



DRONTECHCONNECT

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# DRON TECH CONNECT

**SE IOT & CYBER SECURITY**

**EDITION**

Vol III Issue I (July-Dec 2022)





DRONTECHCONNECT

# EDITORIAL MESSAGE



**Dr. Megha Goel**  
(HOD CSIT)

**Dear Readers,**

Welcome to the latest edition of DronTechConnect!

Our Computer Science and Information Technology (CSIT) Department stands as an exemplary hub of innovation and learning. With cutting-edge curricula and state-of-the-art facilities, we offer an unparalleled academic experience. Our esteemed faculty comprises industry experts and dedicated researchers, fostering an environment that encourages critical thinking, creativity, and problem-solving skills. Through robust industry connections and internships, students gain practical exposure and hands-on experience in diverse technological domains. Our CSE department prides itself on producing graduates equipped with the expertise and adaptability to thrive in the ever-evolving tech landscape, making a significant impact in the world of technology.

Throughout these pages, you'll discover insightful articles, thought-provoking research, and inspiring stories from our students. From groundbreaking projects to perspectives on emerging technologies, this magazine showcases the diverse talents and accomplishments that make the department truly exceptional.

We hope this edition sparks your curiosity, ignites your passion for technology, and provides a glimpse into the exciting advancements happening within department. Thank you to all the contributors for sharing your expertise and experiences. We invite you to explore, learn, and be inspired by the incredible work showcased in this edition of our CSE department magazine.

**Happy Reading!**

**Warm Regards**  
**Dr. Megha Goel**  
**Editor-in-Chief, DronTechConnect**



# EDITORIAL BOARD



## Editor in Chief

It gives me immense pleasure to present our college magazine, a culmination of creativity, innovation, and academic excellence. Within these pages, you'll witness the remarkable dedication and hard work of our Computer Science and Engineering (CSE) department. In this issue, I encourage you to explore the diverse perspectives and accomplishments featured here.

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# VISION

To facilitate high quality education in Information Technology and progressive atmosphere to the students so that they can fit into the competitive atmosphere in the global market.

To provide a learning ambience to enhance innovations, problem solving skills, managerial qualities, team-spirit and ethical responsibilities.

To provide exposure to latest tools and technologies in the area of Information Technology.

To support society by participating in & encouraging technology transfer.

To undertake collaborative learning which offers opportunities for long term interaction with academia and industry.

# MISSION



# PROGRAM EDUCATIONAL OBJECTIVES (PEO)

- Achieve strong fundamentals, domain knowledge through projects and industrial training and be updated with recent technology to provide the effective solutions for Information Technology problems and meet the industry standards.
- Provide socially responsible, society friendly solutions to Information Technology related broad-based problems adapting professional ethics
- Able to face the challenges in professional practices in consistency with the societal needs, global factors and adherence to professional ethics, which will lead to lifelong learning.
- Solve broad-based problems individually and as a team member effectively in the world of work.

## Programme Outcome

### Engineering Graduates will be able to:

**PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2. 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.

**PO3. 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.

**Po4. 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.

**Po5. 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.

**Po6. 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.

**Po7. 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.

**Po8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities & norms of the engineering practice.

**Po9. Individual & team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**Po10. 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 & receive clear instructions.

**Po11. 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.

**PO12. 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.

# Understanding TCP/IP: The Backbone of Internet Communication



**Divya Sharma**  
(22654; CSIT)

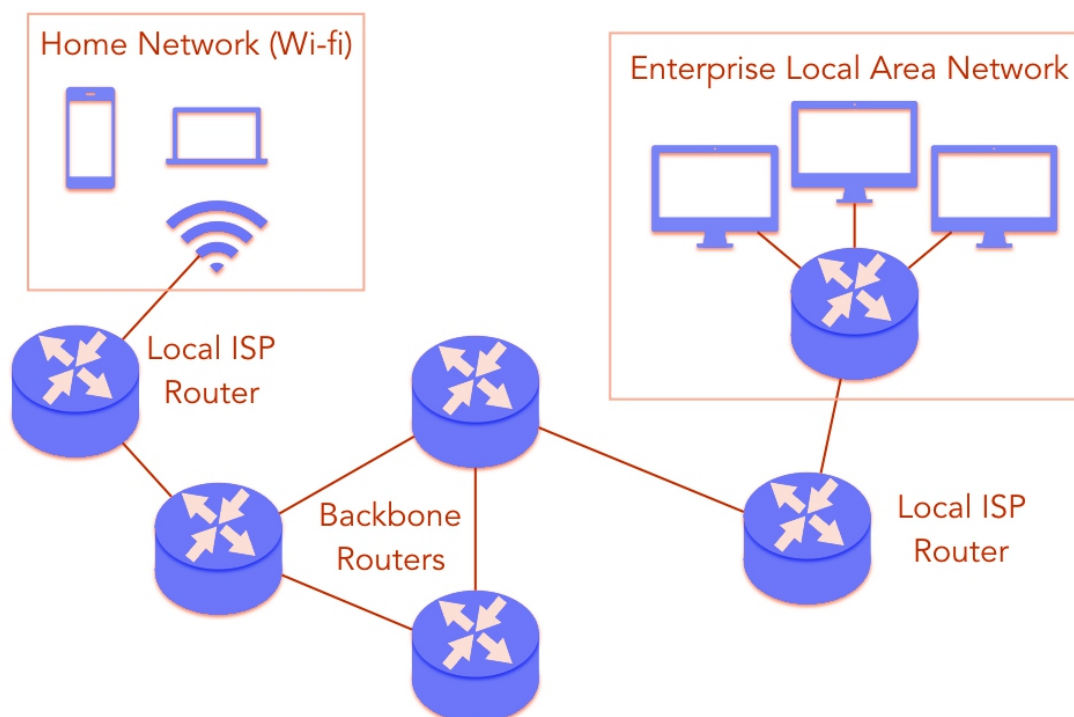
The Transmission Control Protocol/Internet Protocol (TCP/IP) is the foundational suite of protocols that enables communication across the vast landscape of the internet. Developed in the 1970s by Vinton Cerf and Bob Kahn, TCP/IP serves as the fundamental framework for data exchange between devices, ensuring seamless connectivity worldwide.

TCP/IP consists of two main protocols: Transmission Control Protocol (TCP) and Internet Protocol (IP). IP handles the addressing and routing of data packets, assigning unique numerical addresses to devices and directing data to its destination. TCP, on the other hand, manages the reliable and orderly transmission of these data packets, ensuring that information reaches its intended recipient intact and in the correct order.

The four layers of the TCP/IP model - Link, Internet, Transport, and Application - provide a structured approach to networking. The Link layer deals with physical network connections, the Internet layer handles addressing and routing, the Transport layer manages end-to-end communication, and the Application layer supports specific network applications.

TCP/IP's robustness lies in its ability to adapt to diverse network architectures, allowing for interconnectivity between different devices and platforms. This universality has made it the standard protocol for internet communication, fostering interoperability and enabling the growth of the World Wide Web.

In conclusion, TCP/IP is the backbone of internet communication, facilitating the seamless exchange of data across the global network. Its reliability, adaptability, and structured architecture have played a crucial role in the evolution and expansion of the digital age, making it an indispensable protocol suite in the realm of networking.



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**Divya Sharma**  
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# The Fascinating World of Voice Morphing: Transforming Soundscapes



**Ankit Prajapati**

(22643; CSIT)

Voice morphing, a captivating technological innovation, empowers users to alter or manipulate their vocal characteristics, offering a myriad of applications ranging from entertainment to security. This cutting-edge technology utilizes advanced algorithms to modify the pitch, tone, and timbre of a person's voice, creating a transformed audio output.

In the realm of entertainment, voice morphing has become a popular tool for content creators, enabling them to craft unique characters and narratives. From animated films to video games, the ability to morph voices adds depth and creativity to storytelling. Additionally, in the music industry, artists can experiment with different vocal styles and create innovative soundscapes.

Beyond entertainment, voice morphing has found applications in security and privacy. Authentication systems are increasingly incorporating voice morphing detection to enhance security measures. By analyzing speech patterns and detecting anomalies, these systems can identify potential fraud or unauthorized access attempts, making voice morphing a valuable asset in safeguarding sensitive information.

However, as with any technology, there are ethical considerations surrounding voice morphing, particularly in the context of deepfake technology. Misuse of voice morphing capabilities can lead to the creation of deceptive content, raising concerns about misinformation and privacy infringement.

In conclusion, voice morphing stands at the intersection of creativity, technology, and security. Its ability to transform voices opens up new possibilities in entertainment and enhances security measures in various fields. As this technology continues to evolve, it is crucial to balance its innovative potential with ethical considerations to ensure responsible and beneficial use in our interconnected digital landscape.



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**Ankit Prajapati**

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# Mobile Computing Unleashed: Transforming Lives through Connectivity



**Jatin Khatana**

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Mobile computing has emerged as a revolutionary force, reshaping the way we interact with technology and the world around us. With the proliferation of smartphones, tablets, and wearable devices, the concept of computing has transcended the boundaries of traditional desktops, empowering individuals with on-the-go access to information and services.

One of the primary applications of mobile computing is in communication. Smartphones have become indispensable tools for staying connected with friends, family, and colleagues. Mobile communication apps, social media platforms, and instant messaging services have transformed the way we share information, fostering real-time connectivity across the globe.

Mobile computing has also revolutionized the business landscape. Mobile applications allow businesses to streamline operations, enhance customer engagement, and provide personalized services. From mobile banking to e-commerce apps, the business ecosystem has adapted to the mobile-first paradigm, creating new opportunities and efficiencies.

## Applications of Mobile Computing



Exploring Innovative Applications

Social Media Applications

Business Tools

Educational Applications

Gaming Applications

Shopping Applications

Mobile Security

In the field of healthcare, mobile computing has facilitated significant advancements. Mobile health (mHealth) applications enable individuals to monitor their health, access medical information, and even consult with healthcare professionals remotely. Wearable devices equipped with health sensors provide continuous health monitoring, empowering users to take a proactive approach to their well-being.

Education has also undergone a transformation with the integration of mobile computing. Mobile learning apps and platforms provide access to educational resources anytime, anywhere. This has democratized education, breaking down barriers to learning and offering flexibility to students of all ages and backgrounds.

The realm of entertainment has not been left untouched by the wave of mobile computing. Streaming services, mobile games, and multimedia applications have become prevalent, offering users a diverse range of entertainment options at their fingertips.

As mobile computing continues to evolve, emerging technologies like 5G, augmented reality (AR), and the Internet of Things (IoT) promise to push the boundaries further. The seamless integration of mobile devices into various aspects of our lives underscores the transformative power of mobile computing, enhancing convenience, efficiency, and connectivity on a global scale.

