

DEPARTMENT OF INFORMATION TECHNOLOGY
PRESENTS

HORIZON

A comprehensive tech and research magazine

*Edition 1
2018*



SRI VENKATESWARA COLLEGE OF ENGINEERING
SRIPERUMBUDUR-602117
(AUTONOMOUS-AFFILIATED TO ANNA UNIVERSITY)



Message from the Secretary



Information Technology is a field that is so dynamic and evolving. This is an era dominated by Information Technology, and professionals specialized in this field are always in high demand. IT specialists, apart from having sound technical knowledge, must have good problem-solving and logical reasoning skills, as well as have excellent communication skills. These characteristics of IT professional demand periodic update of IT knowledge.

I am happy to learn that the Department of Information Technology of SVCE is bringing out a magazine featuring changes in this field, including innovations and invention. I am sure that this magazine will not only be involved in the dissemination of new knowledge but also inspire others to get involved in active research to solve industrial and social challenges.

I wish the Editor and Editorial Team a great success in their effort to start this magazine and continue to keep it as the best IT Technical magazine.

Prof. M. Sivanandham
SECRETARY

Message from the Principal



Technology today has found its way into even those walks of life that a decade back was considered untouchable by technology. The world has seen many innovations and inventions. It has not reached saturation and never going to. These inventions and innovations lose their meaning or purpose when they do not reach the masses.

The Department of Information Technology has come up with a novel idea to release a magazine with details of all research work done by the faculty members and the students in the IT department, apart from introduction to the latest technologies happening in the world. I'm sure that the magazine will succeed in its purpose. I congratulate the Department on their initiative and wish them luck and success in this venture.

Prof. S. Ganesh Vaidyanathan
PRINCIPAL

VISION

To be a leader in Higher Technical Education and Research by providing the state of the art facilities to transform the learners into global contributors and achievers.

MISSION

To develop SVCE as a "CENTRE OF EXCELLENCE" offering Engineering Education to men and women at undergraduate and postgraduate degree levels, bringing out their total personality, emphasising ethical values and preparing them to meet the growing challenges of the industry and diverse societal needs of our nation.

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION

To produce higher calibre technologists and scientists for helping the country to attain new heights in Information Technology research and industrial needs to provide leadership in the field of technical education.

MISSION

1. To develop the department into a "Centre of Excellence in Information Technology" offering engineering education to the students at Undergraduate, Postgraduate and Doctoral degree levels.
2. To build students' total personality emphasizing ethical values, and nurture them to meet the growing challenges in the InformationTechnology industry.
3. To examine the research challenges and cater diverse societal needs of the Nation.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The B.Tech Information Technology programme has the following Programme Educational Objectives(PEOs):

1. The graduates of Information Technology program will demonstrate themselves as leading professionals.
2. The graduates of Information Technology program will be equipped with the necessary skills to become proficient researchers.
3. The graduates of Information Technology program will demonstrate their abilities as successful entrepreneurs.
4. The graduates of Information Technology program will excel in higher studies or modern administrative services.

PROGRAMME OUTCOMES (POs)

1. Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
2. Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design / Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

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

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

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

PROGRAMME SPECIFIC OUTCOMES (PSOs)

1. Exhibit proficiency in examining standard business operations in order to create and implement suitable Information Technology solutions.

2. Demonstrate the ability to establish an IT infrastructure, effectively manage resources, and ensure data security.

ABOUT THE DEPARTMENT

In 1996, Sri Venkateswara College of Engineering pioneered the introduction of the B.Tech degree programme in Information Technology under the affiliation of University of Madras. This is the first of its kind in Indian Universities. The department fulfills the requirements for the award of B.Tech Degree of Anna University .

The Venture was initiated under the guidance of our patron Dr.A.C.Muthiah and with the blessings of the Kanchi Paramacharya. When we started, the batch size was 30. This increased to 60 in 1998 and scaled up to 120 by the year 2000. Our growing numbers is indicative of the highly qualified and extremely dedicated teaching faculty of the department who strive for excellence in every sphere of their expertise.

It is the constant endeavor of the department to be in touch with changing needs of the IT Industry so as to be responsive in terms of modifications and introduction of new courses to adapt to these technological changes.

MESSAGE FROM THE HOD



Sri Venkateswara College of Engineering was the pioneer in introducing the B.Tech degree programme in Information Technology under the affiliation of University of Madras in 1996. This was the first of its kind among Indian Universities. The department that inducted with 30 admissions has gradually increased to 120 in strength from the year 2000. The department specializes in giving students both theoretical and a hands-on grasp of the latest in information technology, to ensure that they hold their own against any and every challenge by ever-evolving industry.

As Information Technology is a very dynamic and evolving field this course is designed to provide a strong preparation in the fundamental concepts and at the same time, providing maximum flexibility to accommodate student interests and contemporary developments. Over the years this enthusiasm has resulted in the department being awarded several government research grants and endowments, from the likes of DRDO and ISRO.

In the year 2016, Sri Venkateswara College was designated a National Resource centre under the National Cyber Safety and Security Standards, New Delhi. This centre is being managed by the Department of information technology from the time of its installation.

An undying quest and ever growing passion to update technical knowledge have been the two great distinctive characteristics instilled in the students of the department.

I am proud to present the introductory edition Horizon- our student research magazine. It will give you a glimpse of research areas covered by our students and faculty till date. I'm sure that it will serve as an eye opener and inspire the researcher in each one of you and propel you to a greater and new dimension in life.

INDEX

1.	<i>Alert Driver for a Peart Life</i>	09
2.	<i>Alexa-Femme Fatale Of The Modern Times</i>	12
3.	<i>All Bark and No Byte</i>	15
4.	<i>Artificial intelligence The glitches to be amended</i>	18
5.	<i>BlockCloud</i>	21
6.	<i>Buses Article</i>	25
7.	<i>Impact of Tech</i>	29
8.	<i>Kai Os</i>	33
9.	<i>Native Vs Hybrid A Guide To Mobile App Development</i>	37
10.	<i>No Talk, All Action!</i>	42
11.	<i>Placements : A student's perspective</i>	45
12.	<i>Saving lives through IoT</i>	51
13.	<i>Svce Pro - The official app of SVCE</i>	54
14.	<i>Tech Companies</i>	58
15.	<i>The green dream</i>	61
16.	<i>Thumbs up to your data!</i>	63
17.	<i>VR and AI</i>	65



HORIZON

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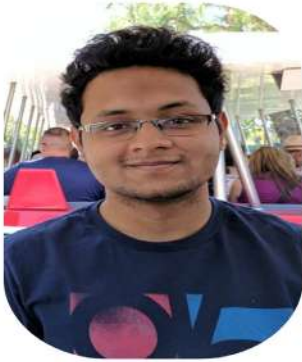
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From The Editors

*Research is to see what everybody else has seen,
and to think what nobody else has thought.*

-Albert Szent-Gyorgyi

The idea for a unique magazine has been in progress for quite some time in our department. There have been abundance of publications, and records of various intramural achievements. However, a medium to showcase such accomplishments for an all-time recognition, has not been there. Now, with support from our department, and a dedicated effort from our students, we have managed to gather, compile and edit a series of articles for you to peruse. It takes a great deal of analysis to start such a magazine. The most important factor, above all, is the understanding of the target audience. To persuade the readers, we must understand the purpose. So, what purpose does it serve? Was the goal of this issue to serve as a ponderous research magazine, was it a newsletter keeping you up to date, or is it meant to spark an interest among our peer group in research? It can be all or any of these. The sheer variety of articles ranging from research publications, to first hand narrations of student experiences guarantees that this magazine will be a wholesome intellectual experience. What you take away from this is entirely up to you. Happy Reading!.

**ALERT DRIVER
FOR
A PEART LIFE**

A stylized illustration of a yellow car with a driver visible in the window. A magnifying glass with a grey handle and a yellow lens is positioned over the car, focusing on the driver. The background is white.

**by
Sahana Nagarajan**

ALERT DRIVER FOR A PEART LIFE

Road traffic accidents have emerged as an important public health issue which needs to be tackled by a multi-disciplinary approach. They are undoubtedly the most frequent and, overall, the cause of the most damage. The prevention of road accidents is also extremely vital and can be mainly ensured by the drivers. Driver drowsiness has been one of the major causes of road accidents and can lead to severe physical injuries, deaths and significant economic loss.

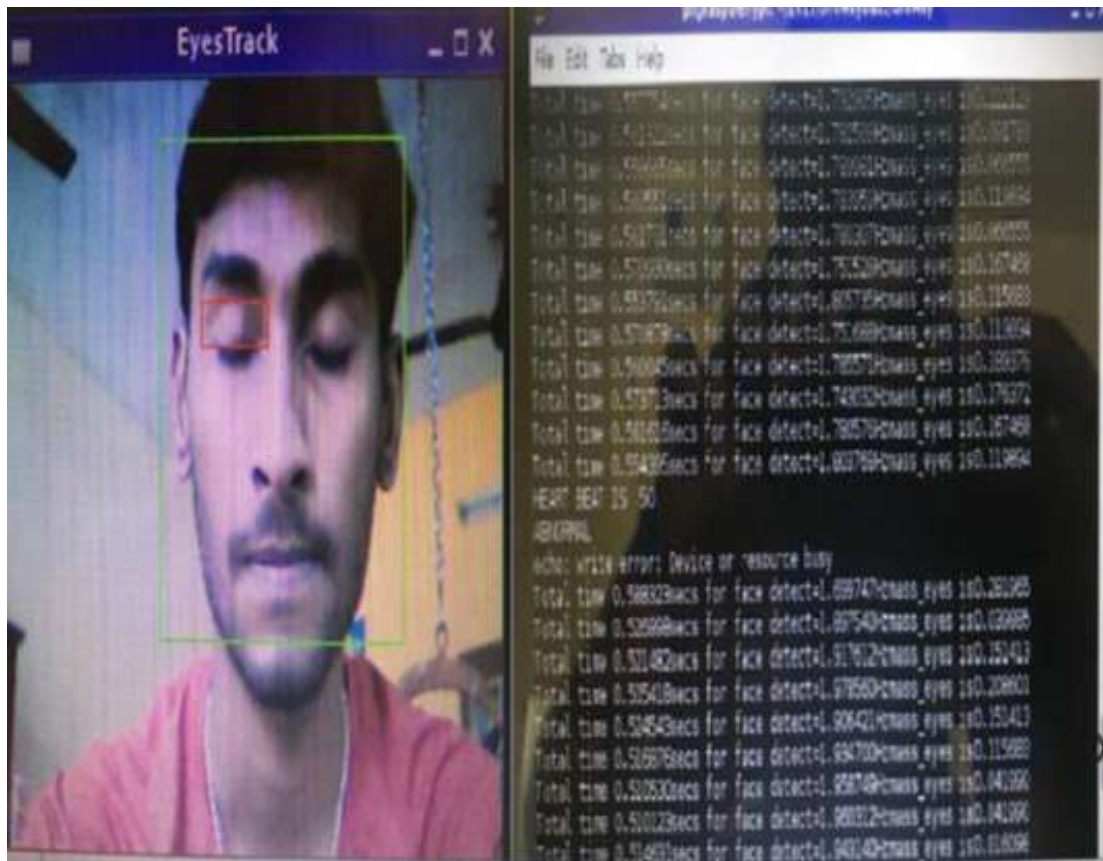
This fatal issue was very alarming that it led a group of three to take a step towards it. *V Raghuvaran* and *P Sai Priya* under the guidance of *Dr.V.Vidhya, Professor, Dept. of IT*, Sri Venkateswara College of Engineering developed an IoT based reliable driver drowsiness detection system for automobiles. This project is designed by fusing the behavioral measures and physiological measures that would accurately determine the drowsiness level of a driver.

When enquired about the project, Dr.Vidhya explained – “A driver who falls asleep at the wheel loses control of the vehicle, an action this often results in a crash with either another vehicle or stationary objects. In order to prevent these devastating accidents, the state of drowsiness of the driver should be monitored. Relying only on behavioral measures does not provide an efficient way to detect drowsiness under different illumination conditions and sometimes affect the reliability and accuracy of the measurements.”

The system was developed accordingly. It senses the driver’s activity using both the facial activities and the heart rate activities. The behavior of the driver eye closure is monitored through a camera and the heart rate of the driver is constantly monitored using heart rate sensor and the driver is alerted if any of these drowsiness symptoms are detected which is comparatively low when a person is tired and sleepy.

As drivers become drowsy, their head begins to sway and the vehicle may wander away from the center of the lane. The physiological signals are used to detect drowsiness which includes electrocardiogram (ECG), electromyogram (EMG), electroencephalogram (EEG) and electro-oculogram (EoG). The heart rate (HR) varies significantly between the different stages of drowsiness, such as alertness and fatigue. Therefore, heart rate, which can be easily determined by the ECG signal, can also be used to detect drowsiness

A drowsy person has longer eye closure duration than the normal person. This can be achieved by using image processing. It focuses on Haar classifier technique. The camera is used to monitor the eyelid movement and when it hits critical point of 70% of eye closure, it acquires this data. . In addition to this, when critical stage is acquired speed of the vehicle is reduced and an alert message with location is sent to acquaintance.



On attaining triumph with the project Raghuvaran and Sai Priya claims with delight that the proposed project is far more advantageous than the existing work in the context that none of the existing work produce a better reliability and accuracy of the driver drowsiness system. In order to achieve better reliability and accuracy to detect the drowsiness level of the driver, they designed an integrated model by

combining the eye closure and heart rate of the driver.

They are also working on an extension of the project that include a pop-up notification that guides the driver to the nearest resting location which is obtained by calling Google maps. The group is drilling more deeper to come out with the most efficient system that would eventually make a difference in the society.

Alexa
Femme Fatale
Of
The Modern Times

by
Neha Madhavan

“Alexa! Wake up!”

There used to be a time when people dreamt they had affordable options to owning a personal robotic assistant. With the launch of Amazon’s Alexa, a virtual assistant powering devices like Amazon’s Echo, the future has arrived. The wake-word for activating all Alexa enabled devices produced by Amazon is “Alexa!”. As alluring and appealing as it may seem to own one of these devices, its customers are having to take a shot in the dark in buying these devices.

This gamble is set on the grounds that Alexa may or may not be listening and further transmitting all audio content it records. There are concerns about the access Amazon has to private conversations in the home and other non-verbal indications that can identify who is present in the home with non-stop audio pick-up from Alexa-enabled devices. Amazon has responded to these concerns by stating that the devices only stream recordings from the user’s home when the ‘wake word’ activates the device. The device is technically capable of streaming voice recordings at all times, and in fact will always be listening to detect if a user has uttered the wake word unless the device has been muted.

Amazon claims that all sounds recorded prior to the wake word are processed locally and then deleted a few seconds later. Once the wake word has been registered, the command is then sent to the Amazon cloud servers, from where the response to your command is taken. Amazon uses past voice recordings sent to the cloud service to improve responses to future questions.

Users can delete voice recordings that are associated with their account. To delete these recordings, the user can visit the History tab in the Alexa app or contact Amazon customer service. Exactly how much information is recorded, sent prior to or after your request is unknown. Additionally, the identity of who may be listening to it is anonymous. And so, the potential for some outside party to hack into your device and then pick and choose what Alexa listens for is a worrisome possibility.

“BYOD must evolve from ‘Bring Your Own Devil’ to ‘Bring Your Own Defense’ associated to security probation and monitoring.”

- Stéphane Nappo

Firstly, The Amazon Echo is not immune to hacking. Anything that can be hacked, will be hacked and Amazon’s Echo has not one but seven microphones that will be threatening your security. According to Wired, an Echo has already been turned into a wiretap in just a few minutes by an experienced hacker. This means that used devices, or ones bought from less-than-reputable dealers, could potentially have been previously hacked and could have the ability to spy on you and reveal your sensitive information to hackers.





The explanation given was that Echo woke up due to a word in background conversation sounding like “Alexa.” Then, the subsequent conversation was heard as a “send message” request. At which point, Alexa said out loud “To whom?” At which point, the background conversation was interpreted as a name in the customer’s contact list. Alexa then asked out loud, “[contact name], right?” Alexa then interpreted background conversation as “right”. A bug of this kind was only the first of many more to arise over time. Issues such as these makes one wonder just how dangerous are virtual assistants such as Alexa.

In September 2018, Amazon launched an entire range of Alexa enabled devices starting from home audio and entertainment to kitchen appliances. Amazon’s peculiar and blitzkrieg-style marketing strategy aside, it’s clear now that the company has every intention to make Alexa, its Echo line, and every single device open to integrating its digital assistant into the dominating force of the smart home. In essence, Amazon wants Alexa to be the OS for everyone’s physical lives, just as Apple, Google, and Microsoft now control our digital ones. Not only is Amazon willing to do so through developing its own products that may completely flop, but it’s also willing to enter into well-established markets it will likely never succeed in, just so it can extend Alexa’s reach even just an inch further than competing software.

Secondly, all conversations a user has with Alexa is recorded and saved in Amazon’s servers and databanks. This allows for your searches and overheard conversations to be referenced later by Amazon or any other third party hacker. As a result of your searches and orders being saved on Amazon’s servers, this data is further analyzed to bombard you with offers on similar items on the website. This can get very frustrating as one random search for an item you didn’t really need in the first place can cause the device to continually suggest products you do not require offers on.

A woman named Danielle recently contacted Amazon after an employee of her husband received audio recordings of private conversations from Danielle’s home. Danielle, who had AVS-enabled devices in every room of her home and used them as her Smart Home hub, repeatedly called Amazon until an Alexa engineer investigated the matter.

This brings us to the frightening realization that the AI-powered voice assistant and all the devices it runs on can serve as windows into our purchase behavior and as opportunities to steer that behaviour in a direction that benefits Amazon. And, just like with its Prime membership, the more the company can lock you into its ecosystem, the harder it will be to leave it.



**All Bark
And
No Byte**

**by
Arvindh Raghavan**

All Bark And No Byte

As students in engineering, it's difficult to get through a single day without hearing AI, blockchain, IoT etc. (It's difficult to get through a day in engineering in general, but that's a whole other discussion). Just the other day my friend told me about a photocopy shop he saw on his way home named "A.I Student Xerox". This is not an isolated incident. A tea company in Long Island New York, "Long Island Iced tea" saw a whopping 458% jump in its stock trading range by calling itself "Long Blockchain corp". Another British company, which was formerly a small trading corporation, saw a jump of 349%.

You may have noticed that neither of these companies have anything to do with Blockchain

So why is this happening all of a sudden?

To borrow a punch line from Duke professor Dan Ariely about A.I. ***"Everyone talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it, so everyone claims they are doing it."***

Even though AI systems can now learn a game and beat champions within hours, they are hard to apply to business applications.

The M.I.T. Sloan Management Review and Boston Consulting Group surveyed 3,000 business executives and found that while 85 percent of them believed AI would provide their companies with a competitive edge, only one in 20 had "extensively" incorporated it into their offerings or processes. The challenge is that implementing

AI isn't as easy as installing software. It requires expertise, vision, and information that isn't easily accessible. This is in large part due to how AI is portrayed. The wonders of A.I are now everywhere. From Home appliances like alexa and google home, as well as small handheld versions like siri and google assistant. With all of these developments we are caught in a veritable maelstrom of innovations. Surprisingly, this isn't the first time this has happened. From 1960 to 1970 AI was also the subject of similar hype as it is now. A popular computer scientist predicted then that in a few short years, machines, perfectly capable of mimicking human thought would be a reality. Obviously we are far from that reality. So what makes this decades hype cycle any different from before? Well for one, in the last cycle from 1973 to 1980, no one wanted to invest in A.I. This time however, we see a dramatic rise in the investments. The government of France recently announced that they plan to invest \$1.85 billion (€1.5 billion) into AI research over the next couple of years. The US spent \$1.2 billion on unclassified AI research in 2016. These AI investments by the governments of USA and France are dwarfed by the amount of money that the Chinese are throwing at it. It is not only governments that are opening their wallets. Last year, Google rolled out Gradient Venture; a massive venture fund with an AI focus. Microsoft also launched an AI fund last year. Toyota kicked one off as well (\$100M). Basis Set Ventures (\$136m) and Element.ai (\$102M) started. AI rock-star Andrew Ng is pooling \$150M into a venture capital

fundfocusingonAI. AccordingtoMcKinsey, a total of \$26 billion to \$39 billion was spent on AI in 2016 alone. I am confident that the number for 2017 at least isn't much lower.

But, in the midst of all of this, I see a grain of truth. This time around, we have a lot more tangible evidence of progress. In Gartner's list for top 10 strategic trends for 2018, A.I is at the very top. Computers can augment professional expertise by automating repetitive, complex analyses and identifying patterns in large amounts of data. AI works best when it has been designed to use the right data to solve a specific problem. In the hands of skilled professionals, AI can support better clinical care, predict early signs of disease and reduce fraud and waste.

Where AI is most successful is in cases where it has access to broad data about individuals and situations and experts have given it a defined goal. For example, when you shop online, AI makes connections about your prior purchases, sites you have browsed and other individualized data to make suggestions about what you might like to buy. In the same way, AI can tie disparate pieces of healthcare information together and offer it up to people working in the field, who decide how to act on the information. I truly do believe that a careful study and diligent expenditure is required. The rate of progress is indicative of incredible potential. The field has borne enough fruit to warrant extensive exploration.



**Artificial intelligence
The glitches to be
amended**

**by
Sahana Nagarajan**

Artificial intelligence The glitches to be amended

Artificial intelligence (AI) is the study and creation of computer systems that can perceive, reason and act. The goal is to develop an intelligent machine. The intelligence must be represented by learning, thinking, making decision, solving problems. Unfortunately, it seems AI machines are prone to hacker attacks that can fool them to behave ‘irrationally’.

There is no such zero-error technology known to man. Much as we like to think and revel in that utopia, we are not even close to absolutely fail-proof systems. AI-based or not, any technology at its latest version available is nearly fail-proof and well within experimental errors to perform flawlessly.

Do we even care to know that the latest flight we took had some error percentage that could have made it drop from the sky like a dead bird, or, your mobile phone can suddenly blow up in your hand? These embedded error percentages do make systems look ‘imperfect’, but not unusable. Every new version of a technology system is actually minimising the error.

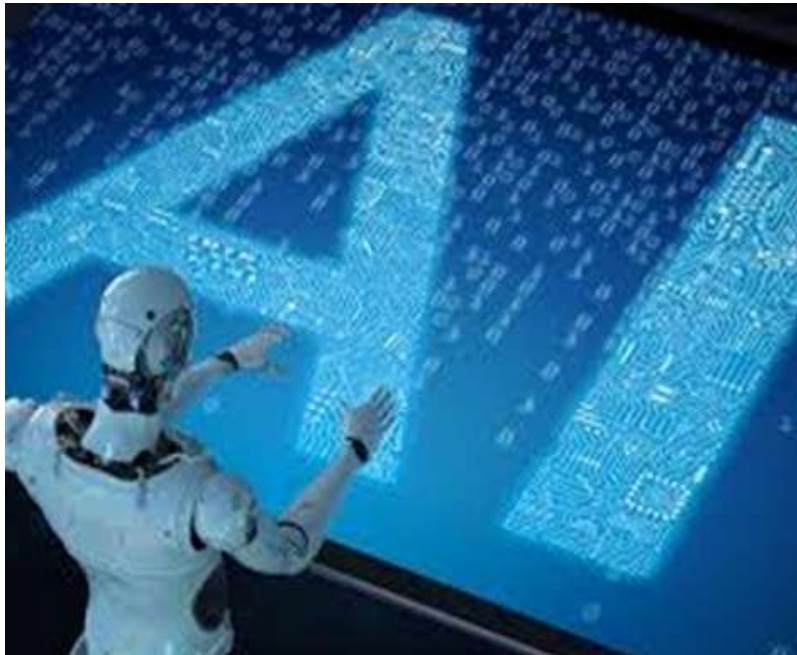
The glitches include an AI system viewing a turtle differently when most people would say it looks every bit like a turtle. To the AI algorithm, the turtle, most of the time, looked like a rifle. The surprise goes on. The AI algorithm identified a 3D-printed baseball as a cup of espresso. To the AI researchers, these are examples of what they term ‘adversarial attacks’: subtly altered objects, such as the turtle and the baseball, images or even sounds that fool AI systems without alerting humans.

Those companies at the forefront of developing AI-based defence systems or food companies trying to develop AI-based autonomous chef technologies, ‘adversarial attacks’ can upset many calculations. No hungry soul would like a rugby ball to be delivered when all she asked for is a hamburger. One can even predict the reactions when such news breaks: who the hell needs technology? Or, didn’t I tell you that AI is dangerous? Whenever any technology fails to deliver, the users come up with the same argument against it: we paid so much, yet it failed us, or, we could manage everything without technology but now it has trapped us, or, we do not need outdated machines, we want a technology that functions flawlessly all the time.

Everyone wants a fail-proof technology — users and the designers — but, as in science, technology learns by failing.

From preserving food to running nuclear reactors, in every field, improvement has been arduous and painstakingly slow. Yet, we now have systems that function to our satisfaction most of the time. Yet, the clamour for better, improved and, most importantly, fail-proof technology grows every time the domestic refrigerator stops working or a flight is delayed due to a technical snag.

Coming face-to-face with AI systems is similar to the situation in which six blind men faced an elephant for the first time. Most of us, technophiles included, do not know how to react to it; hence, we are mostly fearful of such systems.



The 'adversarial attacks' are dangerous stupidity. We have already started enjoying fruits of deep learning. Many researches have led to the development of AI based system such as an early breast cancer detection. The system can reduce false positives and, thus, drastically cut down on unnecessary surgeries.

Decades ago, when online banking was still on the drawing board, doubts were raised if such systems will be as secure as the existing cheque-based system. Hacker attacks notwithstanding, online banking graph has moved north with time. At this moment, the AI systems are still works in progress and we need to wait. To trash it for its flaws will be nothing short of

Before the Wright Brothers' machine achieved its historic flight, Lord Kelvin, the President of the Royal Society, passionately argued that 'heavier than air machines are impossible'. And Lord Kelvin was a celebrated scientist himself. AI systems can also make us look like Lord Kelvin. Let the researchers plug holes to identify glitches and amend it.



BlockCloud

by

Diya Anna Biju

BlockCloud

The trend in computing is like a pendulum. In the 1960s, it was about developing computing power in a single device. In the 1980s, it was about multiple dumb terminals connecting to a mainframe. In the 1990s, it was about getting a personal computer (or Mac) into each household. Now, we're back to network-based computing — only the broad access to WiFi and mobile data has dramatically expanded access to networks. The cloud is the latest iteration, but with a key difference — we're no longer tied to just one server.

“Cloud is about how you do computing, not where you do computing.” ~ Paul Maritz, CEO of VMware.



Over the last ten years two of the most important technologies that have seen widespread adoption have been Virtualization and Blockchain. Virtualization enables Cloud computing which is currently centralized while Blockchains have been used to ensure security and management of various supply chains and online financial services in a decentralized environment.

Though they are complementary when put together they could solve various problems that the organizations and users face in the current Cloud computing environment. Over the years the demand for computing resources have increased rapidly and problems such as DDoS and security attacks have impacted the QoS promised by the Cloud providers. Another problem is the dependence placed on cloud providers with the user's data or the mission critical processes and data of the organizations. Unlike cloud computing, the decentralized Blockchain doesn't need to live in a server room. Cloud applications typically do carry redundancy on a handful of nodes, but it's nothing close to the thousands of nodes working on networks like Ethereum. The Cloud moved servers off of enterprise campuses and centralized the processing power elsewhere. Blockchain on the other hand is slicing up the processing power and scattering it all over the globe. The blockchain infrastructure doesn't replace cloud computing. It just unbundles and democratizes it. A Blockchain-based Distributed Cloud will allow on-demand, secure and low-cost access to the most competitive computing infrastructures. Two reasons why such a distributed computing infrastructure could challenge existing HPC, Cloud and Big Data providers include the following:

HPC and Cloud are too complex and expensive: Innovative small businesses often don't have the means and the expertise to acquire and operate HPC platforms, and Cloud vendors such as Amazon EC2 are still very expensive for demanding

applications (e.g. GPU rendering). However, there are opportunities to lower the cost of infrastructure usage: for example those based on underused computing resources, or those that offer no guarantee that the computing resources remain available to the user during the complete application execution. Desktop Grids which rely on idle Desktop PCs, Amazon Spot instances which allows bidding on unused Cloud resources are typical examples of such target resource. Although these are prone to node failures and host churn, they are still very attractive because of the vast computing power provided at an unmatched low cost. The Distributed Cloud will open new markets for aggressive usage of existing computing infrastructure.

Data centers are greedy: A huge amount of energy is required to run the servers and the air conditioning systems. There is on solution to address lower the power usage: pushing the machines out of the data center. For instance, Rutgers University is designing a micro-data center that is located on the building roof and that is powered by solar panels.. By easing the access to such machines, a Distributed Cloud would allow us to drastically decrease the environmental footprint of data centers.

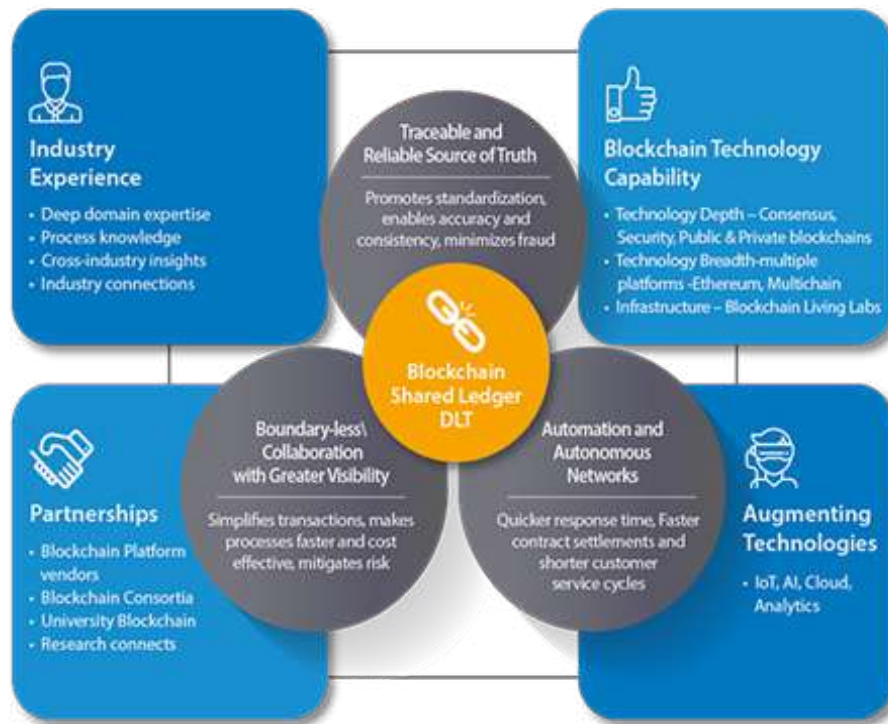
The blockchain technology offers many features that are necessary to build a fully distributed Cloud.

- It facilitates resource usage by distributed applications (dapps). Suppose that a smart contract requires executing a resource-demanding algorithm, like for instance some specific cryptographic function. It will be easy to

acquire and provision a computer from the smart contract, and once the function has been executed, the payment will happen automatically.

- It organizes a unique market place, where everyone can find the needed computing resources. Even if you have never heard of a particular new technology that allows for cheaper GPU usage, you will find it on the blockchain. Alternatively it makes it easy to advertise your own computing resources. At the moment, only the biggest Cloud providers are able to attract large number of users.
- It improves the Quality-of-Service. Typically, Cloud resources are provided under SLA (Service Level Agreement). The SLA specifies the conditions that validates the correct usage of a computing resource. For instance vendors provide guarantee over measurable metrics such as the Mean Time Between Failures (MTBF). The Blockchain can provide traceability of resource usage, so that both customer and provider can verify that the SLA has been correctly fulfilled, and determine which party is responsible for reporting faults or paying compensation fees.

If we position the cloud as a giant logistics platform for data, then we can think of a transaction as the transport or processing of data. Data enters in to the cloud (network), it is processed (compute) and then is either returned to a consumer or kept for re-use at a later date (storage). Everything, that happens to data, whether transport, processing or storage of data is entered into the blockchain. Afterwards what happened to data, who accessed the data, where it went and how that data was governed can be verified by anyone who has access to the blockchain. In essence



blockchain freezes the compute platform in time and users of the platform can verify that the platform is in the correct state in real-time.

“Online identity and reputation will be decentralized. We will own the data that belongs to us.”

– William Mougayar, author *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology* (2016)

The verification is done based on cryptographic hashing. Merkle trees are a fundamental part of blockchain technology. A merkle tree is a structure that allows for efficient and secure verification of content in a large body of data. This structure helps verify the consistency and content of the data. Merkle trees are created by repeatedly hashing pairs of nodes until there is only one hash left. It maintains the integrity of the data. If a single detail in any of the transactions or the order of the transactions changes, so does the Merkle Root.

Using a Merkle tree allows for a quick and simple test of whether a specific transaction is included in the set or not.

Although Blockchain helps in addressing the various issues faced in the traditional cloud computing environment, it is still in its nascent stage because the issue of scalability is a problem for all blockchain platforms. Even a modest petabyte cloud easily implies billions of data transactions every second that would need to be entered into the blockchain and distributed out to the edge. The implied network, storage and compute requirements would make it impossible to scale. As Vitalik Buterin, the founder of Ethereum, puts it, blockchain is still far from taking the place of cloud computing when it comes to providing the computing power necessary to run big data applications. But this is not to mean that the technology will not help it get there or that it has no role to play in making the existing cloud computing infrastructure better.

Buses Article

**by
Malavika**



SPOT YOUR SPOT!

THE CROWDSOURCING BUS APP

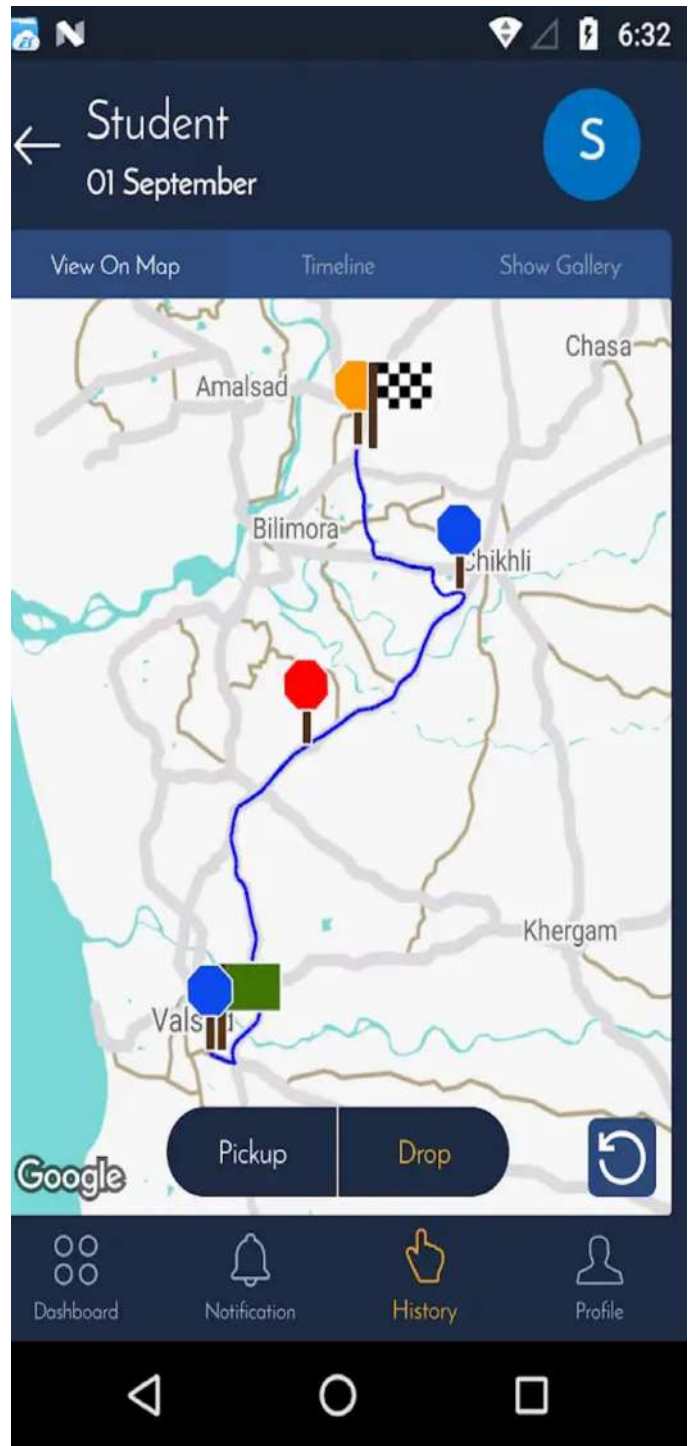
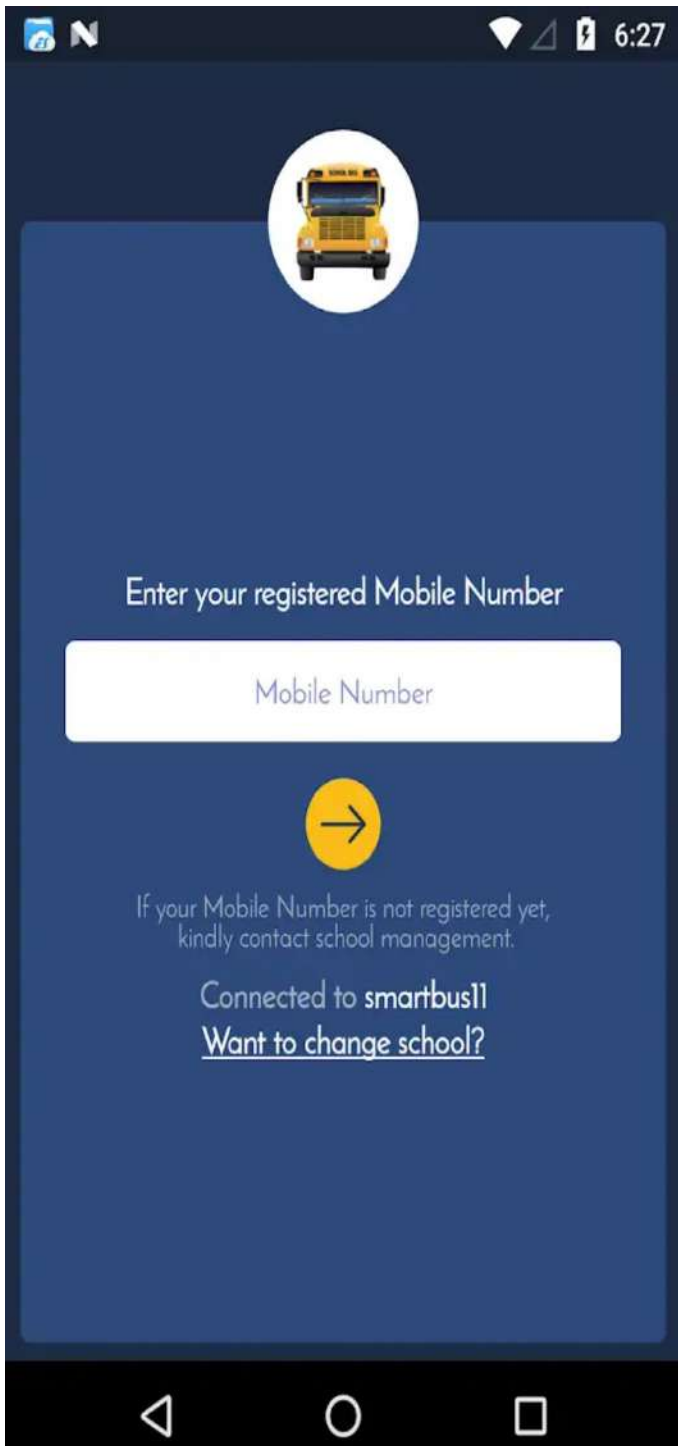
We do have several enhancements and improvements in metropolitan transport facilities in recent years that has made our public transport more preferred choice than it was before. Apart from the refinements that was made to the infrastructure and comforts to public services such as buses, there are certain issues that calls for the technologists' attention. One such example is the need to have an automated system that could notify on bus seat vacancy and availability to the hoi-polloi. Hence this would greatly deal with the problem of overcrowded and congested buses as it aids in people getting information on the frequency of buses to a particular stop and thus distributes the crowd between buses that are operated in the same route. It's only comprehensible when you look from the daily commuters' point of view. "You don't get a seat to sit and bus will be overloaded so that it's not even easy to stand." This has been the most stated complaint that people give for not choosing to travel by buses. Sometimes it happens to travel even 2 hours standing in the bus. Look at this!

As "NECESSITY IS THE MOTHER OF INVENTION" these hurdles and obstacles that hinder the comfortable travel in buses has led to several proposals and abstracts that try to improve the transport system. One idea that was proposed was an initiative to take up the bus maintenance system to the next level. The proposal was to have an automated transport system that has a detector to have a count of the occupied seats in the bus prior to an upcoming passenger. This system is based on Crowdsourcing technology. This is definitely going to prove as a guide to people as it is going to render valuable information to them at the right time.

It first requires to know the essence and ideas of the technology that the system is to use. Crowdsourcing is a sourcing model in which individuals or organizations obtain goods and services. These services include ideas and finances, from a large, relatively open and often rapidly-evolving group of internet users; it divides work between participants to achieve a cumulative result. The word crowdsourcing itself is a portmanteau of crowd and outsourcing, and was coined in 2005. As a mode of sourcing, crowdsourcing existed prior to the digital age (i.e. "offline").

There are major differences between crowdsourcing and outsourcing. Crowdsourcing comes from a less-specific, more public group, whereas outsourcing is commissioned from a specific, named group, and includes a mix of bottom-up and top-down processes. Advantages of using crowdsourcing may include improved costs, speed, quality, flexibility, scalability, or diversity which the system under discussion requires. Crowdsourcing public





or diversity which the system under discussion requires. Crowdsourcing public policy and the production of public services is also referred to as citizen sourcing. While some scholars argue crowdsourcing is a policy tool or a definite means of co-production others question that and argue that crowdsourcing should be considered just as a technological enabler that simply can increase speed and ease of participation. Governments across the world are increasingly using crowdsourcing for knowledge discovery and civic engagement. The crowdsourced information and resolutions would then be passed on to legislators for them to refer to when deciding, letting citizens more directly contribute to public policy. This system will track the bus as soon as it leaves the bus depot. It does the tracking with the help of a box within which the GPS is fixed. We very well know the ticket vending machine will be the most reliable source to keep count of the number of commuters that are actually traveling in the bus at any instance. The system proposes the machine to come with sensors on each key numbered from 0-9. When the corresponding key is pressed it assumes the count to be occupied.

It also addresses the exception cases where in a passenger travels by a bus pass, by incrementing the count with the help of a RF sensor that is attached to specific keys. The application end user can hence infer the location of the bus with the help of gps and hence can discern the availability of seats in the same with the help of sensor outputs. This system makes sure that the information is disseminated to all the passengers including those in the successive bus stops. It provides accurate and timely data on the count of occupied seats along with the provision to track the live location of the buses. This can help passengers to decide whether to wait for the next bus or choose the current one based on its frequency. Since many of the deluxe buses have already been attached with gps, there needs to be only few enhancements that has to be made to the current system.

Definitely this system will work towards reducing the chaos and struggles that the city dwellers experience, especially in weekends or at prime times when there is heavy demand for buses.

-H. MALAVIKA
IT A SVCE

An illustration of a hand holding a white smartphone. The phone's screen is light blue and contains the text 'Impact of tech by Malavika'. The hand is light-skinned with visible fingers. The background is a solid teal color.

Impact of tech

by

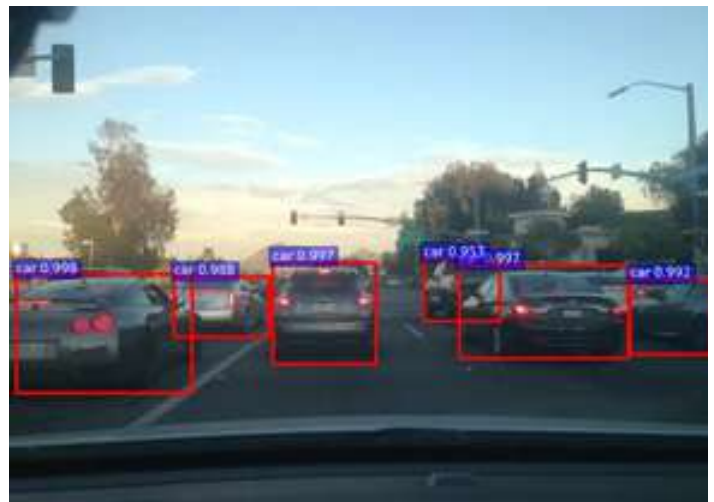
Malavika

THE “BANG AND BLOW” IMPACTS OF TECHNOLOGIES

Our life has now become so work-centric that we either directly or indirectly rely on modern technologies to accomplish variety of tasks, right from looking to develop a software for specific targets, to using various techniques in order to assess and analyse the enormous data patterns that is apparently used for business enhancements. In the desire to keep myself updated with the current technologies and innovations, I thought I need to refer several sources of data. That is when I came to know various important yet underrated technologies and the impact they have on our lives, and that they would be having in the future in case of developing technologies. I felt it is indeed worth sharing and definitely a desideratum for the future engineers and technologists to be aware of what and how these technologies may change in our lives.

I was very much surprised to know how one of our most used and most relied websites- Amazon employs machine and deep learning algorithms to enhance their products and services. They have been investing deeply in artificial intelligence for over 20 years. Machine learning (ML) algorithms drive many of their internal systems. It's also cores to the capabilities their customers experience – from the path optimization in their fulfilment centres, and Amazon.com 's recommendations engine, to Echo powered by Alexa, their drone initiative Prime Air, and their new retail experience Amazon Go. “This is just the beginning” feels the developers at Amazon. They claim that their primary mission is to

share their learnings and ML capabilities as fully managed services, and put them into the hands of every developer and data scientist. Sophisticated machines that are capable of working with minimal human intervention are sophisticated robots too. Driverless cars are yet another example of AI and robotics. With tech giants like Google, Tesla, and BMW involved in the production of driverless cars, it looks like we are going to see self-driving cars sooner than we may have expected.



While the concept of Robotics and AI sounds exciting, it is not without flaws. Many people believe that the implementation of robotics and AI will lead to mass layoffs and unemployment. We have already seen how factory workers lost their jobs when automated assembly lines were introduced. Now, with driverless cars, intelligent chatbots, and more knocking at the door, it may turn out that drivers and customer support agents are going to have a hard time keeping their jobs.

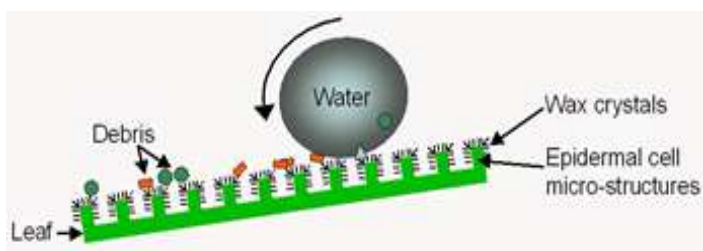
I think that the development of human level AI in my lifetime is quite plausible; I would give it more than a 1-in-5 chance.

- We can expect a rapid acceleration in growth. Growth rates will likely rise by at least an order of magnitude, and probably further, until we run into severe resource constraints.
- We can expect a drastic fall in human wages. When humans work, they will probably be improving other humans' lives rather than by contributing to overall economic productivity. The great majority of humans will probably not work.
- There can be a rise in other factors other than human factors shaping the future.

When I hear my co-classmates and engineering students, specifically those who had had the opportunities to converse with either an IT savvy or experienced technologists, talking about how they frequently refer to the usages of cloud computing in the enhancements of their companies or business, I could very well relate it how even I had had the same precedents. While the technology has been described and commented on at length technically, very few studies have focused on its impact on everyday life. The likes of YouTube and Google are testimony to a change in how the hoi-polloi are now interacting with the fellow beings. It has never been as easy to look out for long forgotten friends, classmates and new acquaintances with the explosion of social networks and web-sites rendering ways to connect and relate through online forums and groups.

Companies seeking breakthrough products seem to ignore the greatest invention machine in the universe: life's more than three-billion-year history of evolution by natural selection.

One of the most awe-inspiring technologies that haven't yet reached the knowledge of many youths but indeed the one that has a wide range of scope for technology workers is "BIOMIMICRY". It uses the unique techniques and features that the very nature has to solve certain unsolvable problems and attempts to mimic it in the implementation of ideas which would aid in solving real world problems. Nanotechnology has taken a firm base in India in recent years and is in an advanced development stage. Engineering a material as a replica of nature at a Nano-scale is not a simple task. Indian researchers have utilized the lotus leaf effect to be mimicked in automation to engineer a surface, which self-cleans and finds its applications in self-cleaning toilets/wash basins/glasses, etc.



One of the incredible technological advances sending shock waves through the world of computing is "MEMRISTOR". It proves to be superior to the other storage techniques as it can "remember" electrical states even when turned off. It's expected to be far cheaper and faster than flash storage. It has now been built in labs and is already starting to revolutionize everything we know about computing, possibly making flash memory, RAM, and even hard drives obsolete within a decade.

What does it strike all of you when I utter the word **Pokémon Go**? One of the examples of games for which many youths went crazy about. Well, that was one of the earliest instances of virtual reality going mainstream.

reality going mainstream. Tech giants like Google, Facebook, and Nokia are spending a huge amount of money to make VR experience better for the customers. With time and further developments, VR can be used for communication through holograms. New technology brings new qualities to the lives of human beings but also has a side effect.

What I have noticed is that usually human beings tolerate this side effect for as long as it takes until that current new technology becomes irrelevant and again new technology has to be invented.

-H. MALAVIKA
IT A SVCE

Kai Os

ivaios

by

Niwedheethaa Muralidharan

KaiOS

The affluent return to feature phone

NAVIGATION



Neo is in his office when suddenly his phone rings. He pulls out a beautiful sleek Nokia slider phone and picks up the call from Morpheus. That famous scene from the 1999 Keanu Reeves hit made the “Matrix Phone” a household name.

Eighteen years and many smartphones later, the Matrix phone is back in a new avatar -- as Jio Phone of Reliance Jio — and so is the trend for feature phones. These not-so-smart phones are making a comeback, not just India, but in many parts of the world.

Feature phones pushed out iOS phones to grab the second position after Android phones in the mobile phone market. The trend suggests how iOS and Android market in India dipped and a new entrant, Jio-Phone, emerged riding on a new operating system, kai os. Smartphones made feature phones obsolete because of new technology that gave a smartphone user everything a computer could. But a new operating system has helped dumb feature phones acquire a few vital smart features. KaiOS, a

Linux-based mobile operating system that power JioPhone too, revolutionised the mobile phone market.

Three big changes are coming to the technology world. AI, IOT and the other half of the population getting Internet. Kai OS is the perfect catalyst to accelerate the third one. This operating system compensates the lack of touchscreen, thereby turning mobile phones without a touchscreen, into smartphones. The large demography of India that still uses lower-end phones and grapple with slower connections has been accorded top priority as far as Google’s future high-end products and services are concerned. For instance, it has introduced a stripped-down version of Android, called Android Go, which runs on phones with low-end specifications in India. The Reliance JioPhone has revolutionised the entry-level phone segment by packing ‘smart’ capabilities in feature phone form. The JioPhone even supports 4G VoLTE and has a voice-based browser. Breaking the general stereotype that feature phone buyers usually belong to mid- or low-level

		World Population	Cellphones Users	Smartphones Users	KAI OS Users	Cellphones (%)	Smartphones (%)	KAI OS (%)
	Current	7.6	4.57	2.5	0.04	60%	33%	1%
Low	2022-2025	8.1	4.9	3.0	1.87	60%	37%	23%
Mid	2022-2025	8.1	5.5	3.0	2.47	68%	37%	31%
High	2022-2025	8.1	6.1	3.0	3.08	75%	37%	38%

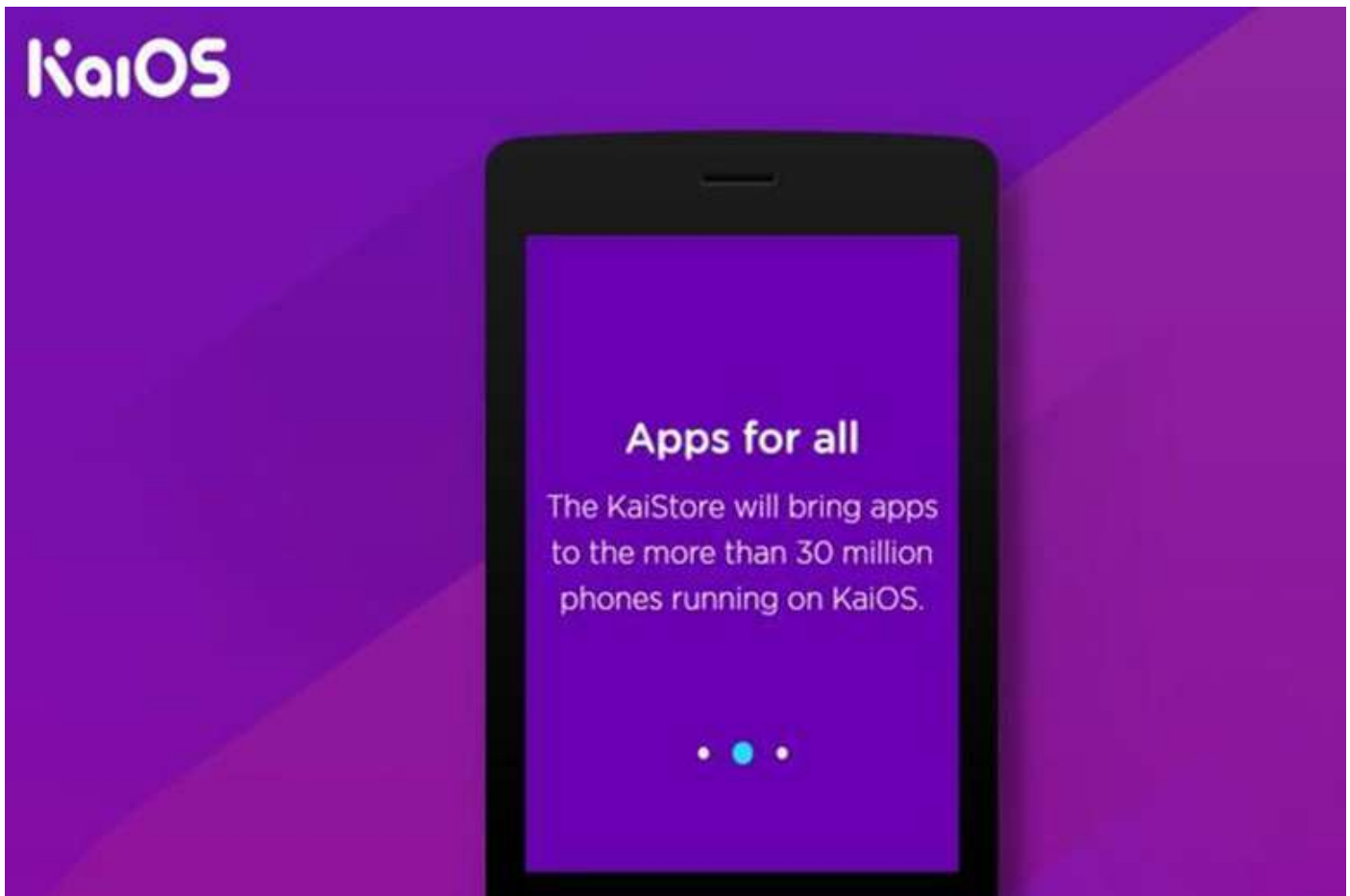
*Numbers in Billions

socioeconomic background, the survey found that 75% of respondents belonged to high socioeconomic classes. Companies like KaiOS and Reliance Jio are working to add more value to 4G feature phones, thereby making it more appealing for bottom-of-the-pyramid users who are not comfortable with the touch form factor, lack of vernacular content, etc

Kai OS launched its first version in March of 2017. Now it has around 40 million users and estimates to break the 100 million mark by the end of the year. There is little to no competition for Kai OS and an enormous market for it. The success of Kai OS will drastically change the technology and telecommunications industries. Many key players like Google and Facebook are already partnering with this baby giant. In a way, Kai OS is to mobile phones what Chrome OS is to laptops. Both operating systems reduce hardware requirements to a minimum and rely on internet services to compensate for the lack of hardware. The number of mobile phones has been growing at a slow pace, and mostly driven by an increase in smartphone usage. Kai OS reduces the hardware cost of mobile phones significantly while increasing its attractiveness for users. Telecommunication companies will also be able to offer

data packages to a whole new segment of the population, leveraging its existing infrastructure. By 2025 the global population will be over 8 billion people, with that info we can construct three scenarios that project the size of the population that will likely migrate from traditional mobile phones to Kai OS. By 2025 the global population will be over 8 billion people, with that info we can construct three scenarios that project the size of the population that will likely migrate from traditional mobile phones to Kai OS.

Kai OS could give Facebook the chance to have its cake and eat it too. Instagram has been outpacing Facebook growth for some time now, but it is far from the ideal platform for Kai OS. Instagram consumes enormous amounts of data, has high hardware requirements and is focused on videos and images, which run poorly on small screens such as the ones in the Jio Phones. Facebook, on the other hand, seems an ideal fit for Kai OS, a good portion of Facebook interactions are text-based, and while images are frequently used, low-resolution images can still deliver acceptable results. The feature phones have already beaten iOS with 15% market share in India while iOS remains at 9.6%.



Kai OS is running almost without competition, and its growth is staggering. In its market is running almost unopposed, which ensures rapid expansion. 2019 will be the perfect year to test Kai OS growth, and how will it affect the technology and telecommunications industries. Even in the most pessimistic scenario, getting close to

2 Billion users in the next five years, Google and Reliance industries made a fantastic investment in Kai OS.

A sign of feature phone market hotting up is Nokia and Reliance Jio, both using KaiOS, eyeing a big chunk of users in India.

Native Vs Hybrid

A Guide

To

Mobile

App Development

LOGIN

by

Neha Madhavan

Native Vs Hybrid A Guide To Mobile App Development



In recent years, mobile devices and applications have grown to become an indispensable part of our daily lives. Responsiveness and reliability are quintessential requirements every user expects. Nobody has time for bad user experiences, customers and employees alike. According to a recent survey by Dynatrace, while 79 percent of consumers would retry a mobile app only once or twice if it failed to work the first time, only 16 percent would give it more than two attempts. Poor mobile app experience is likely to discourage users from using an app again. This goes to show that there exists one chance to get it right; to make or break the success of an application.

“As far as the customer is concerned, the interface is the product.”

— Jef Raskin

The development of a mobile application is all about making informed decisions. Learning to make the right decision requires understanding the way each type of development works and how it alters the final product. There are two main options available for the development of mobile applications, Native and Hybrid. A native app is designed to run on a specific mobile operating system.

It will not run on other mobile operating systems. So, for example, if you were going to develop a native app for iOS, you'd do the development in Swift. Both Apple and Google provide app developers with their own development tools, interface elements, and SDK. Most companies will invest in native mobile app development because of the legion of benefits offered in comparison to other types of app development techniques. Native apps are created specifically for an operating system. They stick to the guidelines intended to enhance and align the user experience with the operating system.

Firstly, rich user experience is an undeniable advantage of native apps. Mobile developers and UX designers can focus their efforts on tailoring the app's functionality to one platform that has its own design language, unique elements, and set gestures. All this allows to achieve the sense of unity and allow users to more intuitively navigate through the interface as well as better understand the functionality of your application. In addition to this, native applications can make full use of offline mode capabilities.

Secondly, creating a native app is the only way to guarantee your users a reliable data protection.

protection. It is optimized for a specific platform and can demonstrate an unbelievably high level of a performance. Native applications have no limitations related to the creation of interface as they don't have to consider the peculiarities of several operating systems to meet the requirements of each one. Fragmentation makes it hard to adjust the layout for different devices. This is especially true for Android-based devices. Lastly, the biggest advantages to native apps are that they can normally access all the functionality of the chosen device easily and that they are more likely, if developed properly, to run without error on the device.

Native apps come with several advantages that overshadow the very few disadvantages they have. The process of developing native apps is complex and requires the participation of competent staff. This is why one can expect considerable amount of expenditure whilst developing these apps. This kind of app requires more time to be built. If you need apps for both platforms and need them to be built fast, it is better to think about simultaneous development; one native app development does not support.

If you think good design is expensive, you should look at the cost of bad design. —Dr. Ralph Speth, CEO Jaguar

A native app cannot be run on a device which doesn't utilize the same operating system. That means if you want your app to run on Windows, iOS 7, and Android, you're going to have to develop the app thrice, once for each operating system. This can make the development process both slower and costlier.



Hybrid applications are, at core, websites packaged into a native wrapper. A hybrid app is designed to work on multiple platforms. It's written using a single standard code language (such as C# or a combination of HTML5 and Javascript) and then compiled to be executed on each platform. So technically, hybrid apps are websites put into a native app to look and function just like them. Usual suspects here are Facebook, Twitter, Instagram, etc.

Hybrid apps leverage cross-platform capabilities and use one code base to cover multiple platforms on the contrary to native applications. They can run both Android and iOS having just one code base. This means one doesn't have to build the app for each platform as in the case with native apps. Mobile developers create the single code base that can function across Android and iOS. This benefit of hybrid apps will be definitely helpful for cases in which one needs a mobile solution increasing the brand awareness. In addition, it is less time-consuming to create a hybrid app compared to the native one. Developers don't have to create a new code base for each platform, thus increasing

portability and decreasing cost of development. In addition, there is no need to do any API development since it's all handled via the web and relatively lesser resources are required.

Depending on the complexity of the app, maintaining a distinguished source code is very appealing because new features are also easier to develop and deploy. Conversely, bug fixes are platform agnostic and can be done and released easily to production. Lastly, hybrid apps are distributed through the app store like all other apps which means the user will not see any immediate difference between a hybrid and a native app.

However, with several pros comes a myriad of cons. Firstly, a hybrid app has only a wrapper that is downloaded to the user's phone (which may or may not contain all the navigational elements) with most of the data being loaded from the server. In this case, there are two key issues that may have an impact on the overall performance of the app: the number of server requests (i.e., how many people are making calls to the same server at the same time), and the load balance requests (are the requests coming from mobile devices ping-ponging the same servers as desktop/laptop clients, or do they have designated servers). Due to the nature of hybrid mobile apps' architecture, they rely on plugins to access the built-in features of a device. The disadvantage of such a method is that those plugins can be out of date or unreliable.

This neglects to consider quintessential aspects of a user centered mobile application. Moreover, developers may need to create plugins on their own in case there are no ready-made solutions allowing to access a certain part of the device functionality you need. The paradox that exists with Hybrid app development is that you are likely to need native app developers to build a hybrid application since the hybrid app development approach still cannot solve a variety of functional problems that are elemental to native development. The user experience isn't the strong suit of hybrid applications since the interface for both iOS and Android platforms should meet halfway.

The Takeaway:

Do you want to astound and entice your users by building an entirely native application that integrates into the platform of their choice (Android or iOS)? Or are you more interested in taking a Minimum Viable Product approach and quickly developing a hybrid application which can be released across platforms? Though potentially easier to build and maintain, this second strategy is likely to result in flawed user experience with sub-par performance.

It is considered best to stick with native and not sacrifice on the design elements that are unique to each platform. However, if you aren't too concerned about the overall user experience and want to get something to market fast and cheap, a web app may be the way to go.

The development is dependent on a number of factors, including business needs, app requirements, developer skill, and timelines. It is important to remember that you shouldn't choose an approach for the technology, but instead, choose based on the application's functionality. If you choose an approach that doesn't allow your app to utilize device features, for example, then you'll end up wasting a lot of time and resources when you decide to add features further down the line. It is safe to say that the better approach to development depends purely on the aforementioned factors specific to the application to be developed and thus may vary from one application to another.



**NO TALK,
ALL ACTION!**

by

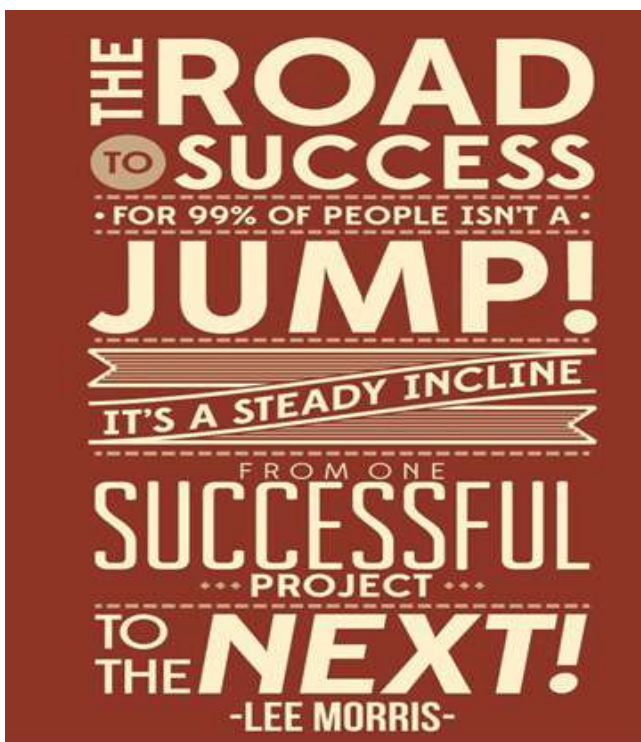
Niwedheethaa Muralidharan

NO TALK, ALL ACTION!

Academics generally agree that direct research experiences are important for students to foster the critical thinking, appraisal skills and understanding of research required, to encourage consideration of a research career. However, it is also recognised that many such students are single-mindedly focused on becoming developed and inherently interested in, positively disposed towards, research. This helps in encouraging student engagement with research and maximising the value of their experiences.

One such worthy experience was obtained by **Jaswanth K**, second year student of the department of information technology. Participating in a startup weekend organised by techstars community along with college of engineering, guindy powered by google for entrepreneurs.

The techstars startup weekend is a 54-hour event designed to provide superior experiential education for technical and non technical entrepreneurs. Beginning with pitches and continuing through brainstorming, business plan development, and basic prototype creation, the event culminates in demos and presentations. Teams are formed around the top ideas (as determined by popular vote) and then it's a 54 hour frenzy of business model creation, coding, designing, and market validation. All teams are presented with the opportunity to hear talks by industry leaders and receive valuable feedback from local entrepreneurs. The weekend is centered around action, innovation, fun and education. A good share of teams end up working together beyond the startup weekend to build a fully operating startup and others take with them the bootcamp experience and a network of like minds. It is fine to start the process with vague ideas about what they are trying to achieve. But these ideas need to focus on a central point, so that their work is coherent and has clear direction. And that is how, **Jashwant K** ended up bagging the second place in startup weekend chennai edition. About **AMAC** An interesting alternative to the existing air conditioners, **AMAC** Air Modulating Air conditioner was discovered by Jashwanth. These conditioners use desiccant material to remove the humidity from the air. The air is sent through a heat exchanger so that it cools down further. Then evaporating cooling is done in that particular section. The working is efficient and commercially applicable. Nowhere in the process there





is any usage of harmful gases. The power consumption, maintenance costs and the installation costs are lower when compared to the normal AC. It is obvious to make this a B2B (Business to Business) model. Partnering with any established industries in this sector with the technology idea can help make it into a manufactured product.

Project work naturally leads into argument, whether that's about the interpretation of data, the validity of a philosophical viewpoint,

or something as concrete as the design of the set for the school play. There are so many alternative possible ways to go, we have to think critically and evaluate the merits of different possibilities. With appropriate facilitation and planning, project work can be so much more than a time-filler at the end of the year. It can become the point at which the rhetoric about independent learning turns into reality.



Placements

A student's perspective

By

Diya Anna Biju

recruitment

Placements : A student's perspective



The annual ritual of placements is something akin to a nightmare. Candidates, placement coordinators, and professors describe it to be extremely stressful. “What are your plans for the future”, acquires an uncomfortable undertone this side of semester 7 in engineering colleges. And why? Because this is the time when most students here start preparing for campus placements – raising questions over what kind of companies would come in, how should they take the proverbial best foot forward and how to ensure that they have a placement in hand, ahead of the great wide job search. A survey revealed that,

“As many as 97% of graduating engineers want jobs either in software engineering or core engineering. However, only 3% have suitable skills to be employed in software or product market, and only 7% can handle core engineering tasks.”

Employers nowadays give employability more importance than the graduates scores. They want employees that require less training and can be deployed to projects faster. You’ve probably heard employers say that there’s a shortage of engineers. What employers really mean by a “shortage” is that there aren’t enough engineers with the right mix of technical ability, personal skills and practical experience in specific areas.

Employers like “well-rounded” or “T-shaped” individuals. These individuals have technical depth in their area of study, but also have a wide range of interests. They are generally inquisitive and enjoy learning. Since engineers often contribute to multi-disciplinary team efforts, it is important that they know a little about other disciplines.

In the wake of such circumstances landing a job does seem like an herculean task. But with the right mix of research, planning and action, you can make yourself very attractive to companies who are desperate to find the right people to make their businesses grow. ‘You can never start too early’. If you want to finish your degree and go straight into a job you’ll need to have used your university time effectively to build up your CV. Your first job has a disproportionate impact on the direction of your life. Work harder than ever before to get shortlisted for relevant interviews and clearing them. The first step is building your CV and online profile. Build a professional looking LinkedIn profile. Customise your resume each time you apply based on the job description and your research on the company. In addition to a good academic result carrying out work

experiences through internships and taking part in extracurricular activities is equally consequential. It's crucial that you develop a portfolio of projects. Participate in every hands-on, experiential learning opportunity that a balanced schedule allows. This way, you'll have something unique to show a prospective employer. Before the actual placement season starts spend a couple of months preparing for the selection process which may include group discussions, aptitude tests with verbal and logical reasoning sections, technical interviews, subject matter interviews, coding tests and HR interviews. These are elemental things that all companies test. If there are aptitude or coding tests, research online for past question papers and expected test formats and practice taking tests instead of studying your graduate textbooks. The biggest challenge you might face may be your lack of exposure to a verbal selection process such as group discussions. Most of the companies will have this round as a filtering round. This round may be or may not be conducted. A common topic is placed before the group and a formal discussion or knowledge sharing is expected by the judge. Purpose of this round is to check communication skills, etiquette of person, listening ability, convincing power, group leadership, leader or follower and many more thing are evaluated on the basis of requirement or the particular intention of organisation or company. It is very important to keep yourself updated with latest news and discussion topics for appearing in GD round. For a group discussion, get a bunch of friends together and practice multiple mock group discussions. It is recommended to know at least one programming language thoroughly - C, C++, Java, Python etc.

The "T-Shaped" Individual



Familiarity with C and Java is really important as technical MCQ's will mostly have questions from the aforementioned languages. The questions can range from something as simple as the output of a nested printf statement to complex questions based on pointers, garbage collection etc. After this comes the programming round where the companies will either provide an online IDE or it'll be a pen and paper round. You'll encounter questions mostly from arrays, strings and linked list. The cheat code to this round is that you can use languages of your choice. You'll need to be smart in choosing which language you're going to use for a given problem. For example if its an array problem C or C++ will suffice whereas if its a string, stack, queue or problems having other data structures using Java or Python will make more sense as there are various built in functions that are available. This will reduce the lines of code and the time you spend for a problem. The questions can be direct like find the given element in a sorted and rotated array, reverse the words in a given sentence, etc or they can be twisted and given as a problem state-

statement and you'll have to decide which data structure to use for the particular problem. Topic-wise and company-wise questions are available on websites such as geeks for geeks which can be put to use effectively. The complexity of your code is also important. The IDE's provided generally don't accept codes that have a complexity of the order $O(n^3)$. They're looking out for candidates who write efficient codes with a complexities in the range of $O(n)$, $O(n \log n)$ or at most programs with a complexity of the order $O(n^2)$. Practicing competitive programming questions on websites such as geeks for geeks and hackerrank is sufficient to solve any problem given. As IT graduates the most important subjects that you must know for any interview undoubtedly includes Data Structures and Algorithms. Other important subjects include DBMS, Operating Systems and Computer Networks. The technical HR rounds will revolve around the aforementioned topics, your projects and your areas of interest. Data structures are really important and a few that you need to know include arrays, linked list, stack, queue and trees.

“Smart data structures and dumb code works a lot better than the other way around.”- Eric S. Raymond

The interviewers test your theoretical knowledge, where they may ask you how to find the minimum element in a stack at any given time. They also ask the scenario based questions where they see which data structure you would use and you'll have to explain why you used it. For example you may be given a scenario where you would have some n number of printers which can take in jobs from various clients. You'll have to decide which data structure you'd

based questions can also be asked where you should select a protocol and mention the advantages of using it along with some drawbacks. Also even easy questions like, “How will you find the IP address of your system” can be asked. It matters the most if candidates mess up in these questions because they are considered to be fundamental things that anybody who adds networks to their areas of interest are supposed to know. Thus it's preeminent to cover all the fundamental concepts from your areas of interest. Projecting your projects is really important especially your contribution to it. You should be well prepared to answer any follow up questions posed or questions such as why you chose a particular platform or why you went with a particular architecture. The general or HR interviews are designed to understand you as a person and involve both personal and behavioural questions. Do you display emotional maturity and have a value system that motivates you and keeps you stable as an adult? Behavioural questions are open-ended like describe an experience where you failed and what did you do. Remember to work on each line of your CV and be ready to answer questions with examples. Finally, have a 2-minute summary ready, selling your biggest achievements and your background if you are asked to speak about yourself. Soft skills have become very important in the present job industry. The lack of ability of the individual to deliver his views effectively at the interview leads to rejection of even the most brilliant candidate. Do mock interviews with as many people as possible including family members, friends, seniors etc. You will notice a huge improvement in your confidence and interview technique. Know that communication involves not



take in jobs from various clients. You'll have to decide which data structure you'd use to tackle the use cases such as keeping track of the printers that are currently in use and those that are free, the algorithm behind job assignment to the printers etc. More than the right answer, they are interested in your approach to solving a coding problem or a case study, how you think in the hot seat, how you communicate and whether your attitude is logical, analytical, positive and enthusiastic. Also deep understanding of concepts in the subjects that you've included in your areas of interest is cardinal. For example if computer networks is your area of interest then questions form OSI layers, TCP and UDP protocol etc are standard questions that are asked but as mentioned before scenario based questions can also be asked where you should select a protocol and mention the advantages of using it along with some drawbacks. Also even easy questions like, "How will you find the IP address of your system" can be asked. It matters the most if candidates mess up in these questions because they are considered to be fundamental things that anybody who adds networks to their areas of interest are supposed to know. Thus its preminent to cover all the fundamental concepts from your areas of interest. Projecting your projects is really important especially your contribution to it. You should be well prepared to answer any follow up questions posed or questions such as why you chose a particular platform or why you went with a particular architecture. The general or HR interviews are designed to understand you as a person and involve both personal and behavioural questions. Do you display emotional maturity and have a value system that motivates you and keeps you stable as an adult? Behavioural

maturity and have a value system that motivates you and keeps you stable as an adult? Behavioural questions are open-ended like describe an experience where you failed and what did you do. Remember to work on each line of your CV and be ready to answer questions with examples. Finally, have a 2-minute summary ready, selling your biggest achievements and your background if you are asked to speak about yourself. Soft skills have become very important in the present job industry. The lack of ability of the individual to deliver his views effectively at the interview leads to rejection of even the most brilliant candidate. Do mock interviews with as many people as possible including family members, friends, seniors etc. You will notice a huge improvement in your confidence and interview technique. Know that communication involves not only the content but also your confidence, appearance, body language, tone and volume of your voice. Practice for a neutral accent and clean English without use of colloquial or swear words. Discover and eliminate repetitive fillers in your speech like - "umm", "ahh", "I say". Also practice responding professionally to criticism in an aggressive or stress interview. Finally it's important to have the 'never give up' attitude. A lot of people may face a lot of rejections but it's important to stay positive and keep going. Every time you miss out on an opportunity, take some time to think about why. Was there a gap in your CV? Did you make mistakes in the interview? Were you really right for the role in the first place? If you made it past the initial stage then ask for feedback and you'll be more likely to succeed next time. Each graduate job you're rejected from is a step towards the one you'll eventually get.



**Saving lives
through
IoT**

INTERNET
OF THINGS

by

Shravan Srinivasan

Saving lives through IoT



Road accidents account one of the major causes of death in India.

In India there have been 133634 accidents in the year 2015 and 32524 people have been killed in these accidents. 40% of those killed and injured in these accidents are motorcyclists. Accidents occur predominantly due to the carelessness of the rider to be honest. In 2016, one of our college friends passed away due to a motorcycle accident. This deeply pained the hearts of two young men who resolved to find a solution to this problem which needs our immediate attention. In order to make you understand the seriousness of these road accidents, let me give you a small example. In this Chennai-Bangalore highway, 146 deaths occur due to accidents. In those 146, 126 deaths are caused due to motorcycle accidents. The main problem in this is that the relatives of the person who has suffered in this accident are not immediately informed. Even medical attention cannot be brought up immediately as the people in our nation find it a shame to immediately proceed and help the victims. Even if the person is taken to the hospital their parents are not informed if the person is unconscious.

Every problem has a solution that is the universal truth. Those two young minds had a solution.

“MCAS(Motor Cycle Alert System)”.

Using this there will be an immediate passage of information to the parents or guardian of the victim. The basic architecture of a bike is to have a leg guard near the engine in the front. They are kept in order to save your leg from the accident. The idea is to attach minute sensors in the leg guard. The three main parts of this project are:

- 1) Electronics
- 2) Application
- 3) Cloud

The electronics part consist of an Arduino R3 development board, a force resistor sensor, a GPS module and a GSM module. All these electronics are on the bike and are powered by the batteries. The mobile app interfaces with the electronics and the cloud. Once the force sensor detects the crash, it sends a signal to the Arduino board which in turn sends a signal to the GPS module. The GPS module retrieves the latitude and longitude of the exact location of the accident and sends it back to the Arduino board. The Arduino board sends the data to the GSM module which sends text message to the emergency services and emergency contacts specified by the rider. A first time user to the app must configure the app by entering the GSM module's ID number. Now the app is ready to be used.

Whenever the phone receives a text message with the latitude and longitude of the location where the accident took place, the message is parsed. A buzzer alert then plays on the phone indicating the user about the accident that has occurred. The app then drops a pin on the location of the accident on its map therefore enabling the user to get the exact location of the accident. The database server used for this project is "Google Firebase" because of its speed, durability and data security. The data server has one root which contains several nodes. Each node has two children in the database. Data is tracked based on the root node and the node. Given the latitude and longitude of the location, Google maps API tracks down the respective city for the coordinates and sends the data to the node in the cloud. All coordinates are also sent to the common parent in the server.

Main Advantages in using this project:

- 1.) Ultra Scalable: Thousands of bikes can be registered without changing a single line of code in the app. Only each GSM modules needs to be configured.
- 2.) Robust: The module has low probability of failing.

3) Time and cost efficient: Low cost module where there is no time delay in sending the data thus enabling immediate emergency service.

4) Exhaustive: Information reaches family members thus avoiding commotion and confusion.

Even if there are these many advantages, as great men would say No one is perfect, there are a few limitations where some more work is needed. Since this app was built on Android studio, for iOS it needs to be built right from the scratch. Arduino and other ready made boards are used here. Instead, when mass produced, custom boards can be built which will drastically bring down the cost. The whole On-Bike provision must be packaged and protected using industry grade materials so that there's no damage.

This project was implemented and submitted by Harish and Abdullah in the year 2016. This project was submitted on IIT Bombay in competition with over 5000 more projects. This project was awarded the runner-up. The same project was competed with over 1000 projects on IIT-Madras on 2016 in which it was awarded the second place.



First Semester

We didn't realize we were making
mistakes until we knew we were a liability

Svce Pro

The official app



Second Semester

My GPA? Who do you think we ever met
before?

SVCE



Third Semester

Medicine is very difficult especially if it's

Nirmala Murali



Fourth Semester

Agenda: Increase your GPA start with
your first semester

Svce Pro - The official app of SVCE



Svce Pro - The official app of SVCE

When was the last time you called up your friends to get hold of notes? Back in the day, students at Sri Venkateswara College of Engineering would refer to printed notes to study for all the six subjects per semester along with the lab papers until 2015. The notes run for over 250 pages per subject and there are on an average of 6 subjects per semester apart from 3 laboratory experiments. This means that there will approximately 2000 pages of notes. This has to be distributed to approximately 1000 students which implies that there will be 2,00,000 pages to be distributed to the students. In other colleges where hard copies of notes are distributed, the students are charged Rs.10,000 to 15,000 per head. This has proven to be a failure due to the fact that students do not read from hard copies similar to how they don't read from text books in the first place. Also, the faculty will not be able to give videos of the lectures through notes. Then the college came up with the idea of "GO GREEN", an

initiative to reduce the usage of paper thereby reducing the wastage of paper in the form of notes which go useless once the exams end. Then the students started referring to the notes gathered from various colleges along with the soft copies from various websites, both of which were not proper. This continued for one more semester when two students from the department of INFORMATION TECHNOLOGY, Mr. Harish Anantharaman and Mr. Abdullah came up with an innovative idea of designing and developing a holistic, sophisticated mobile application to enhance the learning experience of the students of Sri Venkateswara College of Engineering by providing them with the necessary tools required through a comprehensive, cloud connected mobile applications. The application named "SVCE PRO", was released and made available in the google Play Store by the end of May 2017. It was an immediate hit among the students as well the teachers. This was because notes are

Svce Pro - The official app of SVCE



SVCE PRO

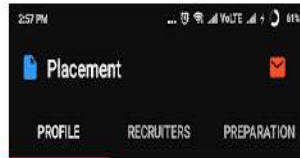
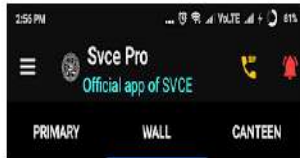
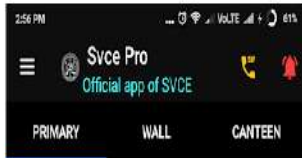
Amalgam Education

★★★★★ 317

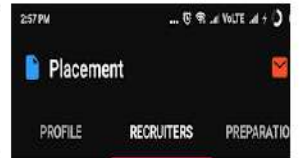


i This app is compatible with all of your devices.

Installed



The Training and Placement Cell headed by a Senior Professor in the college plays a very active role in getting our students placed in various leading Multi National companies (MNCs) and Indian Companies.



This app exposes students to the various traits of Sri Venkateswara College Of Engineering and also facilitates their academics by providing the necessary Notes/Lectures by means of a Cloud Backend. It helps the students to stay updated on the events/Workshops happening in the College

integral to the performance of students in the semester examinations since text books are voluminous and lengthy. Notes are a condensed form of the text book. They provide a simpler method to get marks and have several advantages over using text books and “SVCE PRO” made them available just one click away. The teachers found it easy too because they did not have to dictate the entire study material in their classes.

Students use their smartphones for a plethora of purposes. Websites have become a thing of the past and unless the site has a mobile version, students are reluctant to use them. In the age where everyone from restaurants to taxi companies use mobile apps, students will find an application for notes and academic purposes a lot more accessible and user friendly than other mediums.

Storage on the cloud provides an extremely fast and robust way of storing data with the additional advantage of 1TB storage and unlimited access. The data is all secure and backed up in addition to being very easily accessible by students.

The application not only consisted notes and reference materials but also details regarding,

- Bus schedules and bus routes
- Canteen menu and price of every item
- Names of the Faculty advisors for every class
- News feed to get to know the updates
- A chat bot for any queries

Every student can use their email id as the login id to log in to the application. The student upon opening the application has to select his or her year, semester, branch and section. The student may choose to view the timetable, bus routes, assessment details, question papers, notifications tab, faculty details, Map or Notes from this window. The student has to then click on the download option to store the notes offline.

SVCE PRO has become indispensable to that point where whenever any exam is conducted, students of SVCE consider notes from this application as their only reliable source of gathering notes. The developers have released six versions as updates and SVCE PRO has more than 5000 downloads in the Google Play store.



**State of
tech companies
in
2018**

**by
Niwedheethaa Muralidharan**

State of tech companies in 2018

Are Technology Companies Ripe for Disruption?
Talking about the fate of tech companies that continue to stuff their products with unwanted bells and whistles,

What's the Downside to Disruption in High Tech?

This column will give many readers an opportunity to join my rant about the need for disruption to combat the increasing inscrutability and waste of technological innovations from a user's point of view.

Several hypotheses advanced as to why high tech industries find themselves vulnerable to disruption today, reflect thoughts of those who have studied the phenomenon. Say "It is more important for Apple to out-do Samsung (and vice-versa) than it is for them to provide us with products and innovations that we can actually use." "I increasingly get the impression that some geek out there is trying to impress his/her peers and just confuses the customer."

There's an interesting theory to offer: "We try to make the software so flexible to reduce the cost of future changes. But I think we therefore omit the idea of quickly getting the user what they say they need--and then fixing it when the need changes." The affluence that enables customers to spend for unused functions may have something to do with it. Disruption is already happening in small ways in India. From the \$2,500 basic car, to \$100 smartphones for the masses to similar other innovative technologies for rural households. Each one of us has his

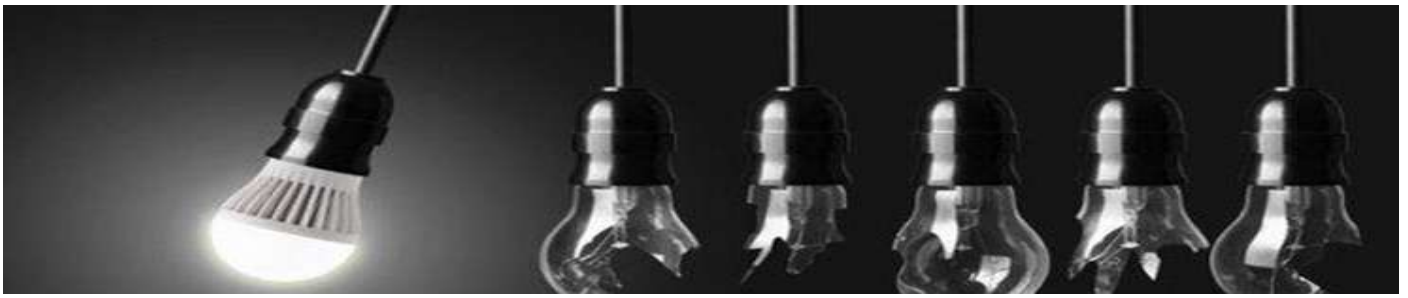
limited priorities and remains content with the absolute minimum only. There is a need for us to explore and improve knowledge and skills regularly.

I might point out that the high tech community is experiencing disruption at a rapid pace. Commenting on the irony that the cloud is today's mainframe, Mark Witczak observed, "What's old is young again. The same is true for other technologies. I suggest that the infotech revolution has been going on before our eyes, just not on a wholesale level." Added that "disruption is already happening (in infotech)... And more so than in manufacturing I suspect."

What's the downside to disruption in high tech? What do you think? I ask myself why I understand so little of the policy issues, product discussions, and even general news coming out of the tech world. That's the problem. I need to fix it by updating my tech skills and knowledge.

Is it my imagination, or has the world of information technology become so inbred that it is losing touch with users, particularly those of a certain age? If it's not my imagination, that's the tech world's problem and opportunity. At the risk of employing the most overused and misused term of the decade, are the masters of disruption themselves providing attractive opportunities to those who would disrupt them?

Disruption concerns the successful development of products and simple solutions with less functionality and much lower prices than competitors locked



product development strategy calling for growth through product obsolescence and more and more largely unused but expensive bells and whistles.

We're told that the typical user of information technology today utilizes less than 5 percent of the capability made available by today's hardware and software. A small number of basic functions repeatedly are put to good use by the typical user. They are the need-to-have functions. The functions thought by designers to be nice to have may enhance marketing efforts and satisfy software engineers' desires to make complex things, but they largely go unused. For some, they even make access to "need to have" functions more confusing.

How has this come to pass? Is it that much of the information technology we confront these days is the output of a small group of entrepreneurs, engineers, and venture capitalists located in close proximity to one another, frequenting the same restaurants, and speaking a language of their own? They represent a classic "cluster" from the world of competitive strategy. But are they denied exposure to consumers who are different from them in age, educational background, technological sophistication, and, as claimed in a recent, well publicized lawsuit, gender?

My inspiration for these rants is Scott Cook, co-founder of Intuit and a true disruptor.

From its founding Intuit, quickly became the leading producer of personal and small-business financial software. It did it by providing simple and inexpensive solutions to everyday problems. Initially it solved a problem in Scott's family of balancing the checkbook. Intuit is said to have been the 47th software company to address the problem. It did it by using as a metaphor the familiar checks and checkbooks that could be manipulated in non-threatening ways on a computer screen. Scott likes to say that Intuit had 47th mover advantage, in part because it adopted a strategy that identified the pencil as the company's most important competitor. As a result, Intuit has dominated markets and badly beaten Microsoft at the personal finance software game. And it has done so by hiring software engineers that are hard to find in Silicon Valley—those who actually like to design products that are simpler than those of competitors. Cook's company disrupted its industry.

This prompts several questions. Are information technology companies subject to the same kinds of blinkered strategies experienced in more traditional industries? Has there been sufficient effort to disrupt them? Or are my perceptions those of a generationally handicapped and challenged observer? Is it time for more disruption in infotech? If so, what will it take to achieve it? What do you think?

The Green Dream

by

Arvindh Raghavan



The green dream

The green dream



and market pencils made of waste news papers manufactured by 'ZOYO' company . These pencils , besides being made from eco-friendly sources, have another interesting advantage: they carry seeds of herbs or vegetables, thereby replacing the green cover it took to manufacture them in the first place!

A truly ingenious initiative, Keerthivasan works tirelessly, with ZOYO, with the goal of sponsoring Tamil books to at least 50 Government School libraries in the next 3 years.

So far, he has managed to contribute Tamil books to three such school libraries, The First being the Government Middle School at Silavattam village, in the Kanchipuram district on 7th July 2018. Second, the Government Higher Secondary School at Thirupanjali village, in the Trichy district on 10th Aug 2018. And finally he inaugurated the Library in the premises of Polat-chiamman Government middle school in Arakkonam municipality on 22nd September 2018 and sponsored books to the middle school.

The department of Information technology is proud of his endeavours, and our students are proud to count him among our ranks. We truly hope that many more follow his example, and join him in contributing to a better society, and a brighter future.

In the life of a modern undergrad , it's hard enough keep up with one's own deadlines, whether it is a record submission, an assignment, or an internal test . Rarer still, is somebody finding a life beyond the course-work. But a few, however, manage to out-shine us all achieving far more than the rest of us in the limited time given to them. An example of this , would be S.Keerthivasan. Keerthivasan is a second year student of information technology, here at Sri Venkateswara.

Choosing to make define himself with something beyond his major, he strives to create a greener better read, Tamil Nadu. Driven by his motto "Library for a school", he ventured an entrepreneurial initiative to promote

**Thumbs up to
your data!**

by

Kowshalyaa JK

Thumbs up to your data!

As Facebook faces a staggering \$1.6bn fine along with a formal investigation over its massive data breach that left millions of accounts vulnerable, various other organisations have come forward to assure their users on the safety and security standards followed in the way they process their user-data. But how secure is online communication in this digital world right now? Is our information really protected?

Generally, using two-factor authentication, which requires to perform something in addition to simply entering a password can be used to keep online services secure. Even that wouldn't have protected users from recent security breach because of the particular vulnerability used.

The next best step is to use biometric security. The idea of biometric security, if you're unfamiliar, is that people may use some distinct body attribute – such as a fingerprint, iris, or heart rate – to prove one's identity instead of a password.

In his PhD Thesis, Prof. Sukumar proposes an effective way to establish secure communication using fingerprint and secret data. In this approach, encryption of fingerprint data is an important step to provide security to the information. Fingerprint is encrypted using an encryption key and the secret data is embedded which improves security to the next level.

After getting the fingerprint and the secret data from the user, fingerprint is divided into four subimages and the key is also similarly divided. The images are shuffled and encrypted, after which identical values in LSB of images are removed, leaving behind free space in the process. The secret data is then embedded through a unique spiral pattern and encrypted fingerprint image is superimposed on a cover image without disconcerting the secret data. This superimposed image is then transmitted.

The secret data is extracted from cover image and is compared with secret database for authentication process. The authenticated data is retrieved from a database based on the matched result of both fingerprint and secret data. Therefore, the authenticated data can be retrieved from the authenticated database when a genuine user accesses the database with secret data making the system secure.

The proposed biometric application can be used in various fields such as Defence, Health Industry and Online Banking applications to name a few.





VR and AI

by

Supraja Tandra

Partnering VR and AI



From the last biennium, virtual reality (VR) has been the technology that incorporated mainly auditory, visual and sensory feedback like haptic. VR developers have learnt new applications beyond gaming and entertainment, but progress has been limited, to training and simulation situations. Then, along paralleled the Artificial Intelligence and big data, when everything changed for Virtual Reality (VR). We no longer describe it only in particular of Virtual Reality (VR) or Augmented Reality (AR), but in terms of extended reality (ER), with technology bringing many different types of data and actualities into an environment that is both intuitive and shareable.

Further, more interesting forms of extended reality could be the pairing of VR with artificial intelligence (AI). Partnering VR and specific forms of AI, such as robotics, natural language processing, and machine learning, among others, creates an extended reality (ER), where contenders become part of a virtual ecosystem and can interact with and dissect data within their real-world field of view

To visualize how extended reality works, look no further than to Hollywood where the characters were actually able to live in and interact with data as antithetical to just peruse it. But what was once the work of movie special effects departments could soon become a reality, applied directly to the compliance departments or front offices of financial institutions. The financial services industry has also trailed other industries such as fashion, retailing and automotive in exploding into the potential of extended reality. And while many compliance departments in the financial services industry are already using AI to slick the compliance function and some are traversing using VR as a training tool.

Here's how extended reality could ultimately assist financial services firms address the challenges of regulatory compliance, risk management and cyber security. Using ER tools, users become a part of system itself. For example, "walk" or click through a 3-D environment which represents the results of augmented surveillance of employee emails, chats via instant messaging and

calls. Rather than having the conventional methods to dig through the data for possible violations, ER will help us in underlining the problems in the possible ways.

Let's take a view at the case of trader who involves in transaction, trading with the major consumer products company. The ongoing systems might report this anomaly since the trader habitually limits his activity. But, that is when the work of a compliance officer begins, who must search for the scope of the problem.

ER on risk management

Having Extended Reality(ER) on board the view is completely different. ER tools instantly recognize the trader, complete list of their undertaken tasks in the previous year's till date, everyone with whom they have been in contact, their social media posts and spots any suspicious patterns or connections.

These are then displayed in a graphic format which makes issues immediately visible making it more efficient. Thus the decision to investigate further or to pursue more problematic cases become easier.

As of now most of these scenarios or cases exists are penned. But the extended reality future that lets organizations organize, analyze, visualize and show data in an undreamed way which is not too far away. we see a number of organizations prototyping these enhanced approaches. Most financial services firms have shown their interest and already have taken the first step towards adopting extended reality by aggregating vast quantities of data from internal and external sources. The next step is to put these tools together in an integrated manner. Extended reality will be a key element in the future.

PROGRAMS AND ACHIEVEMENTS



Two days workshop on react-up



guest lecture on developing global ready software



CSI student chapter



CSI hackathon

PROGRAMS AND ACHIEVEMENTS



CSI Quiz up



MOU with INFOZIAN



Seminar on
Strategy entrepreneurship



Guest lecture on
Future scope of
IT in digital transformation



OUTSTANDING ALUMNI AWARD

THANK YOU