

JULY 2023

VOLUME: 05

MONTHLY E-NEWSLETTER

# MACET MYSTICA



MAULANA AZAD COLLEGE OF  
ENGINEERING & TECHNOLOGY



## EDITORIAL

In the modern era, where technology is rapidly evolving, engineers must be equipped with skills that extend beyond theory. Employers seek graduates who can hit the ground running, who possess the confidence and competence to apply their knowledge in real-world scenarios. As we navigate a world that demands ever-more innovative solutions, practical skills will set us apart and propel us to the forefront of progress. Furthermore, practical application serves as a bridge between academia and industry

Let us advocate for a balanced approach to engineering education, where theory and practice go hand in hand. Embrace opportunities for internships, projects, and extracurricular activities that allow us to put our knowledge to the test. In conclusion, engineering education with a focus on practical application empowers us to be the change-makers, the innovators, and the problem solvers that our world needs.

EDITOR  
SAIMA FARZEEN

## EDITORIAL TEAM

### PATRON:

Prof. (Dr.) Asim Kumar

### EDITOR-IN-CHIEF:

Prof. (Dr.) Md. Masood Ahmad

### EDITOR:

Mrs. Saima Farzeen

### SUB EDITOR:

Mr. Shahid Aziz (ECE)  
Dr. Naushad Hasin Khan (ME)  
Mr. Zeeshan Farooque (CE)  
Mr. Zaffar Abbas (CSE)

### STUDENT MEMBERS:

Fahad Ahmad (CSE 2022)  
Shivangi Gupta (CSE 2022)  
Sana Azad (CSE 2022)  
Zaara Tahreem (CSE 2021)

## CONTENTS

### FACULTY CORNER:

- Articles
- FDPs / Research Papers

### STUDENT'S CORNER:

- Google I/O Extended 2023

## Articles

### **Need of a Robust Speaker Verification System for Children and Teenagers**

*Shahid Aziz , Asst. Prof., ECE Department*

The web of cybernated applications in this digital age has fascinated people cutting across generations. Multimedia technologies and the Internet are fast evolving and has brought the whole world at our fingertip. In addition to the galore of positive aspects of cybernated applications is its dreary face. It is also fraught with the dangers of losing sensitive data and identity theft, if not accessed with caution. People accessing the online tools should be mindful of the cyber-crimes and cyber frauds. To address such an intimidating issue, the field of biometrics have witnessed a meteoric rise in the recent past and is bound to remain at the center stage in the times to come. Voice/ Speech signal is one such biometric, which falls under the category of behavioral biometrics. Even though the primary function of speech signal is human communication, it also captures information about the speaker's identity, age, emotions, gender, geographical origin and health. Voice biometrics or Automatic Speaker Verification (ASV) is a technology that uses algorithms and machine learning techniques to verify the identity of a speaker based on their speech characteristics. It is a biometric authentication method that relies on the unique patterns and traits in an individual's speech.

In an ASV system, the primary objective is to determine whether the provided voice sample matches the claimed speaker's identity. The system typically consists of two phases: enrollment and verification. During the enrollment phase, the speaker's voice is captured and a speaker model is created, which represents the unique characteristics of their voice. This model is then stored in a database for future verification. In the verification phase, a new voice sample is presented to the ASV system. The system extracts relevant features from the input speech signal and compares them against the enrolled speaker models. The comparison is usually performed using various statistical and machine learning techniques. The system calculates a similarity score or a likelihood ratio between the input sample and each enrolled speaker model. To make a decision on the claimed speaker's identity, a threshold is applied to the similarity scores. If the similarity score exceeds the threshold for a particular speaker model, the system accepts the claimed identity. Otherwise, it rejects the claimed identity as unauthorized. As compared to other competing biometrics, voice biometrics is increasingly becoming more popular because of its low cost, ease of use, faster authentication process and higher level of security features. These striking features have caught the attention of researchers across the globe and considerable work has been reported on the development of ASV systems. But, majority of the work reported in the literature deal with the design and development of ASV systems for adults. Social networking websites and online learning tools are a rage among children and teenagers. The fact that over half of youngsters in the age bracket of 6–18 obsessively indulging in internet and maintaining accounts on social media websites, cannot be denied. The children who are oblivious of the lurking perils in the operation of cyber related activities are the more vulnerable lot as opposed to the adults. This calls for the need of a robust ASV system for children to ascertain improved security, personalized experiences, and educational opportunities for children while ensuring their safety and well-being.

*# This article is excerpted from the authors' forthcoming research paper in Applied Acoustics, an Elsevier SCIE Journal*



## Articles

### **Embracing Automation: Unlocking Efficiency and Boosting Productivity**

*Dr. Naushad Hasin Khan, Asst. Prof., ME Department*

#### **Introduction: Embracing the Power of Automation in Today's Digital Age**

In today's fast-paced digital age, embracing the power of automation has become crucial for businesses to stay competitive and efficient. Automation technology and tools have revolutionized various aspects of business operations, offering a wide range of benefits.

Automation eliminates repetitive and mundane tasks, allowing employees to focus on more strategic and value-added activities. By streamlining processes, businesses can save time, reduce errors, and increase productivity. Automation software enables seamless integration between different systems and departments, leading to improved communication and collaboration.

Furthermore, automation enhances accuracy by minimizing human errors that can occur during manual data entry or processing. It also provides real-time insights through data analysis, enabling informed decision-making for better business outcomes.

Let us discover how embracing automation can propel your business towards success in this ever-evolving era.

#### **Case 1: Automating Customer Support for Improved Responsiveness and Satisfaction**

In this case, we explore the remarkable impact of customer support automation on responsiveness and customer satisfaction. By implementing automated helpdesk systems and utilizing chatbots, companies have revolutionized their customer support processes.

One of the key benefits of customer support automation is the significant improvement in response time. With chatbots handling initial inquiries and frequently asked questions, customers receive instant responses, eliminating the frustration of long wait times. This swift resolution not only enhances the overall experience but also boosts customer satisfaction levels.

Moreover, automated helpdesk systems ensure round-the-clock availability, providing customers with assistance at any time of the day. This 24/7 accessibility contributes to increased customer trust and loyalty.

By automating routine tasks and inquiries, human agents can focus on more complex issues that require their expertise. This leads to more efficient problem-solving and a higher quality of service.

Through this case study, we witness how customer support automation has transformed traditional support models into streamlined processes that prioritize responsiveness and ultimately enhance customer satisfaction.

#### **Case 2: Enhancing Efficiency through Automated Inventory Management Systems**

In Case 2, we delve into the realm of inventory management automation and its transformative impact on businesses. By implementing automated inventory management systems, companies have experienced a significant enhancement in efficiency and overall operations.

The utilization of cutting-edge inventory control software has revolutionized the way businesses handle their supply chains. These systems streamline processes, optimize stock levels, and eliminate manual errors that often plague traditional inventory management methods.

Through this case study, we explore real-life examples where businesses have witnessed remarkable cost reductions and improved operational efficiency by embracing automated inventory management solutions. We highlight how these systems empower companies to make data-driven decisions, minimize stockouts, and enhance customer satisfaction.

# Embracing Automation: Unlocking Efficiency and Boosting Productivity

*Dr. Naushad Hasin Khan, Asst. Prof., ME Department  
Cont...*

## **Case 3: Automating Financial Processes for Accuracy and Time Savings**

In this case study, we explore the incredible benefits of automating financial processes. By implementing financial process automation, organizations can achieve a remarkable level of accuracy and significant time savings.

One area where automation has proven to be particularly effective is in accounts payable. Through invoice processing automation, companies can streamline the traditionally time-consuming and error-prone task of manually entering and processing invoices. By automating this process, organizations can significantly reduce errors and eliminate the need for manual data entry.

The results speak for themselves. Companies that have embraced accounts payable automation have experienced a drastic reduction in errors, leading to improved financial accuracy and compliance. Additionally, the time saved by automating these processes allows finance teams to focus on more strategic initiatives and value-added tasks.

Overall, this case study showcases how financial process automation can revolutionize traditional workflows, providing both accuracy improvements and substantial time savings. Embracing automation in areas such as accounts payable is a game-changer for organizations looking to optimize their financial operations.

## **Case 4: Automating Marketing Campaigns to Drive Personalized Customer Experiences**

In this case, we will explore the powerful impact of automating marketing campaigns to drive personalized customer experiences. With the advent of email marketing automation tools, businesses have been able to revolutionize their approach to reaching and engaging with their target audience.

By leveraging these tools, marketers can now create highly personalized marketing messages that resonate with individual customers on a deeper level. This level of personalization not only enhances the customer experience but also increases the effectiveness of marketing campaigns.

Through automation, marketers can segment their audience based on various criteria such as demographics, past purchase behavior, or engagement history. This allows them to tailor their messages specifically to each segment, delivering content that is relevant and valuable to each individual.

The ability to automate marketing campaigns also saves time and resources for businesses. Instead of manually sending out emails or messages one by one, marketers can set up automated workflows that trigger personalized communications based on specific actions or triggers taken by customers.

Overall, this case study highlights how automating marketing campaigns using email marketing automation tools has become a game-changer in driving personalized customer experiences. By delivering tailored messages at scale, businesses can foster stronger connections with their audience and ultimately drive better results for their marketing efforts.

## **Conclusion: Harnessing the Power of Automation to Revolutionize Your Business Operations**

In conclusion, harnessing the power of automation can be a transformative force for businesses, unlocking new levels of efficiency, productivity, and innovation. Embracing automation and staying abreast of emerging technologies will position businesses to thrive and succeed in an ever-evolving market.



## Articles

### Free Online Courses for Technocrats: Offered By IITs

*Zaffar Abbas, CSE Department*

Everyone looks for free online courses for upskilling. Instead of sitting in boring classroom for hours and spending a lots of time and effort, the online free courses making education more easy within reach at no cost and suitable time.

You will come to know about the best free online courses that IITs are currently offering in this article.

#### **Introduction To Machine Learning – IIT Kharagpur**

This course provides a concise introduction to the fundamental concepts of machine learning and popular machine learning algorithms. The course will cover the standard and most popular supervised learning algorithms including linear regression, logistic regression, decision trees, k-nearest neighbor, an introduction to Bayesian learning and the naïve Bayes algorithm, support vector machines and kernels and neural networks with an introduction to Deep Learning. The course will also cover the basic clustering algorithms. Feature reduction methods will also be discussed.

#### **Deep Learning – IIT Ropar**

In this course you will learn about feedforward neural networks, convolutional neural networks, recurrent neural networks and attention mechanisms. The course will teach about feedforward neural networks, convolutional neural networks, recurrent neural networks and attention mechanisms. The course will also look at various optimization algorithms such as Gradient Descent, Nesterov Accelerated Gradient Descent, Adam, AdaGrad and RMSProp which are used for training such deep neural networks. At the end of this course students would have knowledge of deep architectures used for solving various Vision and NLP tasks

#### **Elements Of Mechanical Vibration – IIT Delhi**

This course addresses the fundamentals of vibration theory with simple but practical examples while interpreting the outcome of vibration analysis from the context of machinery or structural design.

#### **Genetic Engineering: Theory and Application, IIT Guwahati**

The course will discuss biotechnology, its scope and impact on human life with several customized products. By the end of this course, student will be able to understand following aspects of biotechnology:

1. Basic metabolic pathways and their regulation.
2. Microbial growth kinetics with an emphasis on fermentation
3. Basic molecular biology tools used in bio-technology.
4. Basic methodology for product recovery and analysis.

#### **Organ Printing – IIT Hyderabad**

In Organ Printing, we will discuss the fundamentals of 3D bio-printing, the process parameters, the bio-inks used to print organ-specific strategies, and more. Examples from recent journals and reports will illustrate the use of this technology.

#### **Introduction to Aerospace Engineering, IIT Bombay**

The aim of this course is to provide a general overview of the field of Aeronautical Engineering to interested students. The course will consist of ten Capsules, each consisting of two Lectures. Each Lecture will cover a specific concept or area relevant to the subject.

The courses cover the contents in an interesting manner, using PowerPoint presentations, in-class activities, quizzes, innovative and hands on assignments. It will not only increase the awareness of the students, but also fulfill their curiosity and desire to know more about the various concepts related to the subject.

## FDPs / Research Papers

### ECE Department

#### Mr. Ozair Ahmad

- Participated in the Webinar titled: “Data Privacy in the Age of Artificial Intelligence” organized by Mc. Graw Hill Education on 14<sup>th</sup> July 2023.

#### Mr. Md. Nadeem Enam

- Participated in FDP in “Recent Trends in Organic devices (Focused on Drone & UAV Applications)” organized by Presidency University, Bangalore held during 17<sup>th</sup> - 22<sup>nd</sup> July 2023.
- Participated in FDP on “Advanced Pedagogy” organized by NITTR Kolkata, from 19<sup>th</sup> - 30<sup>th</sup> June 2023.
- Successfully Participated 5 day FDP “Recent Advancement on Control & Instrumentation ” conducted by Department of Electrical Engineering (EE) Institute of Engineering and Management(IEM), Kolkata from 10<sup>th</sup> - 14<sup>th</sup> July 2023.
- Successfully Completed “Azure Fundamentals : Describe Azure management and governance ” conducted by Microsoft, on 28<sup>th</sup> July 2023.
- Successfully Completed “ Describe cloud computing ” conducted by Microsoft, on 28<sup>th</sup> July 2023.
- Successfully Completed “Microsoft Azure Fundamentals : Describe cloud concepts ” conducted by Microsoft, on 28<sup>th</sup> July 2023.
- Successfully Completed “ Describe the benefits of using cloud services ” conducted by Microsoft on 28<sup>th</sup> July 2023
- Participated in Webinar on “Thriving in the world of data” organized by Centre for Development of Advanced Computing, held on 30<sup>th</sup> June 2023.

#### Mrs. Meena Prasad

- Participated in the Webinar titled: “Latest trends in Electronic warfare and Radar systems (focused on Drone and UAV applications)” organized by IETE on 28<sup>th</sup> May 2023.

### Mechanical Engineering Department

One week online FDP Course on “Data Science and Engineering” from 05 to 09 June, 2023 has been completed by:

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| • <b>Dr. Syed Shahbaz Anjum</b>   | • <b>Dr. Naushad Hasin Khan</b>    |
| • <b>Dr. Md Reyaz</b>             | • <b>Mr. Kashif Faridi</b>         |
| • <b>Mr. Syed Moazzam Hussain</b> | • <b>Mr. Md Taslim Raza</b>        |
| • <b>Mr. Md Shabbeer Ansari</b>   | • <b>Mr. Firoz Alam</b>            |
| • <b>Mr. Ali Nezam</b>            | • <b>Mr. Md Irshad Alam Ansari</b> |
| • <b>Mr. Quaiser Suhail</b>       | • <b>Mr. Md Mojahid</b>            |



# Student's Corner

## Title: Google I/O Extended 2023 - Empowering Developers and Tech Enthusiasts in Patna

*Md. Sameer Abbas, CSE, 2022 Batch*

### Introduction:

Google I/O Extended 2023, the first of its kind in Patna, Bihar, brought together developers and tech enthusiasts with a passion for Google products and APIs. This day-long event, hosted by GDG Patna, offered a unique opportunity to gain insights into Google's latest innovations and interact with Googlers themselves. Attendees delved into exciting topics like Google Firebase, Google Cloud services, Llama studio, Gen AI, web development tools, and the use of APIs to build diverse programs.

### Section 1: An Extension of Google I/O - Fostering Innovation

Google I/O Extended 2023 served as an extension of the annual Google I/O conference, an esteemed gathering focused on open innovation and exploring emerging technologies. The event provided a local platform for developers and tech enthusiasts in Patna to be part of the global tech community and stay updated on Google's cutting-edge products and features. Participants were in for a treat as Googlers shared their expertise, unveiling the latest advancements.

### Section 2: Learning and Growing with Google Technologies

The event featured comprehensive sessions on Google Firebase, a powerful cloud-based platform for developing web and mobile applications, as well as Google Cloud services, offering scalable computing and storage solutions. Attendees were introduced to Llama studio, exploring its potential as a creative tool. Furthermore, Gen AI's backend capabilities demonstrated exciting possibilities for developers in various domains.

### Section 3: Web Development Tools in Focus

A highlight of the event was the exploration of web development tools available in the Chrome browser, such as Lighthouse, which empowers developers to enhance the performance and accessibility of websites. Participants gained valuable insights into optimizing web applications and creating a seamless user experience.

### Section 4: Building with APIs - A Gateway to Versatile Applications

The session on using APIs to build different programs unveiled the transformative potential of integrating various services and data sources. Attendees discovered the power of APIs in creating innovative applications, catering to diverse user needs.

### Conclusion:

Google I/O Extended 2023 proved to be a landmark event for GDG Patna, fostering a vibrant community of developers and tech enthusiasts. Participants seized the opportunity to engage in discussions, Q&A sessions, and networking with like-minded individuals, nurturing an environment of knowledge sharing and growth. The event underscored GDG Patna's commitment to empowering individuals to excel in the tech world and embracing Google's latest advancements. With its resounding success, Google I/O Extended has set the stage for future gatherings that will continue to drive innovation and inspire the tech ecosystem in Patna and beyond.



---

## Maulana Azad College of Engineering & Technology

Affiliated to Bihar Engineering University, Govt. of Bihar

Approved by AICTE, New Delhi, Govt. of India

E-Magazine Email: [emagazinemacet@gmail.com](mailto:emagazinemacet@gmail.com)

Website: [www.macet.ac.in](http://www.macet.ac.in)

Mail Us: [contact@macet.ac.in](mailto:contact@macet.ac.in)