**Anish Dutta, IT 3rd Sem.**

## Vision :

To produce competent IT professionals who will contribute towards the advancement of engineering, science and technology for the benefit of society, industry and academia.

## Mission :

- To impart quality and value based education towards achieving excellence in teaching-learning and inculcate research environment.

- To produce successful graduates with professional ethics, responsibilities and commitment towards the society.

- To enable graduates for providing effective solutions to real life engineering problems and thereby incorporate self-development entrepreneurship skills.

**Pallab Saha, IT 5th Sem.**

## HoloLens

HoloLense is a pair of mixed reality headmounted smartglasses. HoloLens is essentially a holographic computer built into a headset that lets you see, hear and interact with holograms within an environment such as a living room or an office space. It is based on Augmented reality, Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data. The history of augmented reality can be traced back to 1990 and work undertaken by Professor Tom Caudell as part of a neural systems project at Boeing.

Hololens has user interface so it takes voice, gaze and gestures as input command. Than internal computer works on input command. Now projection of hologram, for projection hololens use the HUE(head up display) method two nano-projector located at each side of head and semi transparent visor which reflect the image as light on users eye. Microsoft explains the holographic element in this way: "The key to a great holographic experience holograms that are light point rich, i.e. have a high holographic density, and are pinned or anchored to the world around you. To achieve this, HoloLens has been designed for optimal holographic density of 2.5K radiant. The more radiant and light points there are, the brighter and richer the holograms become."

# 2022 Gartner Hype Cycle for Emerging Technologies

As per Gartner Hype Cycle for Emerging Tech, 2022 fit into three main themes:

⇒ **Theme 1: Evolving / expanding immersive experiences**

Digital twin of the customer (DToC) is a dynamic virtual representation of a customer that simulates and learns to emulate and anticipate behavior. It can be used to modify and enhance the customer experience (CX) and support new digitalization efforts, products, services and opportunities. These technologies also provide new ways to reach customers to strengthen or open up new revenue streams.

Other critical technologies in immersive experiences include: **Decentralized identity (DCI), Digital humans, Metaverse, Non-fungible token (NFT), Web3**

⇒ **Theme 2: Accelerated AI automation**

Expanding AI adoption is a critical way to evolve products, services and solutions. It means accelerating the creation of specialized AI models, applying AI to the development and training of AI models, and deploying them to product, service and solution delivery. Autonomic systems are examples of accelerated AI automation. They are self-managing physical or software systems, performing domain-bounded tasks that exhibit three fundamental characteristics: autonomy, learning and agency.

Other critical technologies in accelerated AI automation include: **Causal artificial intelligence (AI), Foundation models, Generative design AI, Machine learning code generation**

⇒ **Theme 3: Optimized technologist delivery**

These technologies focus on key constituents in building a digital business: product, service or solution builder communities and the platforms they use. Cloud data ecosystems exemplify optimized technologist delivery which provides a cohesive data management environment that ably supports the whole range of data workloads, from exploratory data science to production data warehousing. Cloud data ecosystems provide streamlined delivery and comprehensive functionality that is straightforward to deploy, optimize and maintain.

Other critical technologies in optimized technologist delivery include: **Cloud sustainability, Cybersecurity mesh architecture (CSMA), Data observability, Dynamic risk governance (DRG), Industry cloud platforms, Minimum viable architecture (MVA), Observability-driven development (ODD), OpenTelemetry.**

Dr. Sirsendu Sekhar Ghosh, HOD-IT

Raushani Singh, **IT 3rd Sem.**

**Anish Dutta, IT 3rd Sem.**

# Crypto-Currency

Bishal Das, IT 5h Sem.



Crypto currency is an encrypted digital currency that is processed and validated through data mining. The term has got wide popularity in recent times and it has become stronger by 400 percent of its initial value.

The process of using cryptocurrency for transaction is complex. There is no third party involved between the two who are transacting. Once a request is generated, a minor has to solve a complex problem after which the transaction is validated and kept in a public ledger. Public ledgers are like a storage bank where all the confirmed transaction are kept. The identity of the individuals is kept confidential. Bitcoin is one such cryptocurrency. It was the brainchild of Satoshi Nakamoto who in 2009 invented Bitcoin. Bitcoins are infused in the market through miners. Once a transaction is validated miners got Bitcoins as rewards. More number of transactions means more number of Bitcoins in the market.

But Recently RBI issued guidelines to banks and Non-Banking Financial Institution (NBFI) saying that any entity dealing in Cryptocurrency should be done away with. As there is a possibility that money through this can be channelled to fund terrorist activities, money laundering and other fraudulent activities.Given, the rising tensions between superpower and uncertainty about dollar fluctuation, Cryptocurrency can provide an alternative source. These can be made more secure through global norms.so, With Cryptocurrency entering the internet world we can see great changes in this fast pace world.

# Network On Chip (NOC) in TCMP

Subrata De, Asst. Prof., IT
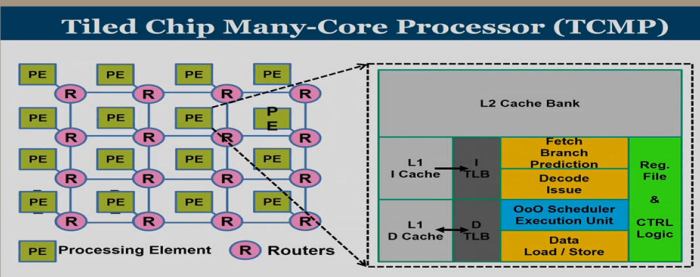


In TCMP eachtile is a processing elements(PE) which house the processors and its associated levels of cache memories. And these processing elements are connected to routers(R).

The **network on chip**(NOC) which is a packet based network, is going to connect multiple tiles. Tiles are interconnected by a set of routers and links.
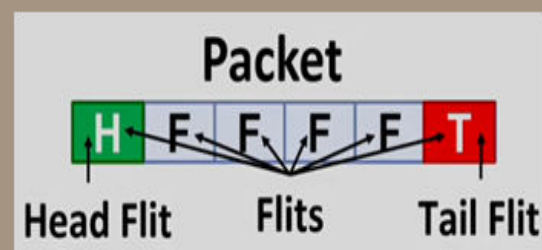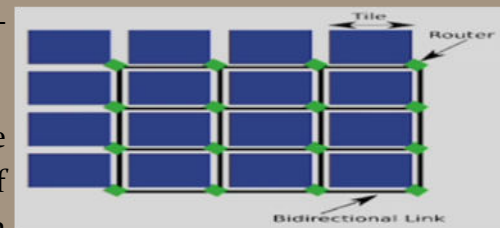




Packet is a basic unit of transfer in the network, whereas flit is the basic unit of transfer between a pair of routers. Data is moving from one router to another not in terms of packets, but they are in terms of flits. The packet is divided into smaller flow control units called flits.

## Student Achievements

- Anish Dutta from IT Dept. own the 1st prize in Uttarbanga Alok Chitra Protijogita in 2022.
- IT Dept. students attended weapons display ceremony event at Trishakti Auditorium Sports Complex near Santushti Shopping Complex, Sukhna organized by AAG, HQ 33 Corps celebrating Azadi ka Amrit Mahotsav on 10th August, 2022.
- **Computational Research Club (CRC)** maintained and participated by IT Dept. students to provide a platform for the students to share their innovative ideas for implementing innovative project and thereby help them to publish in reputed journal and conference proceedings.
- Students of **IT Dept.** participated and won prizes in Cricket, Football and Volleyball tournaments in the Annual Games & Sports, 2022 organized by Siliguri Institute of Technology.

# Augmented Reality

Abinash Chhetri, IT 5th Sem.



**Introduction:**

Augmented reality and virtual reality technologies are increasing in popularity. Augmented reality has thrived to date mainly on mobile applications, with games like Pokémon Go or the new Google Maps utility as some of its ambassadors.

**Is It Real?**

To the extent that a VR system supports natural sensor motor contingencies (being able to use the body to perceive in a manner similar enough to perception in everyday reality) it will typically lead to participants experiencing "place illusion," the illusion of being in the place depicted by the virtual reality. A VR system may support (i) credible responses to the actions of the participant, (ii) contingent events that are directed specifically and personally toward the participant (for example a virtual human character smiles at the participant), and (iii) scenarios that are faithful to expectations when they simulate events that could occur in reality in a domain in which the participant has expertise. To the extent that these three are supported, the VR experience may become a plausible one, where participants have the illusion that the depicted events are really happening.

Future :

      1) LiDAR will bring more realistic AR creations to our phones

      2) VR headsets will get smaller, lighter, and incorporate more features

      3) Encouraging Active Learning

## Faculty Achievements

- **Asit Barman** successfully attended and completed FDP on "5G Wireless Communication Technology"28 – 30 July, 2022 IEEE.
- **Dr. Sirshendu Sekhar Ghosh** successfully participated in IP Awareness/Training program under National Intellectual Property Awareness Mission (NIPAM) on 06th July, 2022 organized by Intellectual Property Office, India.
- Successful participation in the FDP on **"Research Trends and Methodologies in Machine Learning"**(RTMML-2022) during 25 – 29, July, 2022, organized by Departments of CSE., CSE (AIML), Computer CSE( CS), CSE (DS) in association with IQAC, Haldia Institute of Technology, ICARE Complex, Hatiberia, Haldia, WB-721657.
- Successful participation in the FDP on **"Cyber Security and Blockchain Technologies"** during 25 – 29, July, 2022, organized by Amity Institute of Information Technology, Amity University, Kolkata.

## ROADMAP