

Message from the desk of

Director, SIT

It is a great pleasure for me to know that the Department of Information Technology is going to publish its news letter "TechTime".



I do believe that this news letter will reflect the ideas and planning of the Department for fruitful utilization of the knowledge base of the teachers and students as a whole.

The focus will also be given in the innovative practices of the Department to culminate the new thinking amongst the budding engineers for positive contribution in the real life.

I wish a colorful opening of the news letter.

[Dr. J. Jhampati]
Banga Ratna
Director

Message from the Editor

We are delighted to announce the publication of the inaugural edition of our departmental newsletter "TechTime" - a biannual publication, concerned with providing the latest information and trends in technology across the world.

"TechTime" will send a positive signal to the students and staffs who are interested in the educational and literary activities. Like a mirror it reflects the clear picture of all sorts of activities undertaken by the department and develops writing skills among students. We fervently hope that our students and teachers will keep their unremitting support for the issue to come to enrich the quality of our news letter.

Mr. Prasanta Kr. Roy

Mr. Mainak Sanyal

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.**

Information-Centric Networking: The Future Internet

The current Internet addresses content by location. It is based on point-to-point connections, which eventually means that every connected device has to be uniquely addressable through a hostname or an IP address. This paradigm was originally designed for sharing resources rather than data. Nowadays most people exploit the internet to get contents such as web pages, music or video files. These users only value "what" they download and are not interested about "where" content are actually stored. But, the IP layer does the opposite and cares about the "where" and not about the "what". This contrast between the actual usage of the Internet and the service offered by the IP layer is deemed to be the source of several problems concerning usability, performance, security, and mobility issues. The recently emerged Information-Centric Networking (ICN) paradigm and its most prominent realizations such as Named Data Networking (NDN) and Content-Centric Networking (CCN) provide an efficient communication model suitable for present and future internet applications. Information-Centric Networking (ICN) is a new networking paradigm that addresses content by name instead of location. Its goal is to replace the current "where" with "what", since the location of most content on the Internet is irrelevant to the end user. Within the last few years, ICN/NDN/CCN has evolved from the basic research phase and into the applied research phase to address real world problems including industrial control systems, scientific applications, as well as tactical network environments. The core building blocks of ICN/NDN/CCN provide features such as application-defined hierarchical naming, built-in security, stateful forwarding (which enables network intelligence and packet loop suppression), in-network caching, and organic multicast support. These ICN/NDN/CCN features enable more efficient communication, better resilience to challenging network dynamics, and improved latency and data delivery.

Prasanta Kumar Roy
Asst. Professor
Dept. of Information Technology



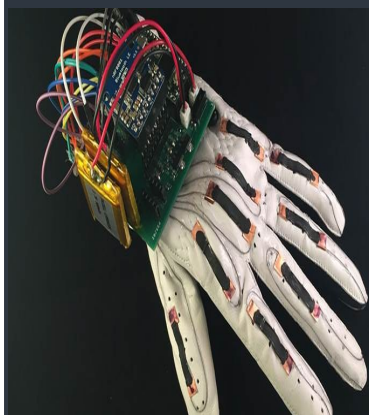
Concept of Smart City

Arzu Das
IT 6th Sem.

A **smart city** is an urban area that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently. This includes data collected from citizens, devices, and assets. That is processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals, and other community services. Smart city concept integrates information and communication technology (ICT), and various physical devices connected to the network (the Internet of things or IoT). Those optimize the efficiency of city operations and services and connect to citizens. Smart city technology allows city officials to interact directly with both community and city infrastructure and to monitor what is happening in the city and how the city is evolving.

ICT is used to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to increase contact between citizens and government. Smart city applications are developed to manage urban flows and allow for real-time responses. A smart city may therefore be more prepared to respond to challenges than one with a simple "transactional" relationship with its citizens.

Major technological, economic and environmental changes have generated interest in smart cities, including climate change, economic restructuring, the move to online retail and entertainment, ageing populations, urban population growth and pressures on public finances. Major technological, economic and environmental changes have generated interest in smart cities, including climate change, economic restructuring, the move to online retail and entertainment, ageing populations, urban population growth and pressures on public finances. Examples of Smart City technologies and programs have been implemented in Dubai, Milton Keynes, Southampton, Amsterdam, Barcelona, Madrid, Stockholm, China and New York.



"The Language of Glove", a smart glove that can wirelessly translate sign language into text and control objects in virtual reality games.



Augmented Reality

Augmented Reality

Gargi Bhattacharya
IT 6th Sem.

Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are "augmented" by computer-generated perceptual information, ideally across multiple sensory modalities, including auditory, haptic, somatosensory, and olfactory. Augmented reality alters one's current perception of a real world environment. Augmented Reality is related to two largely synonymous terms: mixed reality and computer-mediated reality. The first functional AR system that provided immersive mixed reality experiences for users were invented in the early 1990s, starting with the Virtual Fixtures system developed at the U.S. Air Force's Armstrong Labs in 1992. Augmented reality experiences were used in entertainment and gaming businesses, now other industries are also getting interested about AR's possibilities for knowledge sharing, educating, managing the information flood and organizing distant meetings. Augmented reality is also transforming the world of education, where content may be accessed by scanning or viewing an image with a mobile device.

Augmented reality is used to enhance the natural environments or situations. Information about the surrounding real world of the user becomes interactive and digitally manipulable.

Various technologies are used in augmented reality rendering, including optical projection systems, monitors, handheld devices, and display systems worn on the human body. Modern HMDs often employ sensors for six degrees of freedom monitoring that allow the system to align virtual information to the physical world and adjust accordingly with the user's head movements. Games such as Pokémon Go and Ingress utilize an Image Linked Map interface, where approved geotagged locations appear on a stylized map for the user to interact with.

The concept of modern augmented reality depends on the ability of the device to record and analyze the environment in real time.



One of the most trending topics now is **crypto currency**. Which is a digital currency, uses cryptography for its secure transactions. The validity of each crypto currency coins is provided by a block chain. The best known example is 'Bitcoin'.

The process here is complex. When transaction takes place and is broadcasted to P2P technology, consisting of computers, known as nodes. The network of nodes then validates the transaction using predefined algorithms. Once the transaction is completed, it is no more forgeable. Its supply is not determined by a central bank and the network is completely decentralized.

There are over 740 types of crypto currency. But out of which only 24-26 has market capitalization.

Multi-Core Processors

Subrata De

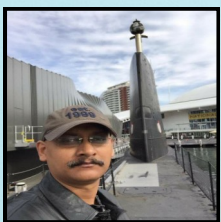
Asst. Professor , Dept. of Information Technology

Multi-Core Processors are basically a processing system composed of two or more independent cores or CPUs. The cores are typically integrated onto a single integrated circuit silicon die or they may be integrated on multiple dies in a single-chip package. Cores share memory. In modern multi-core systems, typically the L1 and L2 cache are private to each core, while the L3 cache is shared among the cores. **i.)** In symmetric multi-core systems, all the cores are identical. Example: multi-core processors used in computer systems, **ii)** In asymmetric multi-core systems, the cores may have different functionalities.

To meet high performance demands of various applications, multi-core systems are used, since we can not increase clock frequency beyond certain limit, mainly due to power consumption issues. So, possible solution is to replicate hardware and run them at a lower clock rate to reduce power consumption i.e. 1 core running at 3 GHz has the same performance as 2 cores running at 1.5 GHz, with lower power consumption.

Traditional Multiprocessor Architectures can be broadly classified into two types: a) Tightly coupled multiprocessors b) Loosely coupled multiprocessors. Multi-core architectures fall under tightly coupled multiprocessors category. Here the processors access common shared memory. Inter-processor communication takes place through shared memory. In this category, it is very difficult to extend it to a large number of processors because memory bandwidth requirements increase with the number of processors. Here memory access time for all processors is uniform i.e. *Uniform Memory Access*. In Loosely coupled multiprocessors category, Memory is distributed among the processors. Processors typically communicate through a high-speed interconnection network.

OUR PRIDE



Rajarshi Bhose , IT 2003 passout .

General Manager at IBM. He has **5 granted patents on Big Data & Distributed Computing** and several in patent pending stages and also has deep experience in enterprise architecture, product development, research on Big Data, Cloud and Distributed Computing.



Rupsa Chakraborty , IT 2003 passout .

Principal Software Engineer at Cadence Design Systems. She worked as a Component Design Engineer with the Design Automation group of Intel, Bangalore, India from 2010 - 2012. First GATE scorer from SIT. She completed her ME from **BESU, Shibpur** in 2005 (now known as IEST) and completed her PhD from **IIT, Kharagpur** in 2010. She also served as a reviewer for IEEE Transactions on Circuits and Systems.



Samrat Seal, IT 2003 passout .

Sr.Project Manager (Agile) at MLC Australia, with more than 14 years of overall experience in Project/Program Management Consulting practices across Digital Transformation, Business System Integration, Enterprise Application Development.

Departmental Achievements

Paper Publication of our faculties

1. **Asit Barman** and Paramartha Dutta, "Facial expression recognition using distance and shape signature features", Pattern Recognition Letters, Elsevier (2017). DOI: <https://doi.org/10.1016/j.patrec.2017.06.018>.
2. **Asit Barman** and Paramartha Dutta, "Facial expression recognition using distance signature feature", in proceedings of International Conference on Advanced Computational and Communication Paradigms (ICACCP), Sikkim (2017), Springer. [In Press]
3. **Prasanta Kumar Roy**, Sangram Ray and Mou Dasgupta, "Energy Efficient Content dissemination architecture for content centric network", in proceedings of Innovative research in engineering and science (IRES), Bangkok, Thailand (2017), Springer. [In Press]
4. **Prasanta Kumar Roy**, Krittibas Parai, **Sathi Ball** and Bipin Kumar, "A new enhanced Secure anonymous communication with authentication and session key agreement in global mobility network", in proceedings of 3rd IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), Kolkata (2017), IEEE. DOI: 10.1109/ICRCICN.2017.8234490.

EVENTS ROADMAP



Faculty & Staff
Members of IT Dept.



Wall Magazine
LOGIC



Induction
Program



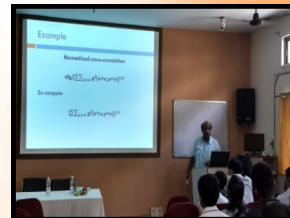
Fresher's



Two days seminar on
Image Processing



Lecture session of
seminar



Lecture session of
seminar



Group photo with
the speaker



Two days workshop
on IoT



Inaugural of two
days seminar



Lecture session of
seminar



Group photo with
the speaker