS STRATEGIES

The theory and development of computer systems able to perform tasks normally requiring human intelligence such as visual perception, recognition decision making and translation between languages. AI brings enormous changes to business operations, reshaping entire industries with the power of advanced technologies and software.

The constant development of machine learning and AI technologies will make every business become data-driven and every industry smarter.After years of background work on prototypes and ideas, the new ideas will be breath-taking.

Many more applications for automation, robotization and data management in different industries will bring significant changes. Health care construction, banking, finance manufacturing-every existing industry will be reshaped.

Companies like Microsoft have been slowly and quietly building intelligence into their products for a long time – anyone who uses the office 365 product suit or Skype will recognize these feature upon a closer inspection. AI is also influencing health care . A sector of Microsoft's business is now focused on AI that can predict medical problems and help diagnose illness faster than ever before. With the help of AI in the medical profession limited resources and delayed treatments could be a thing of the past.

Though many of the concerns around AI lie with the fact that workers are worried that their will be automated and they will be out of work , in reality, AI helps users work faster and smarter. It helps them to develop themselves for a better life. Thus the future of technology is here nearly every one whether they are aware of it or not are currently using some sort of AI in their day to day lives .Even if the intelligence still has much to learn ,the discoveries that have been made are incredible. As business continues to move faster into the future, the next step is for the community to recognize acknowledgement and fully embrace how AI can transform how can transform the way people work.

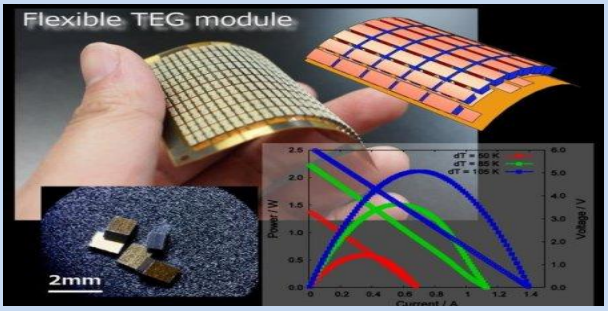
Reference:

www.ttec.com

J Avilasha
1st year, CSE

"Work in silence, let success make noise."

FLEXIBLE THERMOELECTRIC GENERATOR



Flexible Thermoelectric Generator is a machine with high mechanical reliability for highly efficient power generation. Through a change in direction of the top electrodes at the two sides and the use of high density packaging of semiconductor chips, the Flexible Thermoelectric Generator has more flexibility in any uniaxial direction.

A thermoelectric generation system to permanently generate power by efficiently recovering waste heat energy emitted in the environment is an effective means to conserve the global environment and save energy, and research for applying this system to energy sources for next-generation, IOT devices has gained attention.Thermoelectric conversion technology directly converts thermal energy to electric power, and difference is small, this next-generation technology will contribute to energy harvesting, a process that captures small amounts of energy that would otherwise be lost.

Thermoelectric conversion is one of the most suitable techniques for converting low-temperature (150°C or lower) waste heat into electric power, leading to the development of power generation systems using the TEG module. However, since the packaging technique of thermoelectric generation modules that can operate in a range of 100-150°C has not yet been established, thermoelectric generation technology for that range has not seen practical use. In addition, the production cost of modules for generating power at room temperature was so high that applications of the technology were limited to specific areas, such as applications in space.

In conventional nonflexible Thermoelectric Generator, the top electrodes at the two sides were perpendicularly mounted to the other top electrodes, so the curvature of the module was limited. However, in this Flexible Thermoelectric Generator, all of the top electrodes were integrated in parallel, providing flexibility when bent in any uniaxial direction. This reduced mechanical stress on chips, improving mechanical (physical) reliability of the FlexTEG module.

Many Researches have worked on the Thermoelectric Generator. One of the lead Researcher author Tohru Sugahara says,

"Because of heat resistance of all semiconductor packaging materials (up to

around 150°C) and mechanical flexibility of the Flexible Thermoelectric Generator, will be used as a conversion thermoelectric generator module for waste heat of 150°C or lower. Its mounting

technique is based on conventional semiconductor packaging techniques, so mass production and cost reduction of thermoelectric conversion modules are anticipated.
This Flexible Thermoelectric Generator is very useful for the environment as it recovers the waste energy present in the atmosphere.

Reference: www.sciencedirect.com

K.Divya
1st year, IT

WHAT THIS COUNTRY NEEDS IS A GOOD ROBOT SNAKE, RIGHT?

"Nature inspired us to learn and be better"

Any object that simplifies the task of a human in doing somemeaningful work can be termed as a machine. Similarly, drones areautomated machines that are made for the basic purpose ofsurveillance through human control.

Recently, scientists and researchers are exploring a completely different type of drone called a Snake Robot or snake bot.

Snake bot is a name given to a robot which looks like a snake in appearance and also move like it.The robot follows a principle called as" Master-slave principle" where head is the master and controls all other modules. Currently it is an extensive research amongst renowned institutions like NASA, MIT USA for exploring Mars. The Israeli armyuses snake bots in assault and for detecting land mines and buried explosives.

A new snake-like robot can replicate a trick of real snakes, pushing off obstacles it encounters to move forward. A virtual double of the robot that accurately predicts it's real life behaviour has also been developed, something not achieved for a realistic snake robot before. Researchers have been working on snake inspired robots for decades, but they usually have wheels on their body to help them move. These make it easier for a snake robot to slither forward by converting its writhing motion into a forward slide. But this

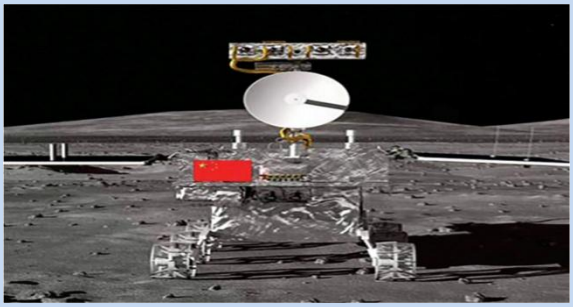
approach works best on smooth surfaces. These snake bot can also be used by animal control officers tosubdue rabid or invasive creatures.

Reference: www.instructable.com

Kavya swamy

1st year,EEE

CHINESE SPACECRAFT TO ATTEMPT FIRST LANDING ON FAR SIDE OF THE MOON



The world is still celebrating the historic landing of China's Chang'e-4 on the far side of the moon on January 3. This week, China announced its plans to follow up with three more lunar missions, laying the groundwork for a lunar base.

Colonising the Moon, and beyond, has always being a human aspiration. Technological advancements, and the discovery of a considerable source of water close to the lunar poles, has made this idea even more appealing. But how close is China to actually achieving this goal? If we focus on the technology currently available, China could start building a base on the moon today.

The first lunar base

The first lunar base would likely be an unmanned facility run by automated robotics – similar to Amazon warehouses – to ensure that the necessary infrastructures and support systems are fully operational before people arrive.

The lunar environment is susceptible to deep vacuum conditions, strong temperature fluctuations and solar radiation, among other conditions hostile to humans. More importantly, we have yet to fully understand the long term impact on the human body of being in space, and on the Moon.

Building a lunar base is no different than building the first oil rig out in the ocean. The logistics of moving construction parts must be considered, feasibility studies must be conducted and, in this case, soil samples must be tested.

China has taken the first step by examining the soil of the lunar surface. This is necessary for building an underground habitat and supporting infrastructure that will shield the base from the harsh surface conditions.

Living on the Moon

So far, we've focused on the technological feasibility of building a lunar base, but we also need to consider the long term effect of lunar living on humans. To date, limited studies have been conducted to examine the the biological impact on human physiology at the cellular level.

We know that the human organs, tissues and cells are highly responsive to gravity, but an understanding of how human cells function and regenerate is currently lacking. To live on the Moon, these fundamental questions need to be answered.

In the long term, 3D bioprinting of human organs and tissues will play a crucial role in sustaining lunar missions by allowing for robotic surgeries. Russia recently demonstrated the first 3D bioprinter to function under microgravity.

Reference:www.theguardian.com

S.Roshitha,

1st year, EEE

JET-SUIT:

Richard Browning is inventor of this suit and founder of Gravity Industries. It consists of two gas turbines strapped to each arm. It has 1050-horsepower system which relies on five mini jet engines , two each are built into units attached to hands and one at the backpack.it has a speed of 50 m.p.h .each produces almost 300-foot-pounds of force and it is manageable and safe. It also has a nice centre of gravity, the system provides engine and speed data to the person by a head-up display in the helmet, and the person can adjust the arm mounted thrusters. The engines are safe to use and don't burn the person because the heat dissipates quickly.

If any engine fails they automatically spool down slowly, and if the surface is water a built-in life preserver will automatically inflate. It is also called as "body-controlled jet engine powered suit"-which doesn't carry a lot of weight. And this suit is very helpful in military and rescue entities. This jet suit costs about $445k! Well to fly without wings, landing and taking off wherever we like. Oh we can! Just have to be flying higher, further and faster. And it arrived.

Reference: www.gravity.com

N.SaiSnusha
1st year,ECE

"To be prepared is half the victory."

BLUE EYE TECHNOLOGY:

In blue eye technology blue stands for Bluetooth and eye stand for eye movements which enable to get the information. The idea behind blue eye technology is to give the computer the human power. Basically, Blue Eyes system consists of two devices: DAU (Data Acquisition Unit), CSU (Central System Unit). These two devices are interconnected by Bluetooth. The function of DAU is to collect information from the sensor and send it to Bluetooth and it also delivers the message which is sent from CSU to the operator. On the other hand, CSU provides visualization interface by buffering incoming sensor data

Technologies used in Blue Eyes Technology are, an emotional mouse to evaluate user's emotion like anger, fear, happiness etc. It also helps to get behavior information (mouse movement, finger pressure) and physiological information (heart rate ECG/EKG, skin temperature).

M.Jhansi
1st year,CSE

OPTICAL COMPUTING:

Optical or photonic computing uses photons produced by lasers or diodes for computation. An electric current flows at only about 10 percent of the speed of light. This limits the rate at which data can be exchanged over long distances, and is one of the factors that led to the evolution of optical fiber.

Visible-light and IR beams, unlikeelectric currents, pass through each other without interacting."Entirely optical computers are still some time in the future," says Db. Frazier, "butelectro-opticalhybrids have been possible since1978, when it learned that photons can respond to electrons through media such as lithium niobate. Newer advances have produced a variety of thin films and optical fibers that make optical interconnections and devices practical. We are focusing on thin films made of organic molecules, which are more light sensitive than inorganics.

Like any computing system, an Optical computing system needs three things to function well: optical processor, optical data transfer, eg. Fiber optic cable, optical storage, eg. CD/DVD/bluray, etc.

Photonic logic is the use of photons (light) in logic gates (NOT, AND, OR, NAND, NOR, XOR, XNOR). Switching is obtained using nonlinear optical effects when two or more signals are combined. Resonators are especially useful in photonic logic, since they allow a build-up of energy from constructive interference, thus enhancing optical nonlinear effects.

Other approaches currently being investigated include photonic logic at a molecular level, using photoluminescent chemicals. In a recent demonstration, Witlicki et al. performed logical operations using molecules and SERS.

Reference: www.ias.ac.in

Priya Joshi, 2nd year, EEE

THE FROZEN CITY OF CHINA: HARBIN HOSTS THE WORLD'S LARGEST ICE FESTIVAL

China kicked off its annual harbin international Ice and Sculpture festival on January. The month-long spectacle set in Heilongjiang province in northern china is one of the world's largest ice festival, featuring frozen castle, snow sculptures and other spectacular installations and activities. Despite being one of the coldest city in the east Asian country, with the average temperature in January dropping to 12 degree celsius, more than 10 million people flock to harbin each year to witness the grandeur, which officially runs from January 5 to February 5.

Harbin Ice and Snow world, constructed with ice blocks pulled from the nearby Songhua River

This year, to celebrate the 35th anniversary of the festival, the magnificent monument was built across 600,000square meters of land, featuring more than100 landmarks. The snow castle is made of 110,000c cubic meters of ice and 120,000 cubic meters of snow.

Apart from the gigantic illuminated ice castles, the festival also boasts of an exquisite snow Buddha statue a 3D light show and the 340 meter long Northern Lights themed ice slides.

The Harbin International Ice and snow Sculpture Festival will also feature a competition where sculptors from 12 different countries will present their opus. Entrance for the annual festival this year costs RMB 330 or Rs 3,340. The annual

festival was first celebrated in 1985, inspired by Heilongjiang's traditional lanterns, which were carved out of ice and illuminated by candles.

It is now considered one of the biggest winter festivals around the world, joining the ranks of the Quebrc winter Carnival in Canada, Norway's Holmenkollen Ski Festival and Japan's Sapporo Snow Festival.

G. Aishwarya,
EEE,1st year

SPEED OF 5G

5G is the latest technology in the telecommunication field. The 5G technology will 100 times faster as compared to current 4G technology,also 10 times faster than what Google fibre gives the speed to home connection. Expert's an opinion about 5G that you can use virtual reality and augmented reality with 5G speed. We can't imagine those things today how better that would be with 5G technology. This technology will give a different experience to internet users and developers to think about developing new technology apps and streaming content. I would be better for the next engineers, developers, & consumers required to gear up for the modern technology platforms. AR & VR The origin of augmented reality (AR) and virtual reality (VR) came way back in 1838, when Charles Wheatstone invented the stereoscope. This technology used an image for each eye to create a 3D image for the viewer. Since then, the technology has evolved at a rapid pace, but has stayed on the fringes of society. However, in the past few years, as graphics and computing technologies have evolved, AR and VR have experienced a renaissance, according to a recent infographic from HistoryDegree.net and Now Sourcing. Now, consumer headsets like the Oculus Rift and the HTC Vive are helping gamers and designers reimagine their interface. In the same way, businesses are using these technologies to train employees and market new products.

Reference : www.interesting engineering.com

Annem Ramya
CSE, 2nd Year.

ABOUT ELECTRONIC NOSE

The Electronic Nose is a device that detects the smell more effectively then the human sense of smell. It will quantify and characterize the various types of smells, universally.

An electronic Nose consists of a mechanism for chemical detection. This instrument mainly consists of sensor array, pattern reorganization modules, and headspace sampling, to generate signal pattern that are used for characterizing smells. Thus, the electronic nose is an intelligent sensing device that uses an array of gas sensors which are overlapping selectively along with a pattern reorganization component.

The smells are composed of molecules, which has a specific size and shape. Each of these molecules has a corresponding sized and shaped receptor in the human nose. When a specific receptor receives a molecule it sends a signal to the brain and brain identifies the smell associated with the particular molecule. The electronic noses work in s similar manner of human. The electronic nose uses sensors as the receptor. When a specific sensor receives the molecules, it transmits the signal to a programme for processing, rather than to the brain.

An electronic nose was designed using an array of silicon micro cantilevers, where each cantilever was coated with various sensor layers such as metals, self-assembled monolayer's, or polymers . The physisorption or chemisorptions of analytic molecules on the micro cantilevers lead to its deflection and/or a change in its resonance frequency. The kinetics of the swelling process were related to the vapour pressure and the solubility characteristics of the analytic in the polymers, while the effects related to heat transfer or mass change could be used for analytic detection. Thus, the exposure of "electronic nose" to a gaseous analytic mixture results in the individual electronic response from each micro cantilever in the array.

Recent applications of electronic nose technologies have come through advances in sensor design, material improvements, software innovations and progress in micro circuitry design and systems integration. The invention of many new e-nose sensor types and arrays, based on different detection principles and mechanisms, is closely correlated with the expansion of new applications. Electronic noses have provided a plethora of benefits to a variety of commercial industries, including the agricultural, biomedical, cosmetics, environmental, food, manufacturing, military, pharmaceutical, regulatory, and various scientific research fields.

Reference:
https://whatis.techtarget.com

Malladi Krishna Tejaswi
EEE, 1St. YEAR.

HOW TECHNOLOGY WILL CHANGE OUR LIVES IN TWENTY YEARS

Over the course of the next two decades, we can expect technology to make major changes to the world around us which will be difficult to cope with for some but for others, the chance to level the playing field between the richest and poorest nations in the world will be on offer. The question of whether we have reached singularity between humans and technology is one on the lips of many scientists and technology experts who feel this time is closer than ever before but may not have occurred before the expiration of the next two decades .One of the most feared areas of the changing face of technology in the coming two decades is the rise of artificial intelligence.

The loss of low-skilled jobs to robot workers has resulted in a number of different opinions forming about whether the impact of this will be positive or negative for society. Some experts believe the rising use of artificial intelligence in most developed countries will lead to a higher standard of living for the majority who will largely be concerned with how to distribute the

higher standard of living for the majority who will largely be concerned with how to distribute the wealth fairly and efficiently, others believe the largest amount of wealth being created with the elimination of the lowest paid jobs will be distributed to the top one percent and see a growing gap between rich and poor be made even worse

As mentioned earlier, the initial aim of many of the pioneers of the internet was to develop computers and web space allowing the movement towards the singularity to grow over the life of the internet. Unfortunately, many of those have enjoyed the freedom of the internet over the course of the last few decades. By the middle of the 2030s, it is expected, the end of net neutrality will lead to a more

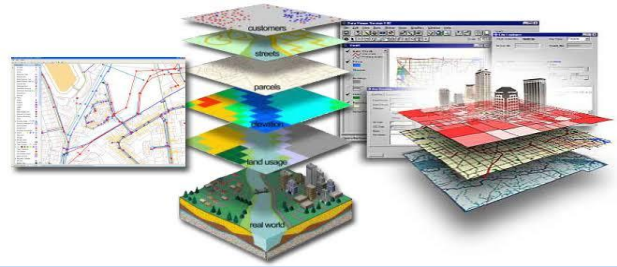
commercial Internet where individual pages are no longer searched for, but environments and feelings are expressed across many areas of the Internet.

However, many of the effects technology will have on life included here have been created by experts from around the world and are those I feel have the greatest chance of coming to fruition by 2038.

Sravani Varma Alluri
EEE, 1St. YEAR.

IEEE GEOSCIENCE AND REMOTE SENSING WORKSHOP:

While I was young, I would always wonder how the monitoring of geographical conditions are done. I was very lucky to get an opportunity to be a part of 'Geoscience And Remote Sensing Workshop', where experts in the field imparted their knowledge and experience. After attending the IEEE workshop, the things around me started making sense.



This workshop was about dealing with planet's physical characteristics, from earthquake to raindrop, and floods to fossils using remote sensing.

From the first few sessions we were able to grab most of the fundamentals and then,

we have explored in detail what is actually running in the back end of remote sensing and how the information is being converted to knowledge after deep analysis, by using techniques like image processing, etc.

Next, we had a hands-on session on Bhuvan, an application of WEB-GIS, through which we learned few basics of image processing and some important datasets.

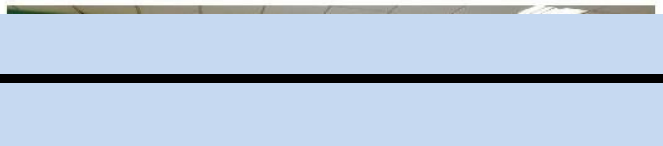
By the end of the session, my key takeaways didn't endonly with acquiring knowledge, but in addition they have left

with us the confidence that, they will support us all the time through GRSS.

It's our pleasure to connect with IEEE mentors, who had an ample of experience in various aspects of remote sensing. Finally I feel that it would be really interesting, if something like this becomes part of academics.

Manne Likitha
II,EEE

AWARDS AND ACHIEVEMENTS



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