DRONTECHCONNECT

# DRON TECH CONNECT

## 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

**Dr. Ashima Mehta**
**(HOD CSE)**

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.

**Rajat Dash**

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**(22654; CSIT)**

### Editor- Design

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**(22651; CSIT)**

### Editor- Text

**DRONTECHCONNECT**

**CSIT EDITION**

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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.

# MISSION

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.

# 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 ent 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.

# Unlocking Efficiency and Flexibility: The Power of Software-as-a-Service (SaaS)

**Riya Verma**

(22677; CSIT)

STUDENTS ARTICLES

In the dynamic landscape of technology, businesses are increasingly turning to Software-as-a-Service (SaaS) as a transformative solution to their software needs. SaaS is a cloud-based software distribution model that allows users to access applications over the internet, eliminating the need for physical installation and maintenance. This paradigm shift is redefining the way organizations operate, offering unparalleled efficiency and flexibility.

One of the key advantages of SaaS is the ease of implementation. Traditional software deployment often involves complex installations, updates, and compatibility issues. SaaS simplifies this process by enabling users to access applications through a web browser. This not only reduces the burden on IT teams but also ensures that users always have access to the latest features and updates without the hassle of manual installations.

Flexibility is another hallmark of SaaS. With the traditional model, organizations must invest in hardware and software licenses upfront, limiting scalability and adaptability.

SaaS, on the other hand, operates on a subscription-based model, allowing businesses to scale their usage up or down as needed. This pay-as-you-go approach not only optimizes costs but also provides the agility to respond swiftly to changing business requirements.

Collaboration is streamlined with SaaS, fostering improved communication and teamwork. Applications are accessible from any location with an internet connection, enabling teams to collaborate seamlessly across geographies. This is particularly beneficial in today's globalized and remote work environments, where collaboration tools are essential for productivity.

Security is a paramount concern in the digital age, and SaaS providers understand the importance of safeguarding sensitive data. Reputable SaaS vendors invest heavily in robust security measures, including encryption, authentication, and regular audits. This ensures that user data is protected, giving businesses peace of mind as they embrace the cloud.

In conclusion, Software-as-a-Service is revolutionizing the way businesses leverage software. Its accessibility, flexibility, and security make it a compelling choice for organizations seeking efficient and scalable solutions. As technology continues to evolve, SaaS stands as a beacon of innovation, empowering businesses to thrive in the digital era.

**Famous Examples Of SaaS Products**

- Salesforce
- Lumen5
- Microsoft Office 365
- FutureFuel
- Box
- Squibler
- Google Apps
- Zendesk
- Dropbox
- Slack
- Buffer
- Amazon Web Services
- Hubspot
- Canva

SaaS

**Riya Verma**

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# Revolutionizing Healthcare: The Design and Development of Wearable Health Monitoring Devices
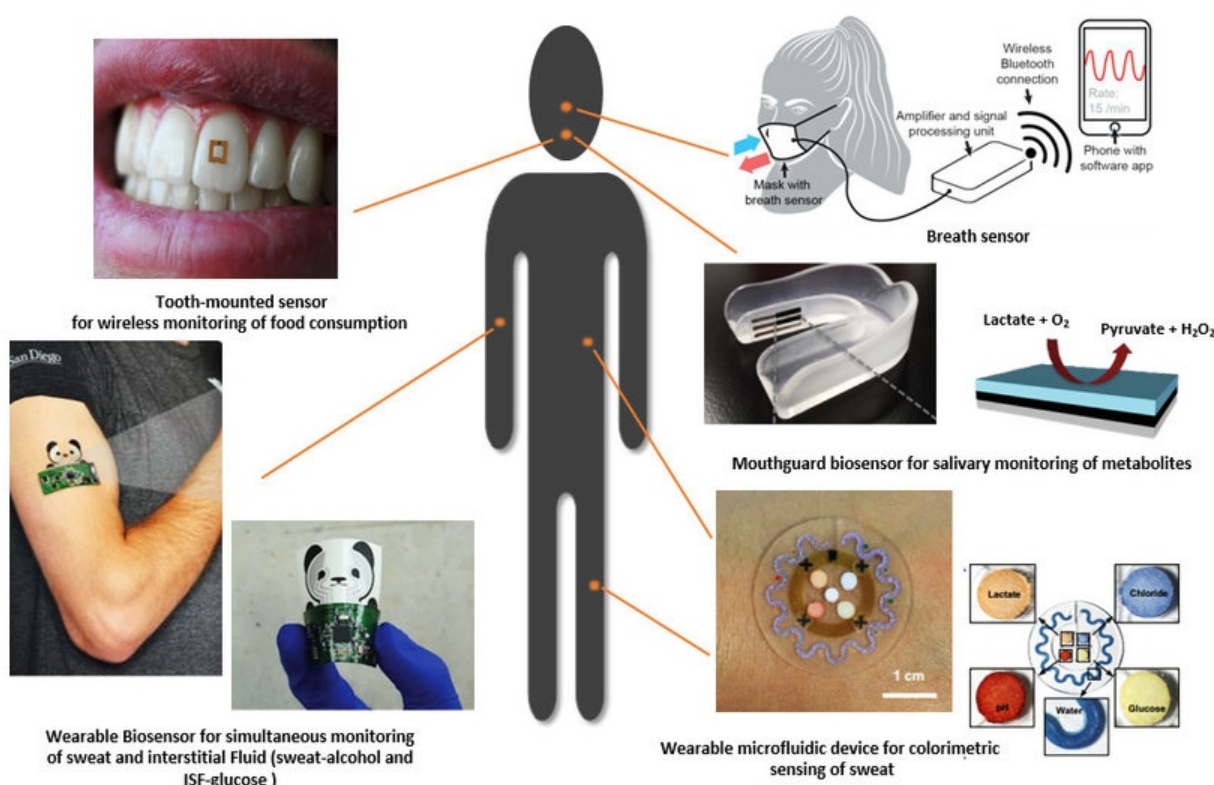
**Samridhi**

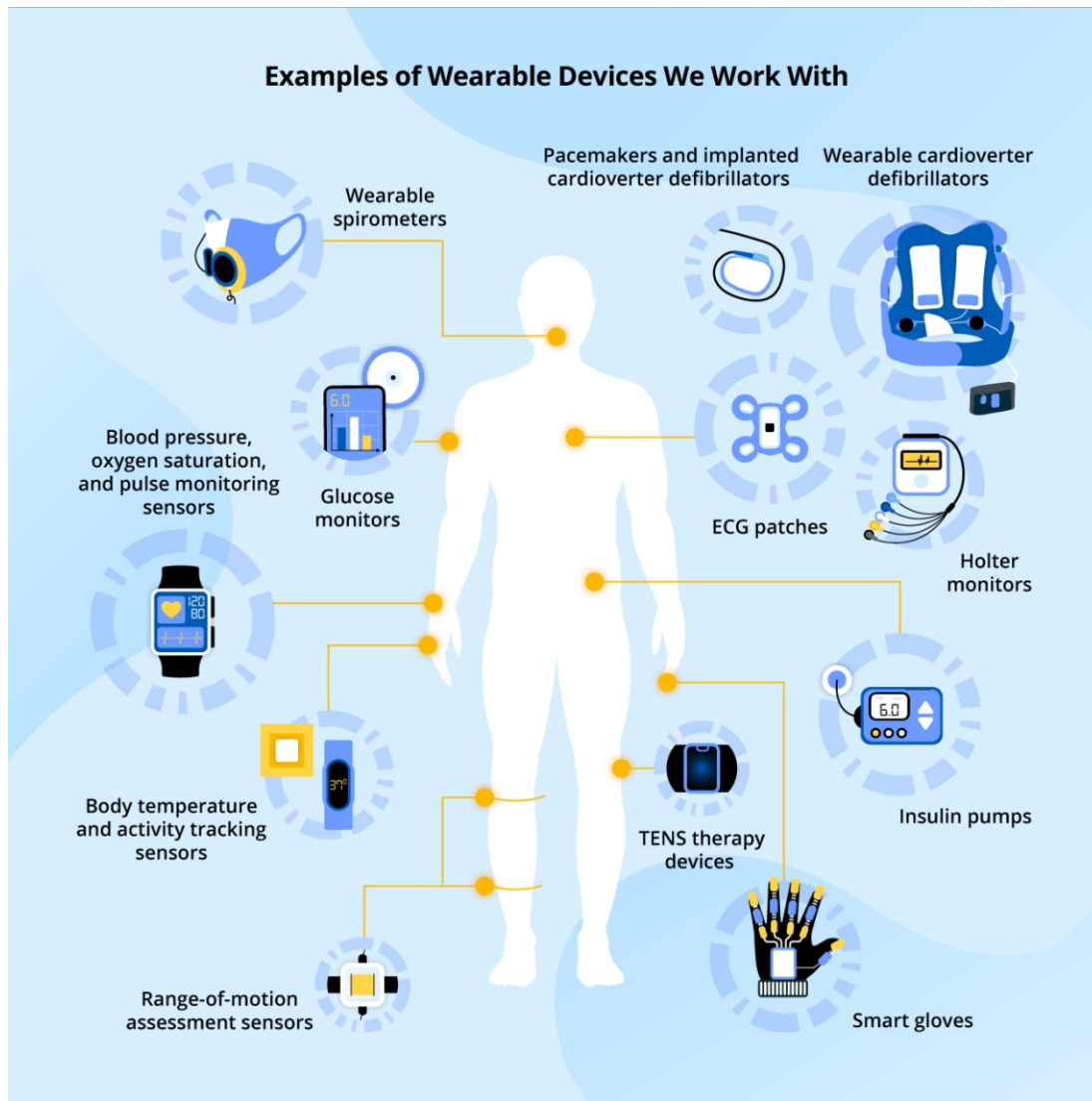(23284; CSIT)

**STUDENTS ARTICLES**

In the era of digital transformation, wearable health monitoring devices have emerged as revolutionary tools, seamlessly integrating technology into our daily lives to monitor and enhance our well-being. The design and development of these devices have become a focal point for innovators, healthcare professionals, and technology enthusiasts alike.

The design of wearable health monitoring devices is driven by the pursuit of user-friendliness, comfort, and accuracy. Engineers and designers work collaboratively to create sleek, ergonomic designs that seamlessly blend with everyday attire. Comfort is paramount, ensuring users can wear these devices for extended periods without discomfort. Striking a balance between aesthetics and functionality, these devices are often equipped with sensors, processors, and communication modules to collect and transmit health data.

Sensors are at the heart of wearable health monitoring devices, capturing a range of biometric data. From heart rate and blood pressure to sleep patterns and physical activity, these sensors provide real-time insights into various aspects of an individual's health. Continuous advancements in sensor technology contribute to the accuracy and reliability of the data collected, empowering users and healthcare professionals with valuable information for preventive care and early intervention.



Tooth-mounted sensor for wireless monitoring of food consumption

Breath sensor

Mouthguard biosensor for salivary monitoring of metabolites

$Lactate + O_2 \rightarrow Pyruvate + H_2O_2$

Wearable Biosensor for simultaneous monitoring of sweat and interstitial Fluid (sweat-alcohol and ISF-glucose )

Wearable microfluidic device for colorimetric sensing of sweat

# Revolutionizing Healthcare: The Design and Development of Wearable Health Monitoring Devices

Examples of Wearable Devices We Work With

The development phase involves integrating data from sensors into user-friendly interfaces and platforms. Mobile applications and cloud-based systems allow users to access and interpret their health data easily. Additionally, healthcare providers can remotely monitor patients, enabling timely interventions and reducing the burden on traditional healthcare systems.

Security and privacy are paramount considerations in the development of these devices. As they collect sensitive health information, robust encryption and authentication mechanisms are implemented to safeguard user data. Compliance with data protection regulations ensures that user privacy is prioritized, fostering trust between users and manufacturers.

Wearable health monitoring devices have transcended novelty to become integral components of personalized healthcare. The continuous evolution in design and development reflects a commitment to enhancing the user experience, expanding the capabilities of these devices, and ultimately transforming the landscape of healthcare into a more proactive and personalized endeavor.

**Samridhi**

**(23284; CSIT)**

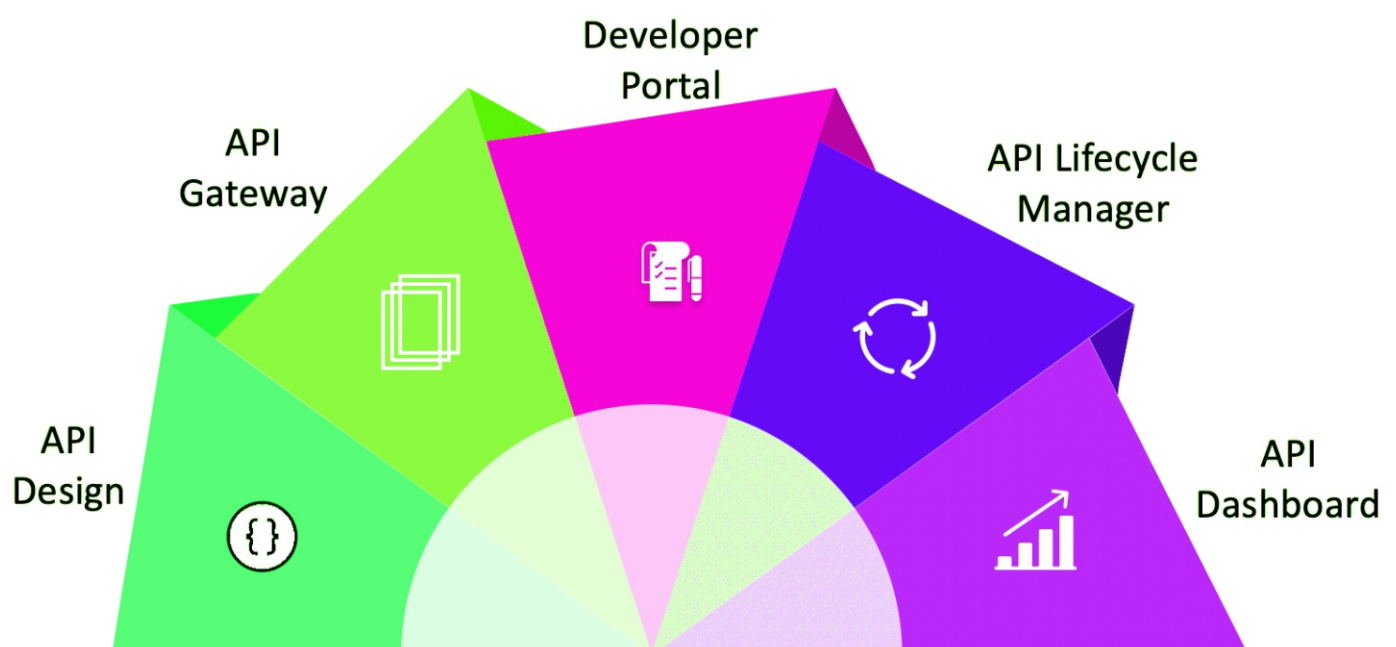# Navigating the Digital Ecosystem: The Crucial Role of API Management

**Nitin Mishra**

( 23277; CSIT)

In the interconnected world of modern technology, Application Programming Interfaces (APIs) play a pivotal role in facilitating seamless communication between different software applications. As organizations harness the power of APIs to enhance their digital presence, the need for effective API management becomes paramount.

API management involves the design, deployment, and maintenance of APIs, ensuring they function harmoniously to deliver optimal performance and security. This process is especially critical as businesses increasingly rely on APIs to streamline processes, foster innovation, and enable integrations across a myriad of applications.

One of the key aspects of API management is governance. It involves establishing and enforcing guidelines for API development, usage, and documentation. A well-defined governance framework ensures consistency and standardization, making it easier for developers to create, understand, and maintain APIs. This, in turn, enhances collaboration and accelerates the development of new digital initiatives.

Security is a top concern in the digital age, and API management serves as a frontline defense. Effective API management platforms incorporate robust security measures, such as authentication, authorization, and encryption, to safeguard sensitive data and prevent unauthorized access. With cyber threats on the rise, organizations must prioritize the security of their APIs to maintain customer trust and compliance with data protection regulations.



Developer Portal

API Gateway

API Lifecycle Manager

API Design

API Dashboard

**API Management**

*STUDENTS ARTICLES*

Scalability is another critical aspect of API management. As businesses grow, the demand for API usage increases. A well-designed API management solution allows organizations to scale their API infrastructure seamlessly, accommodating growing user bases and ensuring optimal performance under varying workloads.

Furthermore, analytics and monitoring capabilities are integral components of API management. These features provide insights into API usage, performance, and potential issues. By leveraging analytics, organizations can make informed decisions, identify areas for improvement, and proactively address challenges, ultimately enhancing the overall efficiency of their digital ecosystem.

In conclusion, API management is the linchpin that empowers organizations to navigate the complexities of the digital landscape. From governance and security to scalability and analytics, effective API management is essential for businesses looking to harness the full potential of APIs and stay ahead in the ever-evolving realm of technology.

## API LIFECYCLE

Enter your sub headline here

Create
Secure
Document
Test
Version
Publish
Promote
Monetize
Retirement
Manage & Observe usage of APIs

API LIFECYCLE

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