Maratha Vidya Prasarak Samaj's
Karmaveer Adv. Baburao Ganapatrao Thakare College Of Engineering
Nashik-13.
(NAAC ACCREDITED INSTITUTE WITH 'A' GRADE)

DEPARTMENT OF ELECTRONICS &TELECOMMUNICATION ENGG.

Departmental *TeChronicle* **Month: -SEPTEMBER 2022**

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Department Vision:-

To be recognized as an excellent department offering competent technical education to create competent electronics & telecommunication engineers for the benefit of the common masses.

Department Mission:-

Committed to serve the needs of society through innovative teaching learning processes, promoting industry-institute interaction to provide competent and cultured electronics and telecommunication engineers.

Program Educational Objectives:-

1. *To impart state of art technical education in the Electronics & Telecommunication Engineering.*
2. *To promote society beneficial projects and activities.*
3. *To develop soft skill, team work, professional ethics and multidisciplinary approach for the carrier enhancement.*
4. *To bridge the gap between Industry-Institute through collaboration with Industries, Institutions and Universities.*
5. *To provide suitable infrastructure and facilities in tuned with advancing technological evaluation.*

Greeting,

Department of Electronics and Telecommunication Engineering is celebrating Engineers Day by unveiling technical newsletter "TeChronicle" VOL4, ISSUE-3 on 15th September 2022. The Government of India decided to mark the birth anniversary of Mokshagundam Visvesvaraya to remember his exceptional contributions in the field of Engineering.

James Webb Space Telescope: Deepest dive in space.

[*Tejas Gangurde & Aditya Murai.*]

The James Webb Space Telescope is the largest and most powerful infrared space telescope launched on Dec 25, 2021, from European Space Agency's launch site at Kourou in French Guiana, South America at 7:20 a.m. EST (1220 GMT; 9:20 a.m. local time in Kourou), aboard an Arianespace Ariane 5 rocket. The $10 billion James Webb Space Telescope, NASA's largest space observatory aims to uncover the history of the universe from the Big Bang to alien planet formation and beyond.

Areane 5 with JWST

From 1990 Hubble Space Telescope was the largest space observatory in cosmos since Galilio's

telescope, hereby James Webb Telescope will complement and extend the discoveries of the Hubble Space Telescope, with longer wavelength coverage and greatly improved sensitivity.

NASA, European Space Agency (ESA) and Canadian Space Agency (CSA) have collaborated on the JWST since 1996. In 2002 NASA administrator Sean O'Keefe made the decision to name the telescope after James E. Webb.

ESA providing the NIR Spec instrument, the Optical Bench Assembly of the MIRI instrument, an ARIANE 5 ECA launcher. The CSA provided the Fine Guidance Sensor and the Near - Infrared Imager Slit less Spectrograph and manpower to support the operation.

The James Webb Space Telescope has a mass of 14,300 lbs (6,500 kg) which is about half of the Hubble Telescope. JWST has a primary mirror size of 21.3 feet (6.5 meters) across, and sunshield of 69.5 ft by 46.5 ft (22 meters x 12 meters).

JWST can detect objects upto 100 times fainter than Hubble Telescope and objects much earlier in the history of the universe. JWST will orbit the sun, around the second Lagrange point (L2), nearly 1 million miles (1.5 million kilometers) from Earth.

James Webb Space Telescope released the deepest Infrared image of the Universe on 12 July 2022. President Biden unveiled **SMACS 0723**, known as **Webb's First Deep Field,** during a White House event.

References: jwst.nasa.gov
www.space.com

METAVERSE

[Omkar Kachole,T.E.E&TC]

Think about your favorite memory, person, place, games, movie scene, sports or any activity you wanted to do. As you close your eyes, take in the sounds and smells, hear the voices of the objects around you, listen to the blowing wind or the rustle of footsteps. Visualize everything around you, just as its real and you are able to sensitized them, just sitting at a one place. Is this possible...?

YES!!! Here's the term comes METAVERSE. Metaverse encapsulates everything that's happening now into its world and will bring real-time events and updates going forward! Just put on your headset, net connected electronic spec, head mounted displays and enter into new world having full of surprises and liberty. The user in metaverse has no boundaries, has different world. You can sign into your virtual office as a Virtual Avatar of yourself, go for a break and speak to your friend from IT, go explore the game room for a round of foosball, you can attend a music concert where your friends are already present, you can talk to them, can see them, can hear them, can catch their facial expression, can watch IPL match present in stadium and so more…

When we talk about internet, it is limited to 2-dimension technology but metaverse is ahead of internet, its 3-dimensional technology. You can completely in it in 3D. (Just like movie 'Free Guy'). You are gonna be able to do almost anything you can imagine. Get together with friends, family, work, learn, play, shop, create, that are limited by computers and phones. This technology made up of multiple elements of technology, virtual reality, augmented reality, and video where users "LIVE" within a digital universe.

But, do we really want this technology? Do we really want to distance ourselves from the real-life so much that we forget how to live real lives? That we spend all our lives in this fake artificial world? Is this necessary? If this virtual world becomes so addictive and immersive, somewhere the other people will stop worrying about real world. It's truly DISTOPIAN! Also, there's chances of data thefting and surveillance without consent. Thus, the Metaverse is still a concept that's being brought to reality and is accompanied by its own set of challenges…

Reference: https://en.wikipedia.org/wiki/Metaverse
https://www.wired.com/story/what-is-the-metaverse/

Current Trends of Software Development

[Samruddhi Wadgaokar, T.E.E&TC]

The first company founded to provide software products and services was computers usage company in 1955. Before that time, computers were programmed either by customers, or the few commercial computer vendors of the time, such as Sperry Rand and IBM.

The software industry expanded in the early 1960s, almost immediately after computers were first sold in mass-produced quantities. Universities, government, and business customers created a demand for software. Many of these programs were written in-house by full-time staff programmers. Some were distributed freely between users of a particular machine for no charge. Others were done on a commercial basis, and other firms such as computer science corporation (founded in 1959) started to grow. The computer/ hardware makers started bundling, operating systems, system software and programming environments with their machines.

The Growth and Evolution of India's Software Industry

The development of the Indian software industry is an archetype of how economic liberalization combined with an entrepreneurial spirit can build an industry that today contributes as much as 8% to the GDP of a fast-growing country like India. On the back of thousands of IT services companies that were built over the last three decades, the industry has generated US$177 billion in revenue and more than US$135 billion in exports in FY 20182019 alone.

The current wave of Indian software entrepreneurs is focusing on building platforms and products for Indian and global markets. This has led to the creation of more than 7,000 tech startups in India. India is already home to 18 unicorns (start-ups valued in excess of US$1 billion), and another 10 are expected to be added by the end of 2020.

Latest Technical News:

Reliance Jio going with Nokia, Ericsson to roll out 5G network in October

Reliance Jio is close to finalizing its contract with telecom gear maker Ericsson to roll out its 5G network in Mumbai and Maharashtra and Kolkata and West Bengal in the first phase of its launch in October. And it is going with Nokia for the lucrative Delhi circle, and Chennai, which includes Tamil Nadu, say sources aware of the development.

Cryptocurrency and bitcoin price today; BTC, ETH price rises: Key cryptocurrencies exhibited a positive trend on September 9, Friday midday as the global cryptocurrency market cap rose 4.5 per cent to $1068.33 billion in the last 24 hours. The total crypto market volume is 83.49 billion over the last 24 hours.

The price of Bitcoin gets to Rs 1,621,149 while Ethereum is currently at Rs 135,110. The fluctuating prices of cryptocurrencies will help you know the trends, prices and growth changes.

Huawei launches Mate 50 series with satellite connectivity ahead of Apple

As Apple is rumored to launch iPhone 14 with satellite connectivity option, Chinese tech company Huawei has launched the Mate 50 smartphone series that allows users to send text messages via satellite communication.

The Mate 50 and Mate 50 Pro smartphones will allow users to send short texts via China's global BeiDou satellite network, allowing for communication in areas without connectivity.

Launching the Mate 50 smartphone series on Tuesday, Richard Yu, CEO, Huawei's Consumer Business Group, said that the smartphones could support satellite-based short message service (SMS).

Current Trends of Software Development

There are many current trends that innovators, and early developers adopted in the 21st century. The trends are

Micro service orchestration: Developers break the application into loosely coupled services. Then they coordinate, configure, and manage them.

API Design: Designing an application programming

interface (API) will bring out the exposed data and new functionality to improve the developer experience for easy coding and implementation.

Cross-platform: It makes the software work on different computing platforms. In other words, it allows the software to support android, IOS, and windows and improves an organization's economic significance. That is why this development trend is rising in the 21st century.

GraphQL: is a query language that makes the APIs fast, flexible, and developer-friendly. This trend helps developers provide complete and understandable data in a single query call.

Blockchain: This trend stores transactional records and prevents them from changing. This trend is shining in the cryptocurrency field.

Reactive Programming: This trend helps developers handle more requests at a time without wasting threads. It also indirectly enables developers to be more creative and innovative in their software.

CI/CD: This pipeline trend mainly introduces automation to DevOps teams to perform development, test, and drive operations in a constant flow.

Emerging Technologies in Tech Industry

1**.Low code development**

Low-code is an application development method that elevates coding from textual to visual. Rather than a technical coding environment, low-code operates in a model-driven, drag-and-drop interface. All development skill levels professional developers, novice developers, subject matter experts, business stakeholders, and decision makers can use low-code to build value-driven enterprise business application.

Low-code development solutions provide building blocks that IT users can assemble into workflows and applications. These building blocks abstract away the code behind actions and commands, making it possible for IT to assemble workflows and business apps without the need for hand-coding

2.Blockchain technologies:

In a few words, Blockchain is a digital ever-growing list of data records. Such a list is comprised of many blocks of data, which are organized in chronological order and are linked and secured by cryptographic proofs.

Although the blockchain technology is older than Bitcoin, it is a core underlying component of most cryptocurrency networks, acting as a decentralized, distributed and public digital ledger that is responsible for keeping a permanent record (chain of blocks) of all previously confirmed transactions. The technology of block chain may also be adapted and implemented in other activities, such as healthcare, insurance, supply chain, IOT, and so on. Although it was designed to operate as a distributed ledger (on decentralized systems), it may also be deployed on centralized systems as a way to assure Data integrity or to reduce operational costs.

3.Artificial intelligence:

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

The term "Artificial Intelligence" refers to the simulation of human intelligence processes by machines, especially computer systems. It also includes Expert systems, voice recognition, machine vision, and natural language processing (NLP).

4.Progressive web apps:

A progressive web app (PWA) is a website that looks and behaves as if it is a mobile app. PWAs are built to take advantage of native mobile device features, without requiring the end user to visit an app store, make a purchase and download software locally.

While PWAs are written to run on a web browser. Native apps are developed with the programming languages of each platform (Objective-C and Swift for iOS and Java for Android). On the other hands, developers use HTML, CSS, and JS to create a PWA

5.Cybersecurity

Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. These cyberattacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users or interrupting normal business processes.

Cybersecurity analysts protect computer networks from cyberattacks and unauthorized access. They do this by trying to anticipate and defend against cyber threats, and responding to security breaches when they do happen. In this job, you play a key role in protecting your organization's valuable data.

Committee Members	
Dr. Vijay M. Birari	Editor in Chief
Ms. T. S. Deshmukh	Co-Editor
Mr. Viraj R. Sonawane	Staff Coordinator
Mr. Tejas Gangurde	Student Coordinator
Mr. Omkar Kachole	Student Coordinator
Ms. Samruddhi W.	Student Coordinator
Mr. Aditya Murai	Student Coordinator

Website: www.kbtcoe.org

Email Id: techronicle.etc@gmail.com