TechBlaze

Innovation - Our Passion

VOL.- 4, 2019

DEPARTMENT OF MCA

ST. XAVIER'S COLLEGE

(Autonomous)

(Awarded 'College with Potential for Excellence' by UGC)

(Re-accredited with "A" Grade by NAAC with a CGPA of 3.50)

PALAYAMKOTTAI - 627002, TAMILNADU, INDIA.

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THE EDITORIAL

Good, better, best. Never let it rest.

Till your good is better and your better is best.

- St. Jerome

In the current scenario, the advent of information technology has generated high hopes among many people of developing countries. The new millennium is witnessing a complete revolution in the history of mankind and this revolution has been brought about by information technology. As the world is marching towards a digital society, information technology has assumed unspeakable significance and has become the fastest growing field in the world.

Edward Teller has said: "The science of today is the technology of tomorrow". The human society is exquisitely dependent on science and technology. Living in the 21st century, technology has been developing to a more influential level. Every human endeavour is influenced by the growth of information. It has been growing faster and faster, quicker than everyone even realizes it.

Two essential components of IT revolution have been the development of computer and internet. These two developments have revolutionalized modern world. Every once in a while, a big idea turns into an innovation. The advancement in technology leads to an automated world that makes human life simpler. With the advancement of Internet of Things, it is able to control home appliances, lights, opening and closing of doors, etc., using mobile phones.

The advancement in gathering technique is known as "Information Superhighway". This opens the people to a world of technology and information full of immense possibilities. This magazine encompasses the latest imminent technologies and novel state-of-the-art smart gadgets such as Block Chain Technology, 3D Metal Printing, Wireless Robofly, Invisible Helmet, Babel-fish Earbuds, and many more.

Definitely the readers of this magazine will get an incredible intellectual experience.

Mrs. L. Sujatha, M.C.A., NET., SET., M.A.,
Assistant Professor

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SECRETARY'S MESSAGE

"The purpose of true education is to teach one to think intensively and to think critically."

Dear Friends,

I am extremely happy that the Department of MCA is bringing out yet another magazine, which contains the aspirations and innovations of the student community. St. Xavier's does not believe in merely producing degree holders rather it trains them with all the skills needed to face the realities of the present global situation.

I would like to congratulate the department staff members particularly the Head of the Department Dr. S. Chidambaranathan for his dedication and commitment in the upliftment of the students through invited lecturers by the specialist particularly from I.T. field and arranging campus interview for placement. I would like to congratulate the editorial team of Tech Blaze 2019 for their determined effort and hard work to bring out this magazine on time. I am sure this magazine will be a source and guide for the students to choose their future career. May God bless all their efforts, so that they shine like stars wherever they are.

Rev. Dr. A. Antonysamy, S.J.
Secretary

MESSAGE FROM HOD

"Reading is essential for those who seek to rise above the ordinary".

- Jim Rohn

It gives me great pleasure to congratulate the faculty members and students of Department of Computer Applications for their tremendous efforts to bring out the fourth issue of the Department Magazine ***"Tech Blaze"***.

In the era of Information Technology, this magazine portrays the new ideas and innovations in the digital world and focuses on the achievements and contributions of the faculty members and the students of the department. I wish best of luck for all the team members of the editorial board for their support in successful publication of this magazine.

Dr. S. Chidambaranathan, M.Sc., M.C.A., M.Phil., Ph.D.,
Head of the Department

ABOUT THE DEPARTMENT

Master of Computer Applications (MCA) was started with AICTE norms in the year 2000 with two teaching staff members. In the year 2001, it started functioning as a separate department as per the AICTE recommendations. Mrs. Safish Mary was appointed as the Head of the Department.

The Department has infrastructure facilities like Department Library and a well equipped Computer LAB with internet facility etc. The growth of the department is admirable. Dr. S. Chidambaranathan was appointed as the Head of the Department in 2012 and he continues as the Head of the Department till date.

The Department has established a student Training Forum named Xaverians Computer Applications Professionals Association (XCAPA) for MCA students, which conducts orientation programmes, seminars, conferences and workshops on Communication Skill, Aptitude and Reasoning, recent IT trends and Personality Development.

The Department conducts ICAPO (Innovative Computer Application Professionals Ordeal) an Inter-Collegiate Tech Meet every year in which nearly 20 teams from various colleges participate. The Programme conducts technical events like Paper Presentation, Software Marketing, Software Debugging, Stress Interview, Web Designing and Quiz.

The Department has produced more than 500 students who have been placed in various MNCs, Colleges and Universities. The Department becomes more reputed due to the placements obtained by our students in well recognized MNC Software companies like IBM, HCL, TCS, CTS, Tarento Technologies, Stradegi, etc.

The Department has more dynamic, efficient, Patent Published, Research guiding and NET, SET qualified commendable knowledged faculty members. Our Head of the Department has published four patents. The faculty members of our department are presenting papers, participating in National and International Conferences, Workshops and Seminars and actively engaged in various research activities. Papers have been published in National and International Journals with high impact factor.

A newsletter and Department Magazine with title “Tech Blaze” are being released at the end of every academic year. The students also actively take part in STAND activities, an outreach programme in the college. The students also participate and excel their talents in various competitions inside and outside the campus and bring laurels to the Department.

OUR DEPARTMENT, OUR PRIDE

FACULTY MEMBERS

Dr. S. Chidambaranathan, M.Sc., M.C.A., M.Phil., Ph.D.,
Associate Professor and Head

Mrs. S. Saraswathi, M.C.A., M.Phil.,
Assistant Professor

Mrs. L. Sujatha, M.C.A., NET., SET., M.A.,
Assistant Professor

Mrs. R. Geetha, M.C.A., M.Phil., M.E.,
Assistant Professor

Mrs. A. Regita Thangam, M.C.A., M.Phil., SET.
Assistant Professor

ASSOCIATION REPORT FOR THE ACADEMIC YEAR 2018-2019

The inauguration of XCAPA was held on 12th of July, 2018 in the MCA Seminar Hall. The XCAPA was inaugurated by our Secretary Rev. Dr. A. Antony Samy,S.J. The keynote address was delivered by the Chief Guest Dr. Manova Raja, CEO of Fragrhen Academy, Chennai. The felicitation was given by our Secretary Rev. Dr. A. Antony Samy, S.J. The Association Annual Plan for the year 2018-2019 was read by our Association's Secretary Mr. S.Ramanathan of III MCA.

Seminar on "SOFTWARE TESTING AS A CAREER" was conducted on 19th July, 2018 in the MCA Seminar Hall. Mr. R. Ayera Jothi, Managing Partner, Stradegi Solutions,
Singapore, was the resource person.

Seminar on "BIG DATA ANALYTICS" was conducted on 23rd July, 2018 in the MCA Seminar Hall. Mrs. A. Suja, Assistant Professor, Dept. of IT, St. Xavier's Catholic College of Engineering, Nagercoil, was the resource person.

The orientation programme on "ALL CAN WIN" was conducted on 24th July, 2018 in the MCA Seminar Hall. Mr. S. Kumaramurugan, NSS Officer, HOD of ECE Dept., Lakshmi Ammal Polytechnic College, Kovilpatti, headed over the programme.

On 30th August, 2018, a workshop on "AN INSIGHT INTO PYTHON" was presented by Dr. R. Satheesh Kumar and Dr. R. Sunder, Assistant Professors, Sahrdya College of Engineering College, Thrissur, Kerala, in the MCA Seminar Hall.

The workshop on "CAREER AVATHAR" was organized on 31st August, 2018 in the MCA Seminar Hall and in the III MCA class room. Dr. Manova Raja, CEO of Fragrhen Academy, Chennai, was the resource person.

On 3rd September 2018, a workshop on "ETHICAL HACKING" was conducted by Kalvi Research Institute, Madurai, in MCA Seminar Hall.

The workshop on "CYBER SECURITY" was conducted on 27th September, 2018 in the MCA Seminar Hall. Dr. A. Francis Saviour Devaraj, Freelance Cyber Security Trainer, Bangalore, was the resource person.

On 25thSeptember, 2018, a Campus Interview was conducted by "TECHSOMO", Trivandrum in our MCA Seminar Hall. Nearly 22 students participated in the interview and five students have been selected.

On 27thSeptember, 2018, a Campus Interview was conducted by "CENTIZEN Inc.", Tirunelveli in our MCA Seminar Hall. Nearly 15 students participated in the interview and two students have been selected.

On 12thOctober, 2018, a Campus Interview was conducted by "CHAIN-SYS TECHNOLOGIES", Chennai in our MCA Seminar Hall. Nearly 19 students participated in the interview and two students have been selected.

A Seminar on "MACHINE LEARNING" was organized on 29th November, 2018, which was handled by Mr. Muthukumar, Engineer Trainee, Livewire, Tirunelveli.

On 7th December, 2018, a programme on "RECENT TRENDS AND SCOPE OF TESTING IN IT FIELD" was handled by Mr. Pradeep Kumar, Software Test Engineer, Verizon, Chennai. The students interacted well with him and gained knowledge.

A programme on "HOW TO FACE INTERVIEWS?" was arranged for our students by our association. It was lead by one of our alumni Mr. Manikandan, who is working in Stradegi Solutions, Singapore. The students made use of it very well and got some valuable tips from him.

In order to train our I MCA students to enhance their programming skills, a value added course is being conducted by our association. It is a complete 30 hours programme which is conducted from 11.30 am to 01.00 pm all the days. It commenced on 18th February, 2019. The cross major students are highly benefited by this programme.

The activities of XCAPA came to an end with a Valedictory function in the MCA Seminar Hall on 22nd March, 2019. The fourth edition of our magazine 'Tech Blaze' and the Seventh issue of our Newsletter were released on this occasion. Prizes were given to the academic toppers and the winners of various competitions held by the XCAPA. All the activities of XCAPA were planned and implemented in a way to empower our students in the IT field.

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Artificial intelligence is a technology that is impacting how users interact with, and are affected by the Internet. In the near future, its impact is likely to only continue to grow. Artificial Intelligence (AI) is a rapidly advancing technology that may soon have significant impacts on our everyday lives. AI has the potential to vastly change the way that humans interact, not only with the digital world, but also with each other, through their work and through other socioeconomic institutions – for better or for worse. AI traditionally refers to an artificial creation of human-like intelligence that can learn reason, plan, perceive, or process natural language. These traits allow AI to bring immense socioeconomic opportunities, while also posing ethical and socio-economic challenges.

The term 'machine learning' is often, incorrectly, interchanged with Artificial Intelligence, but machine learning is actually a sub field/type of AI. Machine learning is also often referred to as predictive analytics, or predictive modeling. Coined by American computer scientist Arthur Samuel in 1959, the term 'machine learning' is defined as a "computer's ability to learn without being explicitly programmed".

The current growth in AI and machine learning is tied to developments in three important areas:

- **Data availability**: Just over 3 billion people are online with an estimated 17 billion connected devices or sensors. That generates a large amount of data which, combined with decreasing costs of data storage, is easily available for use. Machine learning can use this as training data for learning algorithms, developing new rules to perform increasingly complex tasks.
- **Computing power**: Powerful computers and the ability to connect remote processing power through the Internet make it possible for machine-learning techniques that process enormous amounts of data.
- **Algorithmic innovation**: New machine learning techniques, specifically in layered neural networks – also known as "deep learning" – have inspired new services, but is also spurring investments and research in other parts of the field.

A central focus of the current governance efforts relates to the ethical dimensions of artificial intelligence and its implementation. For example, the Institute of Electrical and Electronics Engineers (IEEE) has released a new report on *Ethically Aligned Design* in artificial intelligence, part of a broader initiative to ensure ethical considerations are incorporated in the systems design. Similarly, OpenAI, a non-profit research company in California has received more than 1 billion USD in commitments to promote research and activities aimed at supporting the safe development of AI. Other initiatives from the private sector include the "Partnership on AI", established by Amazon, Google, Facebook, IBM, Apple and Microsoft "to advance public understanding of artificial intelligence technologies (AI) and formulate best practices on the challenges and opportunities within the field.

Mrs. S. Saraswathi,
M.C.A., M.Phil.,
Assistant professor

AMAZING PROGRAMMING PUZZLES

1. Program to find the sum of digits of a given number in a single line.

```
#include<iostream.h>
void main()
{
int n, sum;
cin>>n;
for(sum=0;n>0;sum+=n%10,n/=10);
cout<<sum;
}
```

2. Program to print all numbers between 1 and 100 without using loop.

```
#include<iostream.h>
#define N 100
void main()
{
static int i=0;
if(i++<N)
{
    cout<<i<<" ";
    main();
}
}
```

3. Program to find the square of a number without using multiplication operator or built-in function.

```
#include<iostream.h>
void main()
{
int odd, sq=0;
cin<<num;
for(odd=1;num<1;odd+=2,num-=1)
{   sq+=odd;
   cout<<sq;
}
}
```

4. Program to print "Welcome" without using a semicolon.

```
#include<stdio.h>
void main()
{
if(printf("Welcome"))
     {  }
}
```

5. Program to display "Tech Blaze" without a main() function.

```
#include<stdio.h>
#define fun main
int fun(void)
{
printf("Tech Blaze");
return 0;
}
```

Reference:
www.techiedelight.com

TIPS FOR ONLINE REFERENCES AND ONLINE COURSES

1. **www.geeksforgeeks.org**- Very useful to prepare for Campus Interviews, NET, SET and GATE examinations.
2. **www.sanfoundary.com** - Very useful to collect multiple choice questions for all computer-based subjects.
3. **www.edx.org** - Very useful to undergo free online courses offered by world's topmost universities such as Harvard University, Massachusett's Institute of Technology, University of Berkeley, etc.
4. **www.onlinecourses.nptel.ac.in** - Very useful to undergo online courses offered by IITs and IIMs in India.

5. **www.datacamp.com** - Very useful to undergo Hands-on Training courses in new technologies.
6. **www.coursera.org** - Very useful to undergo online courses offered by world's topmost universities.

Mrs. L. Sujatha,
M.C.A., NET., SET.,M.A.,
Assistant Professor.

QUANTUM COMPUTING

Quantum computing is the area of study focused on replacing today's traditional computers with scalable, super-fast systems using defined and counterintuitive logic of quantum physics. The underlying idea behind this phenomena is to come up with technological solutions at both atomic and subatomic level for addressing as well as fixing various real-time issues, which, at present, are intractable for classic systems.

These future computers take advantage of an advanced information exemplification called "qubits" to store and process data in the third state known as "Superposition." This condition allows creators to analyze a zero or a one at the same time by altering their orientation and represent four scenarios at once instead of one or two. This process increases the ability to store and process an enormous amount of information more resourcefully and also perform computations in new powerful ways using less energy than a conventional system.

The Relationship Between Quantum Computing and Cloud

Cloud-based quantum solutions and services are emerging as a potential game-changer in the digital cloud computing industry. Companies like Rigetti are now building hybrid qubit quantum processors integrated with classical computing infrastructure to execute quantum algorithms in the cloud. Last year, IBM raised the bar significantly by developing a 50-qubit processor with the purpose of improving error correction code and also making quantum computing freely accessible to end users via the cloud.

Combining the cloud into tiered storage architecture of the quantum computer creates an optimal mix of scalability, efficiency, and performance and also improves workflow while unlocking an array of off-site capabilities.

Compared to physical security issues, cybersecurity problems undeniably are the most dangerous threats since they are harder for users to assess and visualize. Conventional wisdom has it that the more innovatory a technology is, the severe the disruption will be, and the ground-breaking technology "quantum computing" is no exception either. At present, most online security systems depend on factoring, especially large numbers, and the longer it takes to crack the code, the more secure the encryption method is.

Since quantum computers can process massive databases almost instantaneously and solve calculations in less than a minute that take conventional system decades or thousands of years to decode, the current data encryption techniques will turn out to be destructible. This will put our financial, personal, and other confidential information at risk. Well, here's the good

news: the adoption of quantum computers will rock our existing security protocols and open the new doors to robust, advanced cryptography techniques that theoretically are unbreakable.

Regardless of how much computing resources will be used to decipher quantum-based security networks, users will still be able to send data as well as conduct transactions securely. Certain ultra-secure communication methods and encryption implementations like quantum key distribution will lead to inherent security infrastructure.

Artificial Intelligence

Both AI technology and quantum computers are two most stimulating frontiers that have tied the knot to transform the field of deep learning and neural network optimization. By scanning monumental amount of data in milliseconds, quantum computers can provide feedback much efficiently compared to classic computers, results in shortening the learning curve for AI.

Researchers are putting more focus on accelerating deep learning algorithms including CNN and RNN to improve accuracy & performance and also process unsorted, large datasets to spot inconsistencies or other patterns extremely faster. QC, in fact, can be applied to various tasks such as:

- Simulation
- Optimization
- Sampling

It's not hard to imagine that in a few years, quantum computing technology will be able to facilitate exponential speed-ups and solutions for central and classic problems including clustering, principal component analysis, pattern-matching etc.

Financial Modeling

Quantum computing will emerge as a powerful calculator that soon is going to make current human trading and financial model obsolete. The implementation of quantum mechanics will take the FinTech sector to a whole new level. Today's markets deal with a basketful of risky and uncertain situations that require faster and more secure processing solutions, and that's where QC comes into the picture. The advanced systems would be a big help in isolating key global risk factors and finding the new ways to handle complex financial data by carrying out an incomprehensible number of calculations all at once.

Mrs. R. Geetha,
M.C.A.., M.Phil., M.E.,
Assistant Professor.

EMERGING TRENDS IN INFORMATION TECHNOLOGY

Information technology has become an integral part of our daily life. It has served as a big change agent in different aspect of business and society. Advancement and application of information technology are ever changing. Information technology has experienced an unprecedented growth over the last few years, and in order to navigate the best way forward into the future, you need to stay on top of emerging trends and how they operate. Some of the trends in the information technology are as follows:

❋The Internet of Things

If you own or run a business, chances are you've already got your hands in something related to

the Internet of Things. Home appliances like smart electric kettles and everything that has the prefix "smart" can be combined into a single infrastructure for authorized users. The IoT is usually driven by the industry and will succeed the most if it focuses on getting solutions for some specified problems. The industry focuses on firmware and software that is hardware centric and suits those who love creating solutions and meets the demands of the engineering field.

❋Artificial Intelligence

Over the past year, artificial intelligence (AI) and machine learning (ML) have been the headliners among emerging technologies. They have been discussed at all levels across industries, and you can hardly find a business or an industry that would not benefit from implementing ML algorithms and AI-based tools. The next year, AI and ML will be expanding their presence in various sectors. Since numerous organizations are already planning for their development strategy with artificial intelligence.

❋Cyber Security

The demand for Cyber Security has increased because of online scams and frauds. The attackers will be aiming at popular platforms and technologies which have security vulnerabilities. If this technology is implemented to its full potential, then we can see improvements in Networks, Block Chain IOT, 3D technologies, and the Cloud. It includes deploying solutions for data breaches perhaps through blockchain technology that is currently enjoying a lot of global attention. Encryption is also a critical aspect of cyber security. As we become more integrated with technology, encryption processes will become more necessary. People are now becoming more focused on privacy and keeping our information safe from unwanted eyes.

❋Cloud Computing

Business organization stores terabytes of data every day, which must be arranged, sorted and restored. A conventional computer cannot store large volumes of data which increases pressure to move towards Cloud. The Cloud will increase the productivity of an organization by saving time and money. Cloud is cheap, reliable for secure backup, and eases resource management. It will play a pivotal role over the next few years to sustain the increase in mobile technologies. Cloud and its automation will collaborate with new upcoming technologies bringing profits to the organization.

❋Big Data

Big data is an evolving term that describes a large volume of structured, semi-structured and unstructured data that has the potential to be mined for information and used in machine learning projects and other advanced analytics applications. This means that big data is now applied to the big business as many of the digital marketing campaigns can rely on the huge data quantities to ensure effectiveness and a greater reach. This is why companies are now relying on the data management to ensure conversions from online connections.

❋Mobile Application

Another emerging trend within information technology is mobile application. Mobile apps are designed to run on mobile devices such as tablets and smartphones. These can be downloaded

from different operating systems such as Blackberry, Apple, Nokia etc. Some of the mobile app are available free where as some involve download cost. Mobile will also be integrated into different areas such as health, data collection, and communication.

❋Conclusion

No one can accurately predict where things are going to go to in the future, but judging on the current and past trends, we can make a decent assessment of what might occur. As the trends in IT listed above suggest, that the process of ensuring information technology developments that meet the requirements of the current market but also safeguard the development potential of future markets.

Mrs. A. Regita Thangam,
MCA., M.Phil., SET.
Asst. Professor.

GOOGLE LAUNCHES 'PODCASTS' APP ON ANDROID

Google has launched a new app for those who love listening to podcasts. Unsurprisingly named as Google Podcasts, the app is Android-only for now but may soon reach Apple's iOS. Some new features are expected to arrive as well. Android users can get their hands on the app from Google Play Store as it is now available globally.

The app has a home screen that shows all the podcast channels to which a user has subscribed. Tapping on it shows the list of episodes along with the option to download them. To maintain the storage on the handset, the app also automatically deletes episodes. Users can decide the duration before the episode gets deleted.

The app also has a section called 'For You' wherein users are shown all the new episodes, those that are in progress and those that are in the download list. Other sections show the trending and top podcasts in different categories.

Google Podcasts' AI recommendation engine works on what you are listening and other podcasts you are interested in. This will result in a more personalised carousel of podcasts over time.

As for the audio player, one can get hold of it from the bottom of the screen at any given time. There's nothing new with the player as it gives you the same audio playback options. To access a podcast fast, you can even pin the artwork right on the home screen. The playback list syncs across devices and the podcasts are even integrated with Google Home and Assistant.

By,
X. Amali Fathima
16MCA01

GLASSES THAT GIVE SIGHT TO THE BLIND

For the millions of people who are legally blind, navigation is a routine challenge. Though support canes and guide can help they cannot mimic actual vision. **ESIGHT3** can. Esight is worn like a normal pair of glasses. It has a high speed, high definition camera that captures everything you are looking at, and then displays it on two near-to-eye displays. Advanced, medically-validated algorithms optimize and enhance the footage so that your eyes can truly see it, and in real time. esight's ability to tilt up and down allows you to always have

access to your native peripheral vision. This enables true mobility.

Think of it as the world's most powerful pair of glasses: once users put on esight, it records high-definition video and uses magnification, contrast and proprietary algorithms to enhance that imaginary into something the legally blind can see enabling them to take part in a variety of activities, including sports, that would otherwise be off limits.At **$9,995** the device which is launched in february is not accessible to everyone. But it is cheaper, as well as faster, lighter and equipped with better zoom capabilities. The company estimates it has been used by more than **1,000 patients.**

By,
S. Sundaravalli
16MCA02

MY SPECIAL AFLAC DUCK

A social robot duck designed to help children facing cancer. It's called **My Special Aflac Duck**. It is a companion comfort robot, built collaboratively by insurance company **Aflac**, and health and research specialists **Sproutel**. It is a part toy, part robot and part medical device. It is a realistic robot, covered with feathers, wings, a beak and webbed feet.

It has sensors that react to touch, a microphone and light sensor that adapt to different environments and adjust the duck's behavior. When you hold the duck, it is incredibly life-like with natural movements. It can also dance and nuzzle. There's even a heartbeat emulator on the duck's head, which patients can feel pulsing, and can help calm breathing and nervousness.

On the chest of the duck is a glowing E.T.-like light where kids can place one of several RFID-enabled **"feeler cards"** that have different emojis on them. When a sad card is touched to the duck's chest, the duck droops its head and quacks sadly. A happy card makes the duck quack cheerfully and dance.The same chest sensor has a chemotherapy PICC line attachment which lets kids witness their friend go through the same treatment as them.

The duck also has a 'rocket ship' that lets the children pick their preferred 'happy place' - either an amusement park or a garden, and 'transports' them there, with speakers playing an imitative soundscape, and an app playing a video of the locale. My Special Aflac Duck isn't available for commercial purchase. Aflac will donate one to every child in the U.S. diagnosed with cancer.

By,
S. Durga Devi
16MCA03

ROBOT THAT DEVOURS INSECTS AND RODENTS

At this point, robotic vacuum sweepers, singing androids and mechanical dogs are old hat. But British inventors Jimmy Loizeau and James Auger have made a quantum leap with the Carnivorous Domestic Entertainment

Robot, an automaton that would stalk and devour mice and insects, and then eat them and digest their bodies to produce its own power.

They've come up with five different concepts, including the mousetrap coffee table robot, which is designed to lure unwary vermin onto its surface, which contains a trap door triggered by motion sensors. Rodent victims trapped by the device would be chemically dismantled and fed to a microbial fuel cell.

A light on the side of the device would inform the owner of how much energy is being produced by the auto-extermination. Other configurations include the Lampshade Robot, which would lure flies and moths to their doom, a Cobweb Robot that would trick spiders into weaving webs and then extract and feed them into its fuel cell, and the Flypaper Robotic Clock .

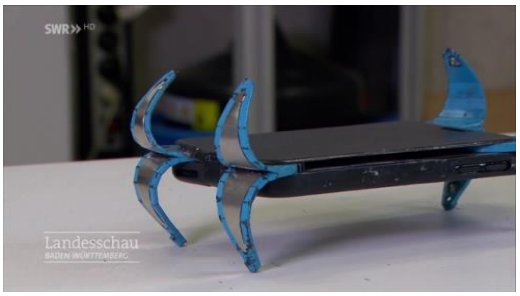
By,
F. Revanth Jesuraj
16MCA04

ULTRAPRIVATE SMARTPHONES

New models built with security and privacy in mind reflects the Zeitgeist of the Snowden era.

Zimmermann is a cryptologist. His company, Silent Circle, encrypts voice calls, text messages, and any file attachments. If you use Silent Circle, your calls to other users are sent through the company's servers and decrypted on the other phone. The service won't stop the delivery of ominous messages in range of certain base stations. But it can block eavesdropping and prevent the snoopers from knowing the number of the person you are calling or texting. "Those are the kinds of environments where you need widespread deployment of crypto technology," Zimmermann says, with evident satisfaction.

Zimmermann will be delivering a new way to fight back: a highly secure smartphone, called ***Blackphone.*** Now being manufactured by a joint venture that includes Silent Circle, it uses Zimmermann's encryption tools and adds other protections. It runs a special version of the Android operating system—***PrivatOS***—that blocks many of the ways phones leak data about your activities. While custom security phones have long been in the hands of military and government leaders, this effort may signal a shift toward mass-market phones that are far more private and secure.



By,
V. Pavithran
16MCA05

THE INVISIBLE HELMET

The invisible bicycle helmet uses rechargeable battery-powered accelerometers and gyroscopes that detect the typical motions involved in a bike crash. The product and company named Hövding began as the industrial design master's thesis of two students, Anna Haupt and Terese Alstinat, at Sweden's Lund University.

The airbag is designed like a hood and made in an ultra-strong nylon fabric that won't rip when scraped against the ground. Hövding protects nearly all of the head, while leaving the field of vision open. The inflated

airbag covers a much larger area than a traditional cycle helmet and is designed according to current accident statistics.

The gas inflator that inflates the

airbag is a so called cold gas inflator that uses helium. It is placed in a holder in the collar on the cyclist's back.

Only activate Hövding when cycling. To activate Hövding, attach the button on the zip tag to the right-hand side of the collar. Similarly, Hövding is deactivated when you unclip the button. Hövding should always be deactivated when you are not cycling.

At the front of the collar there are LEDs showing the battery level and whether Hövding activated or not.

By,
M. Sathya
16MCA06

PHONE SAVING 'AIRBAG' DESIGN

For just about as long as Smartphone's have had screens that crack, folks have been fantasizing about how to save them from that fate. In 2011, Jeff Bezos patented a method to protect a phone from a fall with jets of blasted air.

In 2013, Honda showed off a giant phone case that was a literal airbag. Neither has made it to market. But a design by a German design student looks like the most practical implementation so far.

Instead of using air, which would require pressurized gas or tiny super powered jets, the "Active Damping" (AD) case designed by Philip Frenzel at Germany's Aalen University uses eight, curved, springy feet that are stored flat, under tension. When the phone detects it's in freefall, the feet launch out to absorb the shock and when all is said and done, they can even be folded back into the device.

The improvements that Frenzel's design has over previous imagined solutions are pretty significant. It actually exists, for one. It's also cheaper and less bulky than air-based systems given that it needs neither a system of jets nor a reservoir of compressed air.

That, plus its reusability, means it might actually be able to protect your phone from enough screen-shattering drops to justify its cost.

By,
V.A. Mahendran
16MCA07

AUTOMATE YOUR AC WITH THIS SMART, ECO-FRIENDLY CONTROLLER

Ensuring that the air in your home or office is always the perfect temperature is no easy feat. Repeated trips to the thermostat to make endless adjustments not only take a toll on your productivity — they're also wasteful while harming both the environment and your bank account.
The Sensibo Smart AC Controller lets you fully automate and control your AC so you can feel less guilty about

dialing up the cool in the summer months.

Unlike most AC automation systems that require just as much attention as the AC unit itself, the Sensibo system is compatible with any remote-controlled air conditioner (or heat pump) and lets you schedule adjustments from your smartphone.
It can be installed in less than a minute, features seven-day scheduling, and even integrates seamlessly with Amazon Alexa and Google Home so you can use voice commands.

By,
S. Maria Arockiya Justin
16MCA08

3D-METAL PRINTING

While 3-D printing has been around for decades, it has remained largely in the domain of hobbyists and designers producing one-off prototypes. And printing objects with anything other than plastics—in particular, metal—has been expensive and painfully slow.

Now, however, it's becoming cheap and easy enough to be a potentially practical way of manufacturing parts. If widely adopted, it could change the way we mass-produce many products.

In the short term, manufacturers wouldn't need to maintain large inventories—they could simply print an object, such as a replacement part for an aging car, whenever someone needs it. In the longer term, large factories that mass-produce a limited range of parts might be replaced by smaller ones that make a wider

variety, adapting to customers' changing needs.

The technology can create lighter, stronger parts, and complex shapes that aren't possible with conventional metal fabrication methods. It can also provide more precise control of the microstructure of metals. In 2017, researchers from the Lawrence Livermore National Laboratory announced they had developed a 3-D-printing method for creating stainless-steel parts twice as strong as traditionally made ones. Also in 2017, 3-D-printing company Markforged, a small startup based outside Boston, released the first 3-D metal printer for under $100,000.

Another Boston-area startup, Desktop Metal, began to ship its first metal prototyping machines in December 2017. The printing of metal parts is also getting easier. Desktop Metal now offers software that generates designs ready for 3-D printing. Users tell the program the specs of the object they want to print, and the software produces a computer model suitable for printing.

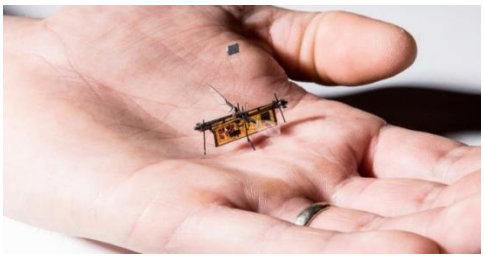
3-D Metal Printing

- **Breakthrough**-Now printers can make metal objects quickly and cheaply.

- **Why It Matters-**The ability to make large and complex metal objects on demand could transform manufacturing.
- **Key Players-**Markforged, Desktop Metal, GE **Availability-**Now

By,
J. Srividya @ Abinaya
16MCA09

WIRELESS 'ROBOFLY'



A new type of flying robot is so tiny and lightweight — it weighs about as much as a toothpick — it can perch on your finger. The little flitter is also capable of untethered flight and is powered by lasers.

This is a big leap forward in the design of diminutive airborne bots, which are usually too small to support a power source and must trail a lifeline to a distant battery in order to fly, engineers who built the new robot announced in a statement.
Their insect-inspired creation is dubbed RoboFly, and like its animal namesake, it sports a pair of delicate, transparent wings that carry it into the air. But unlike its robot precursors, RoboFlyain't got no strings to hold it down. Instead, the miniature bot uses a lightweight onboard circuit to convert laser light into enough electrical power to send it soaring. New Flying Robots Take Cues From Airborne Animals

RoboFly's creators will present their findings about the robot on May 23 at the International Conference on Robotics and Automation, held in Brisbane, Australia.

Animals' amazing abilities have inspired designs for robots that swim like manta rays, hover like jellyfish, jump like bush babies and even jog like humans. Prior to RoboFly, another insect-like bot, called RoboBee, demonstrated its ability to take off, land, hover and even perch midflight to conserve energy.

But RoboBee was leashed to its power supply and controller. RoboFly flies freely, thanks to a photovoltaic cell on its body that converts energy from a narrow laser beam. It produces about 7 volts of electricity, which a flexible onboard circuit boosts to the 240 volts required for liftoff. Meanwhile, a microcontroller on the circuit acts as RoboFly's "brain," sending pulses of voltage to the wings and making them flap much like an insect's wings would, according to the statement.

By,
A. Barath
16MCA10

CHINA'S NEW LASER GUN CAN ZAP YOU WITH A SILENT, CARBONIZING BEAM

The laser blasters in "Star Wars" are no longer a thing of science fiction. Chinese researchers have developed an actual laser gun that can ignite a target on fire from a half mile (800 meters) away.

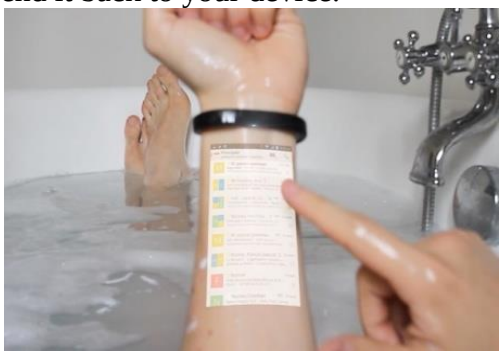
But this new weapon, called a ZKZM-500, has a few differences from the "Star Wars" version. This real-life version is a boxy-shaped assault rifle that resembles a large toy gun more than a sleek "Star Wars" blaster. The 15 mm caliber weapon weighs about the same as an AK-47, 6.6 lbs. (3 kilograms), and can fire more than 1,000 laser shots, each one lasting up to 2 seconds.

It'll be powered by a rechargeable lithium battery similar to what's found in smartphones. Although the gun is classified as a nonlethal weapon, its laser shots can cause "'instant carbonization' of human skin and tissues," which means skin would burn and be reduced to carbon like the outside of a charred marshmallow. It can also fire through windows, burn through gas tanks and ignite anything that's flammable. And, because the shots are silent and invisible, "nobody will know where the attack came from. It will look like an accident," But it'll take several zaps to burn a hole through a body and kill someone with this gun.

By,
R. Benet
16MCA11

CICRET SMART BRACELET PROJECTS YOUR PHONE'S DISPLAY ON YOUR ARM:REMOTE ARMTOP

If you think that 'Google Glass' and 'smartwatch 'displays are too small for you, keep an eye on the Cicret Bracelet. French company Cicret claims its gadget can project your mobile device's display on your skin. Not only that, it can also detect your touch input and send it back to your device. Apparently the bracelet uses a **Pico projector** to show what's on your mobile device's screen on your skin. You'll then be able to interact with the projected display as if it was your phone or tablet's actual screen with the help of eight proximity sensors built into the bracelet. The bracelet's own processor will analyze your input and send it back to your device.



The bracelet will also supposedly have its own onboard storage. Cicret actually launched two different products in one fundraiser: the bracelet and a privacy app (hence the company's name). You can pledge at least $399 (USD) on Indiegogo to receive a Cicret Bracelet as a reward. The company is shooting for a $600-$700 retail price.

By,
A. Alfin Xavier
16MCA14

GOOGLE HOME MINI

The Home Mini is a voice-controlled speaker that can be used to play music, control smart home gadgets, answer trivia questions, add things to a shopping list, create calendar appointments, or play video on a Chrome cast-enabled screen. Recently, Google added the ability to place phone calls from the Home speakers, as well as use them to locate your phone if you've misplaced it somewhere in your home.

(It's in the couch. It's *always* in the couch.)

The Home Mini is also a direct response to Amazon's wildly popular Echo Dot, which sells for around $50 and provides many of the same smart speaker capabilities. Like the Echo Dot, the Home Mini is small enough and cheap enough to put in any room of your house, blanketing your home with an always-listening voice-controlled computer.

That fabric-covered top is also the main physical interface for the Mini, when you don't want to use your voice to control it. Tapping the left or right side of the disc will lower or raise the volume, while tapping the middle will pause music, stop an alarm, or cancel a command.

The touch controls are very sensitive, and a slight brush against it will change the volume or pause music. It makes it difficult to pick up the Home Mini without adjusting something. The Echo Dot's push button volume up and down controls are easier to use and less likely to be accidentally triggered, for what it's worth.

By,
C. Selvalakshmi
16MCA15

PERPETUAL PRINTING

Printing has come a long way since the computer landed on the desktop. First, there were daisy-wheel printers, then dot-matrix printers, then inkjet and laser printers. The problem with all of these output devices, of course, is that they require paper -- lots of it -- and expensive consumables, like toner. Why can't someone invent an inkless, tonerless printer that allows the operator to reuse paper?

As it turns out, this isn't a new idea. Xerox has been working with so-called electronic paper since the 1970s. Its most promising solution is a type of paper called "Gyricon." A two-colored bead is free to rotate inside each cavity. When a printer applies a voltage to the surface of the sheet, the beads rotate to present one colored side to the viewer, offering the ability to create text or pictures. The images will remain on the paper until it's fed through the printer once again.

By,
S. Ramanathan
16MCA16

ELECTRIC FLYING CAR

Flying cars, that perennial dream for futurists that always seem to be at least five years away. May be a little closer to reality than we realize. A lot of prototypes have been showcased recently and a lot of money is being tossed around. More people than ever seen seem to buy into the crazy notion that in the near future we will be buzzing between root tops in private autonomous

drones. Today Munich-based illume Aviation announced an important milestone: the first test flight of its all-electric two-seater vertical take-off and landing (Vtol) prototypes.

The craft is powered by 36 separate jet engines mounted on its 10 meter long wings via 12 movable flaps

During the tests, the jet was piloted remotely, but its operators say their first manned flight is close-at-hand. And ilium claims that its electric battery "consumes around 90 percent less energy than drone style aircraft" enabling the aircraft to achieve a range of 300 kilometers (183 miles) with a maximum cruising speed of 300kph (183 mph).

In many ways electric-powered aviation is still in its infancy. Electric cars with thousand-pond batteries The most sophisticated electric aircraft today can barely muster an hour aloft at 99 mph - and that's without vertical take-off and landing. But Patrick Nathen, co-founder of Ilium Jet and the startup's head of calculation and design, said their battery technology will get the job done

By,
L. Manikandan
16 MCA 18

PAINT THAT TRANSFORMS ANY SURFACE AS BATTERY

The rechargeable lithium-ion batteries now found in many mobile phones and laptops may one day be sprayed like paint onto virtually any surface, potentially ushering in a new generation of thin, flexible devices, researchers say. Lithium-ion batteries power most portable electronics nowadays, but their spiral, jellyroll-like design generally limits them to rectangular or cylindrical shapes.

We can spray battery paint onto a diverse range of surfaces, including glass slides, stainless steel, flexible plastic sheets, glazed ceramic tiles, and even the curved side of a beer mug. Spray-paintable batteries even might become available to the general public someday at hardware stores, the scientists added.

In their search, they looked at materials as diverse as carbon nanotubes and ultrafine graphite powders. They next painted these ingredients in layers in the proper order onto surfaces to create the batteries. Batteries that the researchers printed onto nine ceramic bathroom tiles could readily power 40 red LED lights. One of these battery tiles was topped with a solar power cell that helped charge the batteries, suggesting the researchers could give any surface the capability to both harvest and store energy.

Mr.Singh and his crew have filed for a patent on their work. They detailed their findings on June 28 in the journal Scientific Reports.

By,
S. Mahalakshmi
16MCA19

E-PAPER

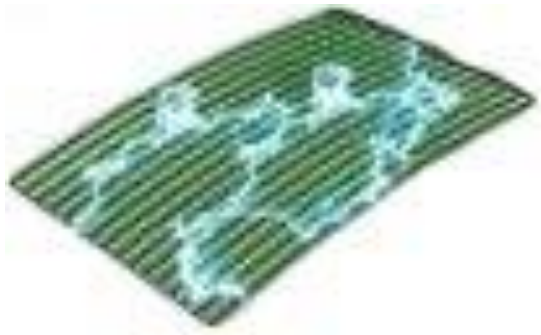
Among the future inventions in e-readers is this paper thin, flexible film that reads like a magazine or newspaper.LG Display, a manufacturer of thin-film transistor liquid crystal display panels has developed an 11.5 inch flexible e-paper display.The 0.3 mm thick metal foil substrate resembles a traditional

newspaper but operates as an e-reader.The GIP (Gate-in-Panel) technology promises to be the next generation in digital display technology competing in the e-book market.

E-paper's ultra-thin, flexible and lightweight form reduces maintenance and power consumption costs but its scalable size encourages additional applications such as mounting to flat and curved surfaces like walls and pillars.

By,
I. Chermandurai
16MCA20

ELECTRICAL CLOTHING



One of the future inventions that could greatly impact our lives are nanoribbons.Rubber films developed by engineers at Princeton University could power mobile devices and other electronic devices.

The silicone sheets are embedded with ceramic nanoribbons (piezoelectric ribbons) that generate electricity when flexed, converting mechanical energy to electrical energy.

Materials made of this material, such as shoes, would harvest electrical energy created from walking and power everything from an iPod to a pacemaker.

The nanoribbon strips are so narrow that 100 strips fit side-by-side in a space of a millimetre. The strips are then embedded into clear sheets of silicone rubber to create a chip.

These sheets could be woven into fabric and placed against any moving area on the body to create electricity.

For example, a vest made from this material could take advantage of breathing motions to generate energy.Nanoribbons are highly efficient in converting about 80% of mechanical power into electricity.

By,
B. Muthulakshmi
16MCA21

INNOVATIVE GADGET THAT ALLOWS YOU TO DRAW THE RAYS OF SUN

Italian designers from Milan created a wood engraver, wh ich allows you to write and dra
w the rays of sun on wood, leather, plywood and other materials. A simple tool through the lens focuses the ray of sunshine to the selected object, burning it on a predetermined pattern by the author.

MATERIAL:

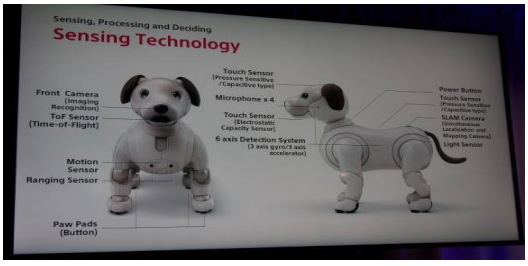
Febo– a wooden brush, which can be used to engrave their drawings on different surfaces.

Gadget name – from the Greek name Apolllona. Febo – is a simple tool that allows you to draw with the sun – the developers say. – It focuses the beams on the chosen canvas to create a unique individual design. Febo has been designed with the aim of turning nature into beautiful, creative and permanent

works of art. Because of its simplicity, you can personalize your favorite things in a matter of minutes! Febo – it's fun for all ages, regardless of your skill. Every engraver comes with a pair of twist the lens that adjusted on any size. They provide 100% UV protection, and visibility of the transmitted light is only 6-8%. However, before using Febo need to wear sunglasses. Then you apply the tool to a drawing, remove the protective filter and lens begins to absorb the sun's rays, focusing them on the canvas. The intensity of the engraving depends on the brightness of the sun.

By,
R. Mohamedbasith
16MCA22

AIBO



AIBO (pronounced eye-bow) is an entertainment robot designed by Sony. AIBO means "companion" in Japanese. It is also an abbreviation for "artificial intelligence bot" ("bot" is short for "robot") in English. Sony created AIBO to be a robotic pet and promotes AIBO as having the capability to interact with its human owner in many of the same ways a living pet would - without the high maintenance.Sony classifies AIBO as an autonomous robot, meaning that it has the ability to learn, mature, and act on its own in response to external stimuli. AIBO has a brain (CPU), the ability to move (20 points of articulation), and sensory organs (sensors). AIBO's developmental stages are controlled by a "memory stick" application software. Human interaction with AIBO determines its ability to express its needs and emotions, as well as its ability to learn and mature. AIBO is capable of expressing happiness, sadness, anger, surprise, fear and dislike. Just like a pet that's alive, the more interaction AIBO has with humans, the faster it learns.

AIBO uses Sony's OPEN-R platform to operate. OPEN-R is modular, so the robot's hardware and software components can be easily changed. Sony plans to initiate a licensing program that will allow developers to use OPEN-R technology to create new applications for AIBO. SONY has released two models of AIBO. The first version of AIBO resembled a dog. The second version of AIBO is said to be modeled after a lion cub. The basic AIBO model sells in the United States for $1,500. The deluxe version, which comes with a charging station, carrying bag, extra battery and additional software package sells for $2,800.

By,
Y. Selwin
16MCA23

NANO HUMMINGBIRD

Nanotechnology has created some cool inventions and this nano robot is one of them.It was recently recognized by Time Magazine as one of the best inventions of 2011.These types of robots are often funded as military robots for unmanned aerial vehicle research. The Nano Hummingbird was developed for the Nano Air Vehicle Program of the Defense Advanced Research Projects Agency (DARPA).The objective of this project was to model the flight characteristics of a hummingbird because of it's precision flying and hovering capabilities.This robot flies in any

direction, hovers, and can turn on it's own axis, which makes it ideal for entering and maneuvering within buildings.

It has a 6.5 inch (16.5 cm) wingspan, a flight speed of 11 mph (18 km/h) and a flight time of about 20 minutes.The propulsion and control systems are embedded in the wings. It also carries a battery, transmitter and a color video camera. Amazingly, the whole thing weights less than a AA battery (19.5 grams).

By,
A. Madasamy
16MCA24

SAFELET ALARMING BRACELET

Sexual violence is sadly still a problem facing (mostly) women in countries around the world. The statistics regarding the number of cases is shocking, but the effect that it has on all women, whether victims or otherwise, is likewise depressing. Safelet aims to make the world a safer place, and foster a feeling of security for people wearing this "alarming"

Safelet, created by **Dutch company Everfind**, is a simple safety bracelet which allows the wearer to send out an alert whenever they feel that they're in danger. It can be activated a lot quicker and more simply than using a mobile phone, and offers important information to those on the receiving end of the emergency alert.

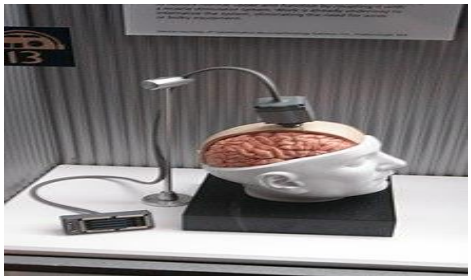
The initial setup involves installing the iOS or Android Safelet app and pairing your Safelet bracelet with your smartphone. You then choose your preferred level of security – friends and family, the wider Safelet community, or the police – and invite "guardians" to contact.

When the wearer does encounter danger, activating Safelet is also a simple process. You simultaneously click the buttons on either side, which immediately sends a message detailing your exact location to your guardians via your smartphone. At that moment, the microphone built into Safelet will also start recording, which will be relayed to the police if you have selected that level of protection. While Safelet is being marketed mainly at women, there would be nothing to stop men owning one and using it if and when they become a victim of crime.

By,
M. Sharmila Zuhi
16MCA25

BRAIN GATE

BrainGate is a brain implant system built and previously owned by Cyberkinetics, currently under development and in clinical trials, designed to help those who have lost control of their limbs,



or other bodily functions, patients with amyotrophic lateral sclerosis (ALS) or spinal cord injury.

The Braingate technology and related Cyberkinetic's assets are now owned by privately held Braingate, Co. The sensor, which is implanted into the brain, monitors brain activity in the patient and converts the intention of the user into computer commands.

In addition to real-time analysis of neuron patterns to relay movement, the BrainGate array is also capable of recording electrical data for later analysis. A potential use of this feature would be for a neurologist to study seizure patterns in a patient with epilepsy.

By,
R. Pon Brindha
18MCA02

3D INTERNET

3D Internet, also known as virtual worlds, is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. It combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Face book.

Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate (and in some cases exceed) real life.

What is 3D Internet?

3D Internet is the next generation after the current 2d web.3D Internet consists of interconnected services, presented as virtual worlds

Imagine a set-up of interconnected virtual worlds inhabited by users who can visit and consume services through "teleporting" from one world to another.

3D Internet: Why?

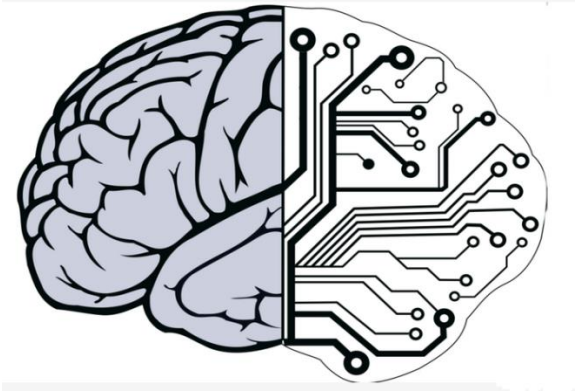
One of the often heard arguments against the 3D Internet is in the form of the question "why do we need it?" For most of its users the Internet is a familiar, comfortable medium where we communicate with each other, get our news, shop, pay our bills, and more.

By,
M. Esakkiammal
17MCA03

NEW AI SYSTEM CAN DECODE YOUR MIND

Scientists have developed a new artificial intelligence system that can decode the human mind, and interpret what a person is seeing by analyzing brain scans. The advance could aid efforts to improve artificial intelligence and lead to new insights into brain function.

This research is a type of algorithm called a convolutional neural network, which has been instrumental in enabling computers and smart phones to



recognize faces and objects. It also calibrates the study of the brain processesing to static images.

The researchers acquired 11.5 hours of functional magnetic resonance imaging(FMRI) data from each of three women subjects watching 972 video clips, including those showing people or animals in action and natural scenes.

By,
V. Harini
17MCA04

US STARTUP LAUNCHES ELECTRON ROCKET INTO ORBIT FOR 1ST TIME

US commercial startup Rocket Lab has launched its electron rocket into orbit and deployed three satellites for the first time. The Electron can carry up to about 226 kilogram of payload and the startup offers a mission for about $5million. Rocket Lab has also signed contracts with NASA and Seattle –based Spaceflight for small-satellite launches.

Selfie app Snow, developed by South Korean firm Naver, has raised $50 million from japan's SoftBank and Sequoia Capital China. Snow plans to use the investment to develop its augmented reality (AR) and facial recognition technologies. The app offers filters, stickers,

augmented reality (AR), and other features for selfies that can be exported to social networks or chat groups.

By,
M. Akila
17MCA05

NEW CHAT APP WORKS ONLY WHEN PHONE'S BATTERY IS LESS THAN 5%

Belgium-based app developers have designed a chat app called Die With Me which can only be used when a user's smartphone has less than 5% battery left. The app allows users to connect to other users with low battery which it displays next to the sent texts. The app is available both on the App Store and Google play store

Facebook launches 'Marketplace' to buy, sell goods in India

Facebook has launched its 'Marketplace' to buy and sell used goods and services across categories such as electronics, entertainment, and housing in India. For used goods, it allows sellers to register by including details like price, category, location and images. The platform also allows buyers to see details like product condition, usage pattern and time of purchase.

By,
V. Gomathi Shunmuga Priya
17MCA06

GOOGLE'S AI-POWERED CLIP-ON CAMERA GOES ON SALE FOR $249

Google's hands-free AI-powered camera called 'Clips', which was unveiled last year, is now on sale, priced at $249. The camera uses Artifical Inteligence (AI) to automatically recognise faces, take photos and can also be clipped to various objects to take videos. It has a 12-meapixel sensor, 130-degree field-of-view lens and 8 GB memory.

Google tests 'Bulletin' app that lets anyone post local news

Google is testing a tool called Bulletin that would allow anyone to publish information about local interests like bookstore readings, sporting events, or street closures. The company describe Bulletin as a lightweight app for capturing photos and videoclips from the phone and publishing them without having to create a blog. The service is currently being piloted in select US cities.

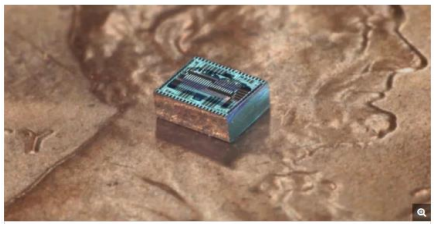
By,
B. Abirami
17MCA07

LENS-FREE CAMERA

A tiny, paper-thin camera that has no lens could turn conventional photography on its head, according to new research. The device, a square that measures just 0.04 inches by 0.05 inches (1 by 1.2 millimeters), has the potential to switch its "aperture" among wide angle, fish eye and zoom instantaneously. And because the device is so thin, just a few microns thick, it could be embedded anywhere. (For comparison, the average width of a human hair is about 100 microns.) It could be embedded in a watch or in a pair of eyeglasses or in fabric. It could even be designed to launch into space as a small package and then unfurl into very large, thin sheets that image the universe at resolutions never before possible, he added. "There's no fundamental limit on how much you could increase the resolution. You could do gigapixels if you wanted." (A gigapixel image has 1 billion pixels, or 1,000 times more than an image from a 1-megapixel digital camera.) The proof-of-concept device is a flat sheet with an array of 64 light

receivers that can be thought of as tiny antennas tuned to receive light waves, Hajimiri said. Each receiver in the array is individually controlled by a computer program. In fractions of a second, the light receivers can be manipulated to create an image of an object on the far right side of the view or on the far left or anywhere in between. And this can be done without pointing the device at the objects, which would be necessary with a camera.

"The beauty of this thing is that we create images without any mechanical movement,"



By,
G. Maharaja
17MCA08

NANO1 – WORLD'S SMALLEST ASTRONOMY CAMERA

NANO1 - The World's Smallest Astronomy Camera launched on **12th December 2018** by TinyMos.

NANO1 is the perfect invention for passionate stargazers who not only like to be awestruck by looking at the wonders of the sky but also want to capture these with their cameras. The inventors of NANO1 bill it as the smallest astronomy camera in the world which can capture 25 times more light than the human eye and condense an hour-long recording into 3 minutes for a charming view of the sky as well as other phenomena like the Northern Lights. You can connect NANO1 with your smartphone over Wi-Fi or Bluetooth and view an augmented reality map of constellations to appreciate the beauty of the sky.

TinyMos NANO1 additional information:

- NANO1 is ultra-portable for an astronomy camera.
- At less than 100g (3.5 oz) with the kit lens attached and 63.25mm (2.49") on its longest side - NANO1 is easily the world's smallest astronomy camera.
- Pair it with our mini-tripod and it tips the scale at 250g (8.8 oz) - well below the lightest DSLR or Mirrorless camera with a lens attached.

By,
G.Nandhini
17MCA09

BLOCKCHAIN

A **blockchain**, originally **block chain**, is a growing list of records, called *blocks*, which are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a merkle tree root hash).

By design, a blockchain is resistant to modification of the data. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way". For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without alteration of all subsequent blocks, which requires consensus of the network majority. Although blockchain records are not unalterable, blockchains may be considered secure by design and exemplify a distributed computing system with high Byzantine fault tolerance. Decentralized consensus has therefore been claimed with a blockchain.

Blockchain was invented by a person using the name Satoshi Nakamoto in 2008 to serve as the public transaction ledger ofthe cryptocurrencybi tcoin. The identity of Satoshi Nakamoto is unknown. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server. The bitcoin design has inspired other applications, and blockchains which are readable by the public are widely used by cryptocurrencies. Blockchain is considered a type of payment rail. Private blockchains have been proposed for business use. Sources such as *Computerworld* called the marketing of such blockchains without a proper security model "snake oil".

By,
M. Roshan
17MCA10

OFFENSIVE WHATSAPP MESSAGES:

The Department of Telecommunications (DoT) has opened a channel allowing people to complain against offensive and vulgar messages received on WhatsApp, a senior government official said Friday.

"If anyone is receiving abusive/offensive/death threats/ vulgar WhatsApp messages, please send screenshots of the message along with the mobile numbers at ccaddn-dot@nic.in," telecom department's controller of communications Ashish Joshi said in a tweet. "We will take it up with the telecom operators and police heads for necessary action," he added.

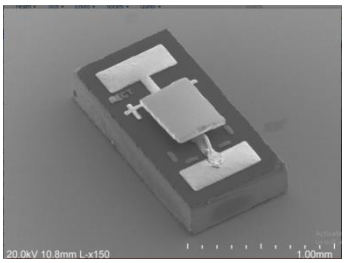
The development comes in light of several journalists receiving abusive messages on WhatsApp. Following complaints by public figures, the DoT, on Tuesday, shot off a missive to telecom operators asking them to take immediate action against their subscribers sending such messages given that the licensing conditions of the service providers prohibited carriage of objectionable, obscene or unauthorized content in any form on the network.

The Centre had also suggested telecom operators to open a dedicated call centre or helpline to receive complaints against such messages given that the onus is also on the operators to

ensure that their networks are not used for abusive messages.

By,
V. Anand Kumar
17MCA14

RUNNING AN LED IN REVERSE COULD COOL FUTURE COMPUTERS



The U-M team modified an infrared photodiode about the size of a grain of rice,showin in this electron microscope image.

They smoothed its surface so that they could place it in close proximity to a custom-made calorimeter ,just 55 nanometers(0.000055 millimeters) between them.

The calorimeter's measurements showed that the photodiode,when run with electrodes reversed,behaves as if it were at a lower temperature,and cooled dowmn the calorimeter.

In a finding that runs counter to a common assumption in physics, researchers at the University of Michigan ran a light emitting diode (LED) with electrodes reversed in order to cool another device mere nanometers away.

By,
J. Radhamary
17MCA15

HELPING THE BLIND SEE WITH THEIR TONGUES

What if we told you there are new innovations that can help about 285 million people around the world living with a visual impairment move around with a little more ease?

Now here's something that should be celebrated: there's an increasing number of sensory-substitution devices being developed that use the brain in the most remarkable way. These devices take in visual information from the environment and translate it into forms of physical touch or sound in order to be interpreted by the user as vision.

If that's not amazing enough, The New Yorker lets us in on yet another benefit:

"While these devices were designed with the goal of restoring lost sensation, in the past decade they have begun to revise our understanding of brain organization and development. The idea that underlies sensory substitution is a radical one: that the brain is capable of processing perceptual information in much the same way, no matter which organ delivers it".

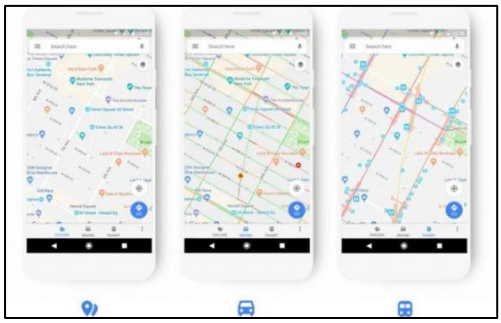
The brain is capable of so much more than we've ever imagined!

In a few moments, you'll learn a bit more about just how the advanced technology of the BrainPort V100 is helping the blind see with their tongues, and feel what kind of impact these new innovations can have on someone's quality of life. Huge thanks to the talented director, Pual Hairstyon, of Acres for capturing the story of Andy Fabino, and sharing with us.

By,
G. Revathi
17MCA16

GOOGLE MAPS SATELLITE VIEW WAS ONCE ALMOST CALLED 'BIRD MODE'

Google Maps co-creator Bret Taylor took to Twitter to reveal the 'silly Google Maps origin story.'



When big companies introduce something, it becomes a standard. For instance, Google Maps calling its popular feature as Satellite View, which may have been even sillier if one of the employees had not secretly coded it this way.

Google Maps co-creator Bret Taylor took to Twitter to reveal the 'silly Google Maps origin story'. The Twitter thread includes the back story of the mapping service's popular Satellite View feature.

Back in 2005 when the Google Maps team was brainstorming on the name for what we today know as the Satellite View, super bosses Larry Page and Sergey Brin decided to hold an executive review when certain decisions were made within the duration of a huge countdown clock.

Under the buzzer's pressure, everyone was throwing names including 'aerial' and 'satellite'. Just when Brin proposed 'Bird Mode', the buzzer buzzed. The decision had been made, no questions asked. The meeting was over.

Now, it was in the hands of the coders, including Taylor, who could have saved humanity with a little lie. So they decided to do an internal veto and launched the feature as 'Satellite View', even if it meant a factually incorrect name as a significant amount of images shown in this mode are actually captured through aerial photography.

While many of us are okay using the not-so-factually correct Satellite View, having a 'Bird Mode' would have been kind of cool.

By,
G. Chithirai
17MCA17

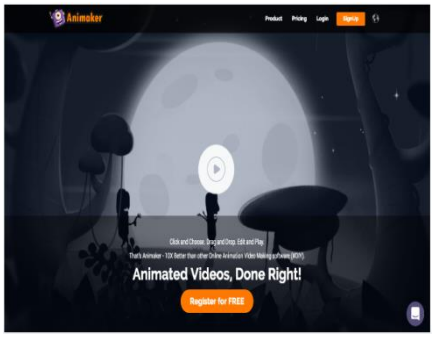
ANIMAKER

Animaker is a cloud-based video making app used by over 1.5 million users from 180+ countries. With Animaker you can create explainer videos, social media videos, vertical videos & video infographics to meet growing demands of video in marketing, education & content space.

Animaker is a cloud-based video and animation software first launched in an open beta version in 2014. In February 2015 the software was officially launched based on a freemium model that allowed users a free account option.

The software provides online tools to create and edit video animation. The software was developed by Animaker, Inc, a video based SaaS company founded by SrinivasaRaghavan.

Animaker uses both HTML5 and Adobe Flash to create animated videos that can be exported to Facebook, YouTube or downloaded as an mp4 file. The software is also available as a chrome extension in the Chrome Web Store.



By,
Festo Daudi Mwaipopo
17MCA19

XIAOMI REDMI NOTE 7 PRO LAUNCH AND PRICE 'CONFIRMED' BY COMPANY PRESIDENT

Chinese smartphone maker Xiaomi launched its Redmi Note 7 smartphone in its home country in January and now the handset is set to get a Pro variant. This was confirmed by Redmi president Lu Weibing, who posted on Chinese microblogging website Weibo. Following the announcement of the launch, Weibing also suggested that the Redmi Note 7 Pro will be priced around CNY 2,000 (approx Rs 21,200).

Xiaomi is set to launch the one-month-old Redmi Note 7 in India on February 28 and is aggressively pushing the launch of the handset. The upcoming handset is being teased on Walmart-backed Flipkart.

In China, the Redmi Note 7 comes in three storage variants. The base variant, which offers 3GB RAM and 32GB internal storage costs CNY 999 (approximately Rs 10,300). The second variant offers 4GB RAM and 64GB internal storage costs Rs 1,199 (approximately Rs 12,400) and lastly, the 6GB RAM and 64GB internal storage variant costs CNY 1,399 (approximately Rs 14,500). In India too, the handset is expected to be competitively priced.

Xiaomi Redmi Note 7 specifications

Xiaomi Redmi Note 7 offers a 6.3-inch full HD+ display with 1080x2340 pixel resolution and an aspect ratio of 19.5:9. The display features a dew drop notch and comes protected with Corning Gorilla Glass 5 on top.

The smartphone is powered by an octa-core Qualcomm Snapdragon 660 processor and runs on Android 9.0 Pie operating system topped with company's own MIUI 10. There are three different RAM variants of the smartphone -- 3GB, 4GB and 6GB. It offers storage options of 32GB and 64GB which may be further expanded up to 256GB using microSD card.

Xiaomi Redmi Note 7 offers a 48MP primary rear camera. Secondary camera include a 5MP sensor. For selfies, the handset boasts of a 13MP camera at the front.

The device houses a 4000 mAh battery with Qualcomm Quick Charge 4 support. Connectivity options include 4G, VoLTE, 3G, WiFi, Bluetooth, GPS and USB Type C.

By,
M. Padhma
17MCA20

SAMSUNG GALAXY S10

NPU unit, Wireless PowerShare and other features to keep in mind

Samsung Galaxy S10 series was introduced this week, and while there's a lot of focus on the triple camera and the 'Infinity-O' display. But there are some features of the Galaxy S10 series, which are worth highlighting, including a new dedicated NPU, the upcoming 5G variant and Wireless PowerShare feature. Here's a look at Galaxy S10 features you might have missed.

Galaxy S10's Neural Processing Unit:

Samsung Galaxy S10 is the first Galaxy phone from the company to come with a dedicated Neural Processing Unit or NPU. This is something we have seen on phones from Huawei like the Mate 20 Pro and its Kirin 980 processor, which had a separate NPU. Then Apple's iPhone XS comes with the A12 Bionic chipset, which has an eight-core Neural engine. Watch our first look of Galaxy S10 series .In Samsung's case, the

company has said that thanks to the NPU, the camera's Scene Optimizer feature can "recognise and more accurately process additional scenes." There's also a Shot suggestion feature, where the "Galaxy S10 offers automatic composition recommendations" to help users frame their photos better.

By,
R. Brightlin
17MCA21

ANDROID OREO NOW SHOWS WI-FI NETWORK SPEEDS BEFORE YOU CONNECT

Ever hop on a Wi-Fi hotspot to save mobile data or boost speed, only to find out that it's so slow that you might as well have stayed on cellular access? If you're using Android 8.1 Oreo, that shouldn't be a problem going forward. After several weeks of teasing, Google is rolling out a feature that gauges the speed of Wi-Fi networks before you connect.

It's not giving you exact bandwidth readings instead, it's lumping the overall performance into categories that give you an idea of what to expect. You may want to avoid a "slow" (under 1 Mbps) or "OK"(1-5 Mbps)network unless you have no choice, but "fast"(5-20Mbps) and "very fast" (20 Mbps and above) should do the job if you're catching up on You Tube.

The ratings are a bit conservative, and might not help much if you're hoping to stream 4k or download a multi-gigabyte app. However, it should help you make more informed decisions. You might skip that overloaded airport connection instead of wasting minutes trying to visit a basic page. Now if only this prompted hotspot owners to improve the quality of their connections.

By,
K. Ramajanani
17MCA22

NASA BRINGS CURIOSITY ROVER BACK TO LIFE AFTER IT SLIPPED INTO SAFE MODE

NASA doesn't want to lose another rover on the Red Planet. By Vishal Kawadkar | Updated: Monday, February 25, 2019, 17:42 [IST]

NASA's Curiosity Mars rover went into "safe mode" after it ran into issues while booting up. The rover, which touched down Mars in 2014, was brought back to life and are trying to understand what went wrong.

"We're still not sure of its exact cause and are gathering the relevant data for analysis," said Steven Lee, Curiosity's deputy project manager at NASA's Jet Propulsion Laboratory. "The rover experienced a one-time computer reset but has operated normally ever since, which is a good sign."

According to the post, a glitch made the rover go into "protective safe mode" and it took Curiosity 30x more time to come back online after staying inactive for a while. After a few days of inactivity, the Curiosity scientists successfully brought the rover back online.

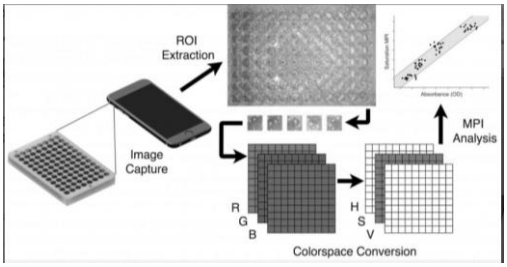
But this 'hiccup' doesn't mean that the rover who's monitoring the Red Planet for potential resources to support life is out of

service - especially at a time when the space agency bid adieu to its Opportunity rover. The team working on Curiosity are working to reconstruct the glitch that led the rover into safe mode by downloading a snapshot of its memory.

"In the short term, we are limiting commands to the vehicle to minimize changes to its memory," Lee said. "We don't want to destroy any evidence of what might have caused the computer reset. As a result, we expect science operations will be suspended for a short period of time."

By,
J. Jegan
17MCA23

SELFIES TO SELF-DIAGNOSIS ALGORITHM 'AMPS UP' SMARTPHONES TO DIAGNOSE DISEASE



Images of a diagnostic assay are captured using a smartphone camera. Regions of interest are extracted and are converted to HSV (hue,saturation,value) space.

After the conversion process, the standard pixel intensity analysis Is applied to the saturation channel and the values are used to determine absorbance and concentration of the sample automatically.

Accessible, connected, and computationally powerful, smartphones aren't just for "selfies" anymore.

They have emerged as powerful evaluation tools capable of diagnosing medical conditions in point-of-care settings.

Smartphones also are a viable solution for health care in the developing world because they allow untrained users to collect and transmit data to medical professionals.

By,
M. Sivaranjani
17MCA24

ROBOTS TRACK MOVING OBJECTS WITH UNPRECEDENTED PRECISION

Robots track moving objects with unprecedented precision
System uses RFID tags to home in on targets; could benefit robotic manufacturing, collaborative drones, and other applications.

A novel system developed at MIT uses RFID tags to help robots home in on moving objects with unprecedented speed and accuracy. The system could enable greater collaboration and precision by robots working on packaging and assembly, and by swarms of drones carrying out search-and-rescue missions.

In a paper being presented next week at the USENIX Symposium on Networked Systems Design and Implementation, the researchers show that robots using the system can locate tagged objects within 7.5 milliseconds,

on average, and with an error of less than a centimeter.

Super resolution

Adib's group has been working for years on using radio signals for tracking and identification purposes, such as detecting contamination in bottled foods, communicating with devices inside the body, and managing warehouse inventory.

Leveraging movement

To zoom in on the tag's location, the researchers developed what they call a "space-time super-resolution" algorithm. The algorithm combines the location estimations for all rebounding signals, including the RFID signal, which it determined using time of flight. Using some probability calculations, it narrows down that group to a handful of potential locations for the RFID

By,
K. Sugantha Venkateswari
17MCA25

AI CAMERA MAY HELP ROBOTIC VEHICLES DETECT OBSTACLES FASTER: SCIENTISTS

Boston: Stanford scientists have developed an artificial intelligence camera that can recognize objects faster and could be used to help autonomous vehicles better navigate through obstacles.

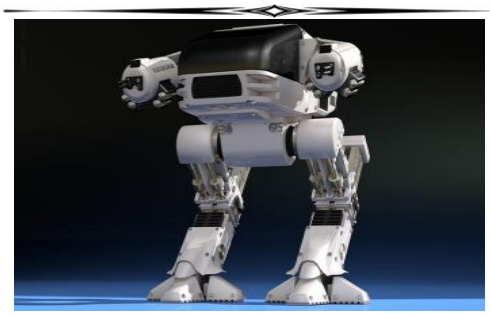
The image recognition technology that underlies autonomous cars and aerial drones depend on artificial intelligence: the computers teach themselves to recognize objects like a dog, a pedestrian crossing the street or a stopped car.

The problem is that the computers running the artificial intelligence algorithms are currently too large and slow for future applications like hand-held medical devices.

The researchers from Stanford University in the US combined two types of computers to create a faster and less energy-intensive image processor.

By,
M. Arun Kumar Subhash
18MCA01

'ROBAT' USES SOUND TO MAP, NAVIGATE SURROUNDINGS



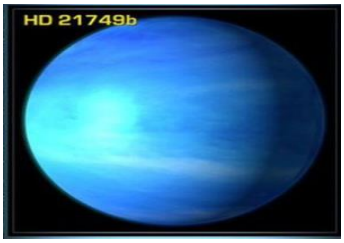
Jerusalem: Scientists say they have developed the first fully autonomous bat-like robot that uses sound to move through a novel environment while mapping it.Bats map new environments while simultaneously navigating through them using echolocation.The process involves emitting sound and extracting information from the echoes reflected from the surrounding objects, according to the study published in PLOS Computational Biology.

Researchers from Tel Aviv University in Israel developed the robot, called Robat,

that uses a biological bat-like approach, emitting sound and analysing the returning echoes to generate a map of space.

By,
G. Arunvishnukumar
18MCA02

NASA DISCOVERED NEW PLANET



The National Aeronautics and Space Administration (NASA) of USA has discovered a new planet. It is the third new planet discovered by the NASA mission, Transiting Exoplanet Survey Satellite (TESS).

HD 21749b- New Planet

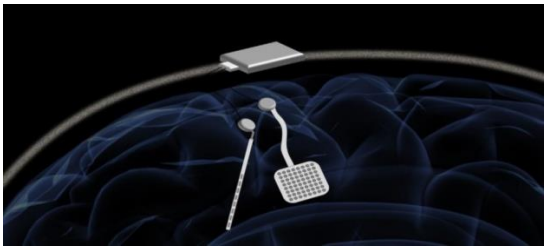
The salient features of the newly discovered planet are:

- The new planet HD 21749b is outside our solar system and orbits a dwarf star 53 light years away.
- HD 21749b orbits a bright star in the constellation Reticulum.
- It has the longest orbital period of all the three discoveries made by TESS.
- HD 21749b orbits its star in a relatively leisurely 36 days.
- It ispredicted that the surface of the new planet is likely around 300 degrees Fahrenheit, which is relatively cool, given its proximity to its star, which is almost as bright as the sun

By,
K. Bala Sekaran
18MCA03

WAND DEVICE

Wireless 'pacemaker for the brain' could offer new treatment for neurological disorders



Device fine-tunes treatment by stimulating and and recording electric current in the brain at the same time

A new neurostimulator developed by engineers at the University of California, Berkeley, can listen to and stimulate electric current in the brain at the same time, potentially delivering fine-tuned treatments to patients with diseases like epilepsy and Parkinson's.

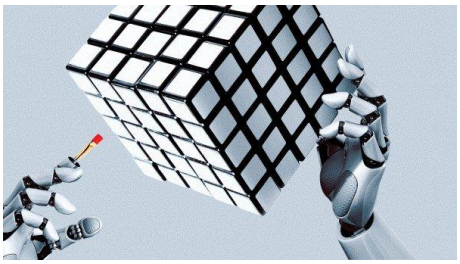
WAND, which stands for wireless artifact-free neuromodulation device, is both wireless and autonomous, meaning that once it learns to recognize the signs of tremor or seizure, it can adjust the stimulation parameters on its own to prevent the unwanted movements. And because it is closed-loop -- meaning it can stimulate and record simultaneously -- it can adjust these parameters in real-time.

By,
S. Muthu Lakshmi
18MCA04

ROBOT DEXTERITY

Robots are teaching themselves to handle the physical world.Machines taking jobs, industrial robots are still clumsy and inflexible.A robot can repeatedly pick up

a component on an assembly line with amazing precision and without ever getting bored.But move the object half an inch, or replace it, and the machine will fumble ineptly or paw at thin air.But while a robot can't yet be programmed to figure out how to grasp any object just by looking at it, as people do, it can now learn to manipulate the object on its own through virtual trial and error.



One such project is Dactyl, a robot that taught itself to flip a toy building block in its fingers. Dactyl, which comes from the San Francisco nonprofit OpenAI, consists of an off-the-shelf robot hand surrounded by an array of lights and cameras. Using what's known as reinforcement learning, neural-network software learns how to grasp and turn the block within a simulated environment before the hand tries it out for real. The software experiments, randomly at first, strengthening connections within the network over time as it gets closer to its goal

By,
S. Esakkiammal @ Backiya
18MCA05

MASSIVE STORMS IN LATEST FLYBY OF JUPITER

This image of Jupiter's turbulent southern hemisphere was captured by NASA's Juno spacecraft as it performed its most recent close flyby of the gas giant planet on Dec.21, 2018. This new perspective captures the notable Great Red Spot, as well as a massive storm called Oval BA.

The storm reached its current size when three smaller spots collided and merged in the year 2000.The Great Red Spot, which is about twice as wide as Oval BA, may have formed from the same process centuries ago.

Juno captured Oval BA in another image earlier on in the mission on Feb.7, 2018.The turbulent regions around, and even the shape of, the storm have significantly changed since then. Oval BA further transformed in recent months, changing color from reddish to a more uniform white.

By,
M. Sankara Gomathi
18MCA06

GOOGLE OPENS NEW OFFICE IN BERLIN WITH EYE ON EXPANSION

HIGHLIGHTS

- Google could double the number of Berlin employees to 300: Pichai
- Google currently has 1,400 employees in Germany
- Company was fined EUR 50 million Monday in France

- American tech giant Google has opened a new office in Berlin that it says will give it the space to expand in the German capital.
- CEO SundarPichai said Tuesday the space means Google could more than double the number of Berlin employees

to 300. Google currently has 1,400 employees in Germany.

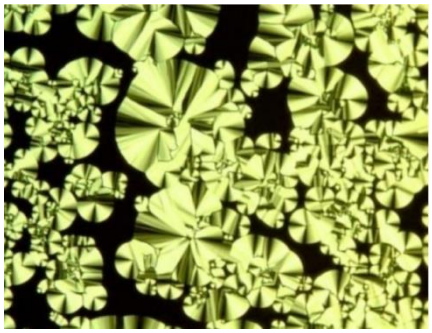
- Pichai says "the city has long been a capital of culture and media. Now it's also home to a fast-growing startup

scene and an engine for innovation."

By,
A.Bala Selvam
18MCA07

LIGHT UP LOGIC

For the first time, researchers performed logic operation the basic of computation with a chemical device using



electric field and ultraviolet light. The device and the pioneering methods used open up research possibilities including low power high performance computer chips.

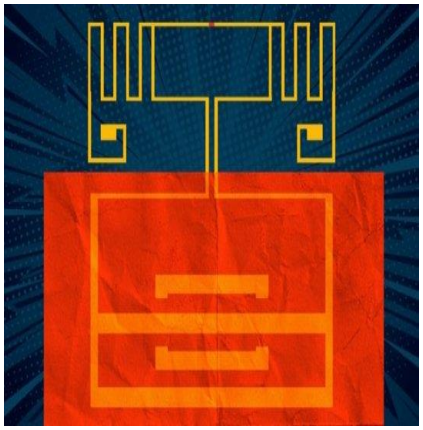
The device is also vastly different from current semiconductor chips as it is chemical in nature ,and it's this property that gives rise to its potential usefulness in the future of computation.

It's not just the power and heat benefit; this device could be manufactured cheaply and easily too. The device features disk and rod-shaped molecules that self-as-simple into spiral staircase-like shapes called columnar liquid crystals in the right conditions.

By,
J. Mary Disilva Princy
18MCA09

CONVERTING WI-FI SIGNALS TO ELECTRICITY WITH NEW 2D MATERIALS

Devices that convert AC electromagnetic waves into DC electricity are known as "rectennas." The researchers demonstrate a new kind of rectenna, described in a study appearing in *Nature*, that uses a flexible radio-frequency (RF) antenna that captures electromagnetic waves -- including those carrying Wi-Fi -- as AC waveforms.



The antenna is then connected to a novel device made out of a two-dimensional semiconductor just a few atoms thick. The AC signal travels into the semiconductor, which converts it into a DC voltage that could be used to power electronic circuits or recharge batteries.

In this way, the battery-free device passively captures and transforms ubiquitous Wi-Fi signals into useful DC power. Moreover, the device is flexible and can be fabricated in a roll-to-roll process to cover very large areas.

By,
B. Dharrani
18MCA10

ISRO PUTS 'LIGHTEST SATELLITE' KALAMSAT V2 INTO ORBIT

Indian Space Research Organization(ISRO) has launched the Kalamsat-V2 from Sriharikota space centre.

Kalamsat-V2

The satellite is named after former president and Indian scientist Dr.Abdul Kalam.The features of the Kalamsat-V2 satellite are:

- It is the lightest satellite to be ever built and launched into orbit and it is also ISRO's first launch of a satellite buil by a private firm.
- It is a communication satellite for ham radio transmission, a form of wireless communication used by amateurs for non-commercial activities.
- The satellite is built by students belonging to space kidz India, Chennai-based space education firm.The satellite cost 1.2m Indian rupees and was built during span of six days.
- The satellite was launched using Polar Satellite Launch Vehicle (PSLV)-a four stage rocket.

By,
G. Sri Lakshmi
18MCA11

BABELFISH EARBUDS

In the cult sci-fi classic the Hitchhiker's Guide to the galaxy, you slide a yellow babel fish into your ear to get translation in an instant. In the real world, google has come up with an interim solution : a$159 pair of earbuds,called pixel buds.

These work with its pixel smartphones and google translate app to produce practically real time translation.

Babel-Fish Earbuds

Babel-fish earbuds:

Breakthrough: Near real-time translation now works for a large number of languages and is easy to use.

Why It Matters: In an increasingly global world, language is still a barrier to communication.

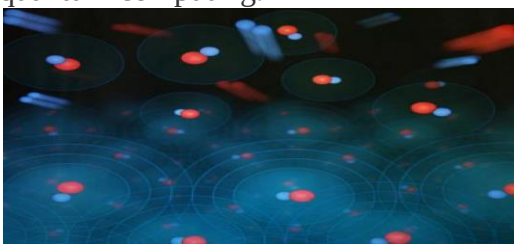
Available: The pixel buds were widely planned for subpar design. They do look silly, and they may not fit well in your ears. They can also be hard to set up with a phone.

By,
M. Mahalakshmi.
18MCA12

QUANTUM MECHANICS: COLDEST QUANTUM GAS OF MOLECULES

Researchers have made a long-lived, record-cold gas of molecules that follow the wave patterns of quantum mechanics

instead of the strictly particle nature of ordinary classical physics. The creation of this gas boosts the odds for advances in fields such as designer chemistry and quantum computing.

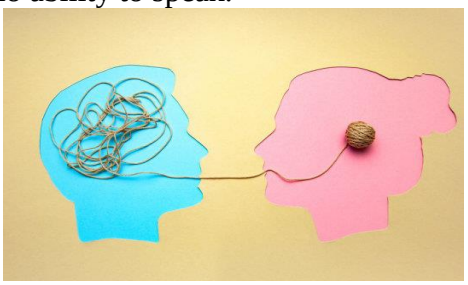


In a quantum gas, all of the molecules' properties are restricted to specific values, or quantized, like rungs on a ladder or notes on a musical scale. Chilling the gas to the lowest temperatures gives researchers maximum control over the molecules. The two atoms involved are in different classes: Potassium is a fermion (with an odd number of subatomic components called protons and neutrons) and rubidium is a boson (with an even number of subatomic components). The resulting molecules have a Fermi character.

By,
S. Thangamani Santhosh
18MCA13

TRANSLATE BRAIN SIGNALS DIRECTLY INTO SPEECH

Advance marks critical step toward brain-computer interfaces that hold immense promise for those with limited or no ability to speak.



In a scientific first, Columbia neuroengineers have created a system that translates thought into intelligible, recognizable speech. By monitoring someone's brain activity, the technology can reconstruct the words a person hears with unprecedented clarity.

This breakthrough, which harnesses the power of speech synthesizers and artificial intelligence, could lead to new ways for computers to communicate directly with the brain.

It also lays the groundwork for helping people who cannot speak, such as those living with as amyotrophic lateral sclerosis (ALS) or recovering from stroke, regain their ability to communicate with the outside world.

Decades of research has shown that when people speak -- or even imagine speaking -- telltale patterns of activity appear in their brain. Distinct (but recognizable) pattern of signals also emerge when we listen to someone speak, or imagine listening.

Experts, trying to record and decode these patterns, see a future in which thoughts need not remain hidden inside the brain -- but instead could be translated into verbal speech at will.

By,
B. Chockanathan
18MCA14

ELECTRONIC SKIN FOR HUMAN MACHINE INTERACTION

Human skin contains sensitive nerve cells that detect pressure, temperature and oth er sensations that allow tactile interactions with the environment. To help robots

and prosthetic devices attain these abilities, scientists are trying to develop electronic skins.

Now researchers report a new method in ACS Applied Materials & Interfaces that creates an ultrathin, stretchable electronic skin, which could be used for a variety of human machine interactions.

Electronic skin could be used for many applications, including prosthetic devices, wearable health monitors, robotics and virtual reality. A major challenge is transferring ultrathin electrical circuits onto complex 3D surfaces and then having the electronics be bendable and stretchable enough to allow movement.

Some scientists have developed flexible "electronic tattoos" for this purpose, but their production is typically slow, expensive and requires clean-room fabrication methods such as photolithography.

The researchers transferred the electronic tattoo to various objects and demonstrated several applications of the new method, such as controlling a robot prosthetic arm, monitoring human skeletal muscle activity and incorporating proximity sensors into a 3D model of a hand.

By,
S. Chockalingam
18MCA15

GENETIC FORTUNE

It turns out that most common diseases and many behaviors and traits, including intelligence, are a result of not one or a few genes but many acting in concert. Using the data from large ongoing genetic studies, scientists are creating what they call "polygenic risk scores."Though the new DNA tests offer probabilities, not diagnoses, they could greatly benefit medicine.

For example, if women at high risk for breast cancer got more mammograms and those at low risk got fewer, those exams might catch more real cancers and set off fewer false alarms.

Pharmaceutical companies can also use the scores in clinical trials of preventive drugs for such illnesses as Alzheimer's or heart disease.By picking volunteers who are more likely to get sick, they can more accurately test how well the drugs work.

By,
V. Girija
18MCA17

WIRELESS AND MOBILE COMPUTING

Today's fast growing world needs faster communication. Technology is making rapid progress and is making many things easier. "MOBILE COMPUTING" and

"COMMUNICATIONS" is a major part of wireless communication technology.

Mobile voice communication is widely established throughout the world and had a very rapid increase in the number of subscribers to the various cellular networks over the last few years. An extension of this technology is the ability to send and receive data across these cellular networks. This is the principle of mobile computing.

Mobile data communication has become a very important and rapidly evolving technology as it allows users to transmit data from remote locations to other remote or fixed locations. This proves to be the solution to the biggest problem of business people on the move-mobility.

Types of mobile computing:-

Mobile computing is a generic term describing one's ability to use technology while moving, as opposed to portable computers, which are only practical for use while deployed in a stationary configuration.

Many types of mobile computers have been introduced since the 1990s, including the:

• Wearable computer
• Personal digital assistant
• Smartphone
• Carputer
• Ultra-Mobile PC

Carputer:

Carputer refers to any computing platform that is installed in a vehicle. Carputers are mainly used for playing music and DVD movies, connecting to the internet, and navigation. Carputer may also be called Car PC.

By,
P. Karthikeyan
18MCA18

RESEARCHERS AIM FOR SPINTRONIC APPLICATIONS THANKS TO GREAT LEAP FORWARD

Electric currents drive all our electronic devices. The emerging field of spintronics looks to replace electric currents with what are known as spin currents. Researchers have discovered that the magnetic spin Hall effect could lead to low-power, high-speed and high-capacity devices. They have created sample devices which can further research into potential applications.

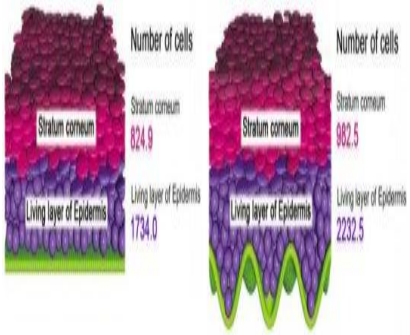
In essence spintronics is used to transfer information, something we have always used electric currents for," continues Otani, "but spintronics offers a whole range of advantages, some of which we're just starting to understand.

By,
J. Jeniraj
18MCA20

3D HUMAN EPIDERMAL EQUIVALENT CREATED USING MATH

➢ These are results of computer simulations of epidermal growth on

a flat basement membrane (left) and a sinusoidal basement membrane (right).



- Scientists have successfully constructed a three-dimensional human epidermis based on predictions made by their mathematical model of epidermal homeostasis, providing a new tool for basic research and drug development.

- The epidermal equivalent made from human epidermal cells now has excellent functionality as a barrier, according to results of the team's experiments.

- Experimental models of human epidermises are important research tools not only for basic studies on epidermal functions, skin diseases, and skin aging, but also for the development of drugs, cosmetics, and other products.

- Despite this, previous epidermal models have not sufficiently imitated a real human epidermis. For example, the use of epidermal cells in previous methods yielded epidermises which were too thin.

By,
M.S. Mohudoom Mohamed
18MCA21

HOT DATA TECHNOLOGIES AND TRENDS FOR 2018

There never has been a more interesting time to be involved in the data management field. Data not only has become "the new oil" but is also the catalyst that is powering organizations to new heights of success. The past year has seen the rise of powerful analytics and an embrace of new tools and platforms emerging to more effectively tap into the power that data offers. DBTA reached out to industry experts to document the most important trends shaping data management in 2018

SOFTWARE-DEFINED STORAGE

There's a hardware-side story that goes with today's generation of data management tools and platforms. "Storage vendors are adopting software-defined storage principles to provide composable storage across multiple systems," said Douglas O'Flaherty, marketing director with IBM Spectrum Solutions. "This trend will accelerate as organizations add clusters to support AI and cognitive workloads." In addition, O'Flaherty sees that all-flash arrays are innovating with new technology, greater density, and fast data reduction. "The adoption of scale-out flash storage with seamless tiering, automated archiving, and more features is trending.

By,
N. Vishnu Priya
18MCA22

DUELING NEURAL NETWORKS

Show it a million pictures, and it can tell you with uncanny accuracy which ones depict a pedestrian crossing a street.

- Both networks are trained on the same data set. One, known as the generator, is tasked with creating variations on images it's already seen—perhaps a picture of a pedestrian with an extra arm.
- Over time, the generator can become so good at producing images that the discriminator can't spot fakes.
- Essentially, the generator has been taught to recognize, and then create, realistic-looking images of pedestrians.
- GANs have been put to use creating realistic-sounding speech and photorealistic fake imagery.

Result:

- GANs can conjure up bicycles with two sets of handlebars, say, or faces with eyebrows in the wrong place.
- But because the images and sounds are often startlingly realistic, some experts believe there'ssense in which GANs are beginning to understand the underlying structure of the world they see and hear.

Key Players:

Google Brain,DeepMind,Nvidia.

By,
S.Muthu Lakshmi
18MCA23

CAPTURED CARBON DIOXIDE

Removing carbon dioxide from power plant emissions is a good idea to start with -- and it may have an extra economic benefit. Engineers are presenting results on turning carbon dioxide into oxalic acid, which is used to process rare earth elements for electronic devices.

Carbon dioxde scrubbers remove emissions from power plant systems.

Until now, carbon dioxide has been dumped in oceans or buried underground. Industry has been reluctant to implement carbon dioxide scrubbers in facilities due to cost and footprint.

Oxalic acid is used by industry to leach rare earth elements from ore bodies. The rare earths are used in electronics such as cell phones.

Rare earths are not presently produced in the United States; China produces 90 percent or more of the rare earths in the world.

By,
J. Sinthika Jomy
18MCA24

AUGMENTED REALITY

The origin of the word *augmented* is ***augment***, which means to add or enhance something. In the case of Augmented Reality (also called **AR**), graphics, sounds, and touch feedback are added into our natural world to create an enhanced user experience.

Projection based augmented reality works by projecting artificial light onto real world surfaces. Projection based augmented reality applications allow for human interaction by sending light onto a real world surface and then sensing the human interaction (i.e. touch) of that projected light. Detecting the user's interaction is done by differentiating between an expected (or known) projection and the altered projection (caused by the user's interaction). Another interesting application of projection based augmented reality utilizes laser plasma technology to project a three-dimensional (3D) interactive hologram into mid-air.

By,
P. Narayanan
18MCA25

CISCO WARNS ON HYPERFLEX SECURITY VULNERABILITIES

Weaknesses in Cisco's HyperFlex hyperconverged data-center gear could allow command-injection exploits.

Cisco this week identified two "High" security vulnerabilities in its HyperFlex data-center package that could let attackers gain control of the system.

HyperFlex is Cisco's hyperconverged infrastructure that offers computing, networking and storage resources in a single system.

The more critical of the two warnings – an 8.8 on Cisco's severity scale of 1-10 – is a command-injection vulnerability in the cluster service manager of Cisco HyperFlex Software that could let an unauthenticated, attacker execute commands as the root user.

"An attacker could exploit this vulnerability by connecting to the cluster service manager and injecting commands into the bound process," Cisco wrote in its Security Advisory.

The Hyperflex vulnerabilities were part of a 17 item dump of Security Advisories and Alerts issued by the company.

By,
K. Samson Morais
18MCA26

VARIATIONS IN SEAFLOOR CREATE FREAK OCEAN WAVES

Researchers have found that abrupt variations in the seafloor can

cause dangerous ocean waves known as rogue or freak waves -- waves so catastrophic that they were once thought to be the figments of seafarers' imaginations.

Over the years, researchers across the globe have examined a number of different factors they thought might contribute to these waves, including the seafloor, wind excitation and a phenomenon called Benjamin-Feir where deviations from a periodic waveform are reinforced by nonlinearity.

Most of the studies that focused on the seafloor considered only gentle slopes, and the few studies that pushed the slopes to greater extremes relied primarily on computer simulations.

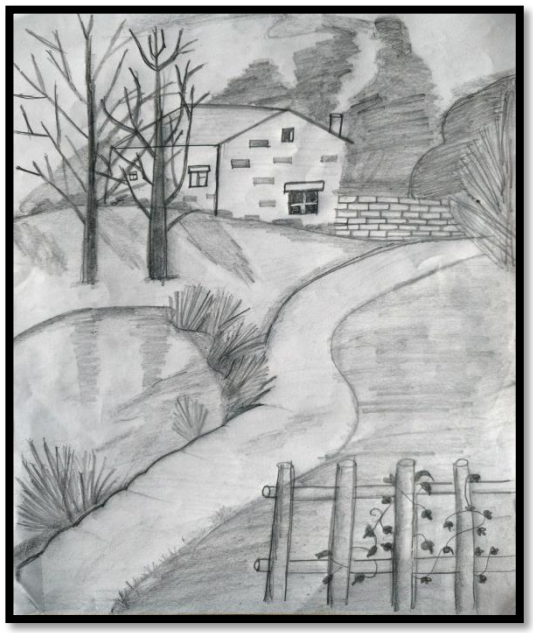
By,
P. Perachi Selvan
18MCA27

STUDENTS ART

Art by: G. Nandhini, 17MCA09

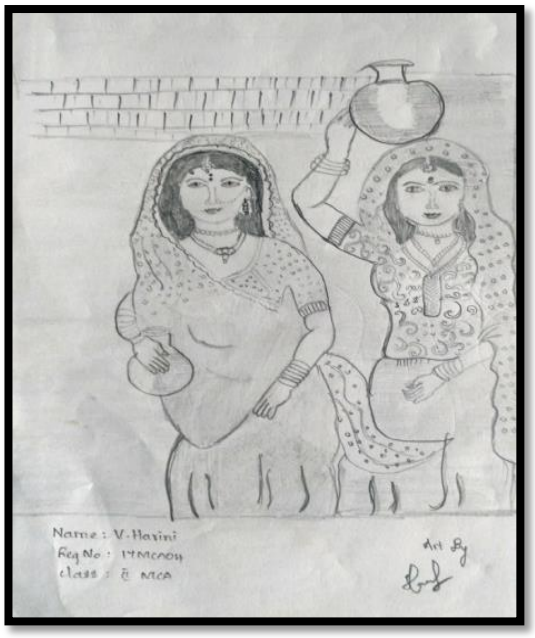
Art by: G. Nandhini, 17MCA09

Art By: K. Sugantha Venkateswari 17MCA25

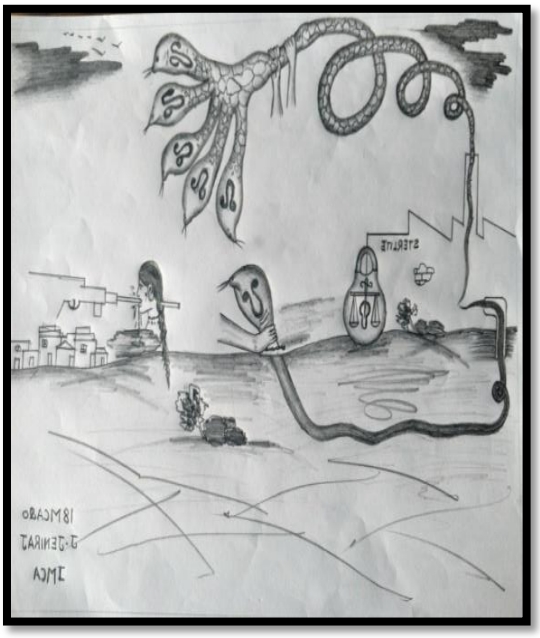


Art By: K. Sugantha Venkateswari 17MCA25

There may be people have more talent than you, But there is no excuse for anyone to work harder than you do.



Art By: V. Harini, 17MCA04



Art By: J. Jeniraj, 18MCA20

Art By: G. Nandhini, 17MCA09

TEACHERS' PARTICIPATION IN ORIENTATION / REFRESHER COURSES IN OTHER COLLEGES (2018-2019)

S.No.	Name of the Faculty	Orientation / Refresher	Sponsor	Venue	Date
1	Dr. S. Chidambaranathan	Creative Skills	ICT Academy	Noorul Islam Centre for Higher Education, Nagercoil.	11.02.19 & 12.02.19
2	Mrs. L. Sujatha	Creative Skills	ICT Academy	Noorul Islam Centre for Higher Education, Nagercoil.	11.02.19 & 12.02.19
3	Mrs. L. Sujatha	Educational Leadership	IIT, Kharagpur	Through Online (NPTEL Course)	Oct, 2018
4	Mrs. L. Sujatha	Internet of Things	IIT, Kharagpur	Through Online (NPTEL Course)	Oct, 2018
5	Mrs. L. Sujatha	Developing Softskills and Personality	IIT, Kanpur	Through Online (NPTEL Course)	Oct, 2018
6	Mrs. R. Geetha	Creative Skills	ICT Academy	Noorul Islam Centre for Higher Education, Nagercoil.	11.02.19 & 12.02.19
7	Mrs. R. Geetha	English for Technical Engineers	IIT, Madras	Through Online (NPTEL Course)	Oct, 2018

BOOKS / PROCEEDINGS PUBLISHED (2018-2019)

S.No.	Name of the Faculty	Title of the Books / Proceedings	Facts of Publication Place, Publisher, Year, Page No.
1	Dr. S. Chidambaranathan	C Simpler: How to Program	EduCreation Publishing, Bilaspur, Chattisgarh 495001, Dec.2018.

PATENTS RECEIVED (2018-2019)

S.No.	Name of the Staff	Purpose	Agency	Date
1	Dr. S. Chidambaranathan	A device for detecting synthetic food ingredients	Allinnov Research and Development Private Limited, India.	05-10-18
2	Dr. S. Chidambaranathan	Smart seat belt system	Allinnov Research and Development Private Limited, India.	15-02-19
3	Dr. S. Chidambaranathan	Exoskeleton hand for stroke survivors rehabilation	Allinnov Research and Development Private Limited, India.	08-03-19

AWARDS / DISTINCTIONS / HELD POSITION IN STATE / NATIONAL / INTERNATIONAL ORGANISATION (2018-2019)

S.No.	Name of the Teacher	Name of the Award / Post	Awarded by Organisation
1	Dr. S. Chidambaranathan	Distinguished Researcher in Computer Applications Award '18 (International)	Research Under Literal Access Idamas Learning and Training Center, Malaysia
2	Dr. S. Chidambaranathan	Lifetime Membership (IJRULA)	Research Under Literal Access Idamas Learning and Training Center, Malaysia
3	Mrs. L. Sujatha	Topper (Top 2%) & Elite with Gold Medal in NPTEL Online Certification on Introduction to Internet of Things	IIT, Kharagpur

4	Mrs. L. Sujatha	Topper (Top 2%) & Elite with Gold Medal in NPTEL Online Certification on Developing Soft Skills and Personality	IIT, Kanpur
5	Mrs. L. Sujatha	Elite with Gold Medal in NPTEL Online Certification on Educational Leadership	IIT, Kharagpur

PAPERS PRESENTED IN SEMINARS / CONFERENCES / WORKSHOPS (2018-2019)

S.No.	Name of the Faculty	Title of Paper Presented	Name of the Seminar	Publisher / College & Place	State / National & International Date
1	Dr.S.Chidambaranathan	Knowledge Discovery in Image Data Mining technology of Multimedia	International Conference on Computing Sciences	LIMCOS, Loyola College, Chennai.	International 16-12-18 & 17-12-18
2	Mrs.A.RegitaThangam	A Novel approach to Optimize Data Warehousing Multi-join Queries with Set Predicates	International Conference on Computing Sciences	LIMCOS, Loyola College, Chennai.	International 16-12-18 & 17-12-18

3	Mrs.A.RegitaThangam	Efficient Processing of Queries with Set Predicates using Reduced Function based Approach	International Conference on Recent Trends in Multi - Disciplinary Research	IFERP, A.P.C.Mahalaxmi College For Women, Thoothukudi.	International 20-12-18 & 21-12-18
4	Mrs.R.Geetha	A holistic study on cancer types and a comparative analysis of image processing techniques on cancer grading.	International conference on Recent trends in Advanced Computing	Sri Saradha College for Women, Tirunelveli.	International 23-02-19

PAPERS PUBLISHED IN BOOKS / PROCEEDINGS / JOURNAL (2018-2019)

S.No.	Name of the Faculty	Title of the Paper	Facts of Publication / Title of the Book etc.	Year of Publication
1	Dr. S. Chidambaranathan	Enhancement of Scalable Access Control Mechanism in Grid Computing	International Journal of Research and Analytical Reviews	Vol.6.No.1, 2019; pp.972-976 ISSN-2349-5138
2	Dr. S. Chidambaranathan	Optimization of Dynamic Access Control Mechanism in Grid Computing	International Journal of Management, Technology and Engineering	Vol.IX,No.1, 2019; pp.1669-1678; ISSN-2249-7455

3	Dr. S. Chidambaranathan	Unification of Scalable and Dynamic Access Control Mechanism in Grid Computing	Journal of Emerging Technologies and Innovative Research	Vol.6;No.1, 2019; pp.329-337; ISSN-2349-5162
4	Dr. S. Chidambaranathan	Energy Efficient Routing in WSN Using D-N-C algorithm	International Journal of Computer Engineering and Technology	Vol.9;No.5,2018; pp.78-88; ISSN 0976-6367
5	Dr. S. Chidambaranathan	EEDACS-A Novel Routing Algorithm for Energy-Efficient Distributed Averaging with Consistent Node Selection	International Journalof Research and Analytical Reviews	Vol.5,No.4, 2018; pp. 516-521; ISSN 2349-5138
6	Dr. S. Chidambaranathan	Efficient Packet Delivery for Reliable Multi-Path Routing	Journal of Emerging Technologies and InnovativeResearch	Vol.5, No.8, 2018 pp.28-37 ISSN 2346-5162
7	Mrs. A. Regita Thangam	A Novel approach to Optimize Data Warehousing Multi-join Queries with Set Predicates	Proceedings of the International Conference on Computing Sciences	Chennai, LIMCOS, 2018, Page no. - 24.

8	Mrs. A. Regita Thangam	Efficient Processing of Queries with Set Predicates using Reduced Function based Approach	Proceedings of the International Conference on Recent Trends in Multi - Disciplinary Research	Thoothukudi, Institute For Engineering Research and Publication, 2018, Page no. - 11.

SEMINARS / CONFERENCES / WORKSHOPS / ATTENDED (WITHOUT PAPER PRESENTATION) (2018-2019)

S.No.	Name of the Teacher	Title	Sponsor	Venue	Date
1	Mrs. R. Geetha Mrs. A. Regita Thangam	Quality Research and Publications	Centre for Research	Manonmaniam Sundaranar University, Tirunelveli.	07-12-18
2	Mrs. A. Regita Thangam	National Conference on "Role of Higher Education in Rural Development: Innovations and Best Practices"	Department of STAND	St. Xavier's College, Palayamkottai.	30-01-19

NPTEL/SWAYAM ONLINE CERTIFICATIONS COMPLETED BY FACULTY MEMBERS (2018 – 2019)

S.No.	Name of the Faculty	Course Name	Organized By	Month and Year of completion
1	Mrs. L. Sujatha	Real Time Operating System	IIT, Kanpur	April, 2018
		Introduction to Research	IIT, Madras	April, 2018
		Educational Leadership	IIT, Kharagpur	October, 2018
		Introduction to Internet of Things	IIT, Kharagpur	October, 2018
		Developing Softskills and Personality	IIT, Kanpur	October, 2018

2	Mrs. R. Geetha	English for Technical Engineers	IIT, Madras	October, 2018

NPTEL/SWAYAM ONLINE CERTIFICATIONS COMPLETED BY STUDENTS (2018-2019)

S.No.	Reg. No	Name of the Student	Course Name	Organized By	Month and Year of Completion
1	16MCA02	S. Sundaravalli	Software testing	IIT, Bangalore	October, 2018
2	16MCA02	S. Durga Devi	Software testing	IIT, Bangalore	October, 2018
3	16MCA09	J. Srividya @ Abinaya	Database Management Systems	IIT, Kharagpur	October, 2018
4	16MCA19	S.Mahalakshmi	Design and Analysis of Algorithms	IIT, Madras	October, 2018
5	16MCA19	S.Mahalakshmi	The Joy of Computing using Python	IIT, Ropar	October, 2018
6	16MCA22	R.Mohamed Basith	The Joy of Computing using Python	IIT, Ropar	October, 2018

INTER-DEPARTMENTAL COMPETITION WINNERS (2018-2019)

S.No.	Date	Name	Event Name	Sponsoring agency	Prize
1	21.06.18	S. Mahalakshmi	Essay Writing	Yoga Day Awareness Programme	II
2	21.06.18	S. Mahalakshmi	Verse Writing	Yoga Day Awareness Programme	I

3	18.12.18	M. Esakkiammal G. Maharaja M. Roshan V. Anand Kumar J. Jegan M. Arun Kumar Subhash M. SankaraGomathi M.S. Mohudoom Mohamed K. Samson Morais P. Narayanan P. PerachiSelvan	Tableau	INDECO	I
4	12.01.19	R.PonBrindha G. Nandhini K. Ramajanani J. Jeniraj N. Vishnu Priya	Pongal Kolam Competition	Students Council	I
5	21.01.19	G. Arun Vishnu Kumar K. Samson Morais	Badminton Tournament	Department of Physical Education	I

INTER-COLLEGIATE COMPETITION WINNERS

S.No.	Date	Name	Event Name	College Name	Prize won
1	12.09.18	X. AmaliFathima S. Mahalakshmi	Quiz Competition	View IT-2K18, Sri Sarada College, Tirunelveli	I
2	12.09.18	S. Durga Devi	Software Contest	View IT-2K18, Sri Sarada College, Tirunelveli.	II
3	12.09.18	M. Sathya	Web Design	View IT-2K18, Sri Sarada College, Tirunelveli	I

SEMINARS/CONFERENCES/WORKSHOPS ATTENDED BY THE STUDENTS

S.No.	Date	Name of the student	Title	Venue
1	28.07.18	X. AmaliFathima V. Pavithran V.A. Mahendran S. Ramanathan S. Mahalakshmi	One day seminar on "Data Science and Machine Learning"	IETE in Association with Riyasaa labs, Nagercoil.
2	21.07.18	X. AmaliFathima V.A. Mahendran S. Ramanathan S. Mahalakshmi	One day Workshop on "Scaling up of Lifelong Learning"	Arrupe Centre for Policy Research, Arul Anandar College (Autonomous), Madurai
3	29.08.18	S. Durgadevi S. Mahalakshmi	Quiz Competition	Quiz club, Holy Cross College (Autonomous), Nagercoil.
4	20.09.18	A. Alfin Xavier S.Sundaravalli V.Gomathi Shunmuga Priya V. Harini	Workshop on "Cyber Awareness"	Centre for Women's Studies, St. Xavier's College, Palayamkottai.
5	21.02.19	G. Radhamary	National Workshop on "Machine Learning and Deep Learning using TensorFlow"	PG and Research Department of Computer Science, Sadakathullah Appa College (Autonomous), Tirunelveli.
6	23.02.19	M. Sivaranjani K. Ramajanani B. Abirami V.Gomathi Shunmuga Priya G. Nandhini R. PonBrindha R. Brightlin M. Padhma V. Harini	International Conference on "Recent Trends in Advanced computing and its applications"	Department of Computer Science, Sri Sarada College for Women, Tirunelveli.

PLACEMENT RECORDS

S.No.	Name of the student	Name of the Organization
1	X. Amali Fathima	Centizen Inc., Tirunelveli
2	J. Srividya @ Abinaya	Centizen Inc., Tirunelveli
3	S. Ramanathan	Centizen Inc., Tirunelveli
4	S. Mahalakshmi	Centizen Inc., Tirunelveli
5	S. Durgadevi	Chainsys (Oracle Group), Chennai
6	V.A.Mahendran	Chainsys(Oracle Group), Chennai
7	V. Pavithran	Techsomo, Technopark, Trivandrum
8	C. Selvalakshmi	Techsomo, Technopark, Trivandrum
9	S. Sundaravalli	Tiliconveli, Tirunelveli
10	M. Sathya	Tiliconveli, Tirunelveli