



A REPORT OF
**ONE DAY SENSITIZATION
PROGRAM**

ON

AI-ML & IoT

FOR THE STUDENTS OF
MCA-III SEMESTER

&

M.Sc. (CS) III SEMESTER

ORGANIZED BY

**DEPARTMENT OF COMPUTER SCIENCE AND
APPLICATION**

ATAL BIHARI VAJPAYEE VISHWAVIDYALAYA, BILASPUR

(C.G.)

ON

14 SEPTEMBER, 2024

VENUE

CENTRE OF EXCELLENCE (CoE) LAB

ATAL BIHARI VAJPAYEE VISHWAVIDYALAYA, BILASPUR (C.G.)

EVENT DETAIL

On 14 September 2024, the Department of Computer Science and Application at Atal Bihari Vajpayee Vishwavidyalaya organized a one-day sensitization program focused on Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT). This initiative targeted MCA III Semester and M.Sc. (CS) III Semester students, who are currently engaged in minor projects and preparing for major projects in the upcoming semester. The program aimed to provide students with a comprehensive understanding of these technologies while inspiring them with practical project ideas and insights from alumni who have successfully completed their own projects.

The event commenced with an opening address by Dr. Shriya Sahu, highlighting the significance of AI, ML, and IoT in modern applications. The agenda included an overview of key concepts and trends, project demonstrations by alumni, discussions on their project experiences, and an interactive Q&A session. Alumni members, including Mr. Ujjwal Matoliya, Mr. Suraj Sahu, Mr. Shiva Soni, and Mr. Abhishek Jaiswal, shared valuable insights from their respective projects, discussing challenges, project planning, and time management strategies. For instance, Mr. Ujjwal Matoliya elaborated on predictive analytics using ML, while Mr. Suraj Sahu showcased his IoT-based smart home project. Each alumnus provided unique perspectives that enriched the students' understanding of real-world applications.

The sensitization program successfully met its objectives by enhancing students' knowledge of AI, ML, and IoT technologies and providing practical project ideas. Feedback from participants was overwhelmingly positive, with many expressing increased motivation and clarity regarding their upcoming projects.

Overall, the event fostered a supportive learning environment that encouraged collaboration and knowledge sharing. The department looks forward to organizing similar initiatives in the future to continue enhancing the educational experience for its students. Special thanks are extended to the alumni for their contributions and to Dr. Shriya Sahu for her effective coordination of the session.

EVENT FLYER



अटल बिहारी वाजपेयी विश्वविद्यालय ,बिलासपुर छत्तीसगढ़
Atal Bihari Vajpayee Vishwavidyalaya , Bilaspur Chhattisgarh

One day sensitization program on AI-ML and IOT

Date : 14 September 2024
Time : 1:30 PM onwards
Venue : COE Lab

For students of MCA - III AND M.Sc.(C.S) -III

Coordinator
Dr. Shriya Sahu



SESSION-1

ALUMNI- Mr. UJJWAL MATOLIYA (MCA)

In Session 1 of the sensitization program, Mr. Ujjwal Matoliya, an alumnus from the MCA program, provided an engaging overview of various sensors essential for applications in AI, ML, and IoT. He highlighted key types of sensors, including temperature sensors, humidity sensors, motion sensors, and infrared (IR) sensors, explaining their functionalities and real-world applications. His detailed insights helped students understand how these sensors collect vital data that informs intelligent systems.

Following the sensor discussion, Mr. Matoliya introduced his juniors to popular microcontrollers, specifically Arduino, Raspberry Pi, and ESP-32. He explained the unique features of each microcontroller, discussing how Arduino is renowned for its user-friendly programming and versatility, Raspberry Pi serves as a powerful computing platform for complex projects, and the ESP-32 is ideal for IoT applications due to its integrated Wi-Fi and Bluetooth capabilities. Mr. Matoliya walked the students through the programming languages commonly used with these devices, such as C/C++ for Arduino and Python for Raspberry Pi, and provided practical guidance on basic configurations to set them up for projects.

In addition to the technical components, Mr. Matoliya also shared insights about his major project from his MCA program, titled "Development of Venture Capital Centric Hybrid Machine Learning Model for Startup Success Prediction." He outlined the project's objective to predict startup success using a hybrid machine learning model that integrates multiple algorithms. He explained the datasets he used, which included factors like market trends, funding patterns, and team dynamics. By employing data preprocessing and feature selection, he identified critical indicators of a startup's likelihood of success.

Mr. Matoliya discussed the various machine learning algorithms involved in the project, highlighting their strengths and the rationale behind combining them to improve prediction accuracy. He also shared the challenges he faced, such as managing incomplete data and the importance of validation through historical data analysis. His experience underscored the relevance of perseverance and creativity in tackling real-world problems.

By the conclusion of his session, Mr. Matoliya had not only provided valuable technical knowledge but also inspired students with his project experience. He emphasized the impact that innovative applications of machine learning can have on industries, encouraging his juniors to think creatively as they embark on their own projects. His insights into both sensors and machine learning set a strong foundation for students as they explore the potential of technology in their upcoming endeavors.

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SESSION-2

ALUMNI- Mr. SURAJ SAHU (M.Sc. COMPUTER SCIENCE)

In Session 2 of the sensitization program, Mr. Suraj Sahu, an alumnus from the M.Sc. Computer Science program, delivered an informative presentation on the **Basic RoboCar**. He explained that the Basic RoboCar is a unique variant of the RoboCar Series designed specifically for electronics students, which operates without the need for a microcontroller interface. This feature makes it particularly accessible for beginners who want to explore robotics and automation.

Mr. Sahu elaborated on the design and components of the RoboCar, noting that it consists of a sturdy metallic chassis, L-clamps, and wheels, along with various sensor modules and a motor driver circuit. He highlighted that the RoboCar is equipped with DC motors powered by a rechargeable battery, allowing it to navigate its environment autonomously. The versatility of the RoboCar is one of its standout features; it can perform a range of functions including fire sensing, clap sensing, light detection, object following, obstacle avoidance, wall following, and path detection. This functionality makes it an excellent educational tool, enabling students to apply theoretical concepts in a hands-on manner.

In addition to its autonomous capabilities, Mr. Sahu emphasized that the control unit and all sensors can be interfaced with any microcontroller. This adaptability allows for further customization and advanced programming, catering to a wider array of applications and projects.

Following the discussion on the Basic RoboCar, Mr. Sahu transitioned to sharing details about his major project titled "**Text Origin Detection: Identifying AI-generated vs. Human-Written Content.**" He explained the project's objective to develop a system capable of distinguishing between content produced by AI and that written by humans. This topic is particularly relevant in today's digital landscape, where the proliferation of AI-generated text raises questions about authenticity and originality.

Mr. Sahu detailed the methodologies he employed in his project, including the use of machine learning algorithms to analyze linguistic features, writing styles, and other identifiable patterns in the text. He described how he gathered datasets containing both AI-generated and human-written samples to train and test the model, emphasizing the importance of accuracy and reliability in distinguishing between the two types of content.

He also shared the challenges he faced during the project, such as the need for comprehensive feature extraction and the difficulty of ensuring that the model could generalize well to different types of text. Mr. Sahu's insights into the real-world implications of his project underscored the growing importance of content authenticity in various sectors, including education, journalism, and digital marketing.


By the end of his presentation, Mr. Sahu had not only provided a thorough understanding of the Basic RoboCar and its applications but also inspired students with his innovative approach to tackling contemporary issues in content creation. His discussions encouraged students to think critically about their projects and explore the intersection of technology and real-world challenges.

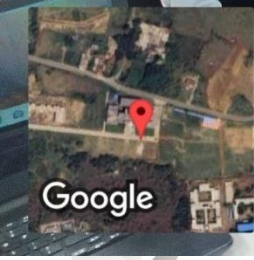
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 **GPS Map Camera**



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SESSION-3

ALUMNI- Mr. ABHISHEK JAISWAL (M.Sc. COMPUTER SCIENCE)

In Session 3 of the one-day sensitization program for MCA III Semester and M.Sc. (CS) III Semester students, Mr. Abhishek Jaiswal, an esteemed alumnus of the M.Sc. Computer Science program, conducted an engaging hands-on workshop featuring a 5-axis educational robotic arm. This session aimed to provide students with practical experience and enhance their understanding of robotics and its diverse applications. The robotic arm, built on the ATmega 128 microcontroller, serves as an educational tool to introduce participants to fundamental mechanical design concepts. Notably, the arm offers five degrees of freedom (DOF), allowing it to rotate at key joints—the base, shoulder, elbow, wrist, and gripper—mimicking human-like movements. Mr. Jaiswal explained the function of RC servo motors, which drive the arm's movements, and detailed servo motor interfacing, emphasizing the importance of precise control. Additionally, he introduced wireless communication techniques that enable remote operation of the arm, as well as graphical TFT interfacing, which enhances user interaction by visualizing data and control commands. The inclusion of DC motors at the base allows for dynamic movement, further increasing the arm's versatility.

Throughout the session, students actively engaged with the robotic arm, participating in activities such as assembling components, programming the microcontroller, and testing the arm's capabilities. This hands-on experience was crucial in solidifying their theoretical knowledge. Following the robotics workshop, Mr. Jaiswal presented his academic project titled "Stock Market Prediction Using Machine Learning." He elaborated on the methodologies employed, including data collection, preprocessing, and feature selection, highlighting the significance of historical stock market data in training machine learning models. He discussed various algorithms utilized in his project, such as regression models, decision trees, and neural networks, explaining how each contributed to the accuracy of predictions and the challenges faced during implementation. Mr. Jaiswal shared insights from his analysis, illustrating the potential of machine learning in predicting stock market trends and emphasizing the relevance of his findings in today's data-driven environment.

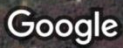
The session concluded with a Q&A segment, allowing students to ask questions about both the robotic arm and the applications of machine learning in finance. Mr. Jaiswal encouraged participants to delve deeper into these fields, highlighting the importance of combining practical experience with theoretical knowledge. This sensitization program not only equipped students with hands-on skills in robotics but also inspired them to explore the integration of machine learning in real-world scenarios, fostering a greater interest in technology and its potential applications.

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SESSION-4

ALUMNI- Mr. SHIVA SONI (M.Sc. COMPUTER SCIENCE)

In Session 4 of the one-day sensitization program designed for MCA III Semester and M.Sc. (CS) III Semester students, Mr. Shiva Soni, an esteemed alumnus of the M.Sc. Computer Science program, delivered a comprehensive and engaging hands-on workshop centered around a Smart Home and AI-IoT Healthcare Kit. As technological advancements continue to evolve, the demand for improvements in living standards, security, and energy efficiency becomes increasingly significant. Every building—be it residential, commercial, or industrial—operates on some form of energy, underscoring the necessity to reduce and optimize energy consumption. Efficient energy management is not only essential for decreasing overall consumption but also plays a critical role in reducing energy costs, making it a vital consideration for modern infrastructure.

The Smart Building training setup presented by Mr. Soni was specifically designed to elucidate the concept of smart buildings and how various sensors can be integrated into these systems. He showcased how the data collected from these sensors can be harnessed to generate events and trigger alarms, thereby enhancing both functionality and security. For example, the sensors can automate tasks such as switching lights on and off based on occupancy, triggering alarms in the event of unauthorized access, and providing secure user access through RFID tags and readers. This exploration into smart building technology highlights its potential to optimize energy usage and improve security measures, making buildings not just more efficient but also more responsive to their environments.

Mr. Soni also introduced participants to a healthcare practice equipment equipped with IoT technology, which serves as a vital tool in the realm of remote health monitoring. This innovative kit is capable of analyzing up to 11 different types of biomedical signals, such as heart rate, blood pressure, and oxygen saturation. The kit's ability to transmit and receive data through Wi-Fi or Bluetooth facilitates seamless communication between the device and healthcare providers. Furthermore, it can be remotely monitored from PCs and smartphones using a hybrid web application, allowing patients and healthcare professionals to track vital signs in real time. This integration of IoT in healthcare emphasizes the transformative potential of technology in improving patient care and health management.

Following the hands-on workshop, Mr. Soni transitioned to discussing his own project titled "IoT and ML-Based Three Layer Secured Locker System," which he developed during his M.Sc. studies. He outlined the methodologies employed in designing this secure locker system, which utilizes both IoT and machine learning technologies to enhance security. By integrating sensors, data analytics, and automated responses, the system can detect unauthorized access attempts and respond accordingly, ensuring the safety of its contents. Mr. Soni explained how machine learning algorithms could be applied to refine security protocols over time, adapting to potential threats and user behaviors.

The session concluded with an interactive Q&A segment, where students had the opportunity to inquire further about the smart home technologies and the healthcare kit, as well as the specifics of Mr. Soni's locker system project. His discussions encouraged students to explore these technologies further, emphasizing the importance of blending practical experience with theoretical knowledge in their studies. Overall, this sensitization program not only equipped students with hands-on skills in smart home technology and healthcare applications but also inspired them to think critically about the integration of IoT and machine learning in real-world scenarios. This comprehensive exposure to cutting-edge technologies fostered a greater interest in innovation and its applications across various fields.

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GPS Map Camera

VALEDICTORY SESSION

At the conclusion of the one-day sensitization program organized by the Department of Computer Science and Application at Atal Bihari Vajpayee Vishwavidyalaya, students from the MCA III Semester and M.Sc. (CS) III Semester actively shared their feedback. The students expressed deep gratitude to the alumni for sharing their valuable project experiences and insights on Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT). Their feedback highlighted how the program helped clarify key concepts, inspire new project ideas, and prepare them for their upcoming major projects.

Many students remarked on the practical relevance of the sessions, particularly praising the real-world examples presented by alumni, which gave them a clearer understanding of project planning and execution. They thanked alumni members Mr. Ujjwal Matoliya, Mr. Suraj Sahu, Mr. Shiva Soni, and Mr. Abhishek Jaiswal for offering detailed explanations of the challenges they faced during their projects and the solutions they implemented, which greatly enhanced the students' learning experience.

In the closing remarks, Dr. Shriya Sahu, the Program Coordinator, delivered a heartfelt vote of thanks, expressing sincere appreciation to the alumni for their invaluable contributions. She emphasized the importance of such sessions in bridging the gap between academic learning and practical applications, especially for students who are about to embark on their own projects. Dr. Sahu also acknowledged the students for their enthusiasm and active participation throughout the event, noting that their eagerness to learn contributed to the overall success of the program.

Additionally, special thanks were extended to Dr. H.S. Hota, Head of the Department, for providing the opportunity and platform to organize this valuable program. Dr. Sahu commended his continuous support in fostering an environment of collaboration, knowledge-sharing, and innovation within the department.

Overall, the program concluded on a positive and motivating note, with both students and alumni leaving with a sense of accomplishment and inspiration. The success of the event sets a precedent for future initiatives aimed at enhancing the educational experience for students through interaction with industry-experienced alumni.

GROUP PHOTO



ATTENDANCE SHEET



DEPARTMENT OF COMPUTER SCIENCE AND APPLICATION

ATAL BIHARI VAJPAEE VISHWAVIDYALAYA, BILASPUR (C.G.)

EVENT NAME : One Day Sensitization Program On AI/ML & IOT

DATE : 14/09/2024

TIME : 2:30 PM

VENUE : Caf. Lab

ATTENDANCE SHEET

SN.	STUDENT NAME	CLASS	SIGNATURE
1	Shejal Chhabra	MCA 3 rd sem	
2	Anguni Kashyap	MCA III sem	
3	Shruti Darsena	MCA III sem	
4	Pushpendra	MCA III sem.	
5	pariti Kashyap	MCA III sem.	
6	Poonam Kesharwani	MCA - III sem	
7	Durga Kaushik	MCA - III sem	
8	Deepshikha Dahise	MCA - III sem.	
9	Pushpalata Sahu	MCA - III	
10	Kaiparam Kanwar	MCA III	
11	Saumya Dewangan	MCA III	
12	Pinky Patel	MCA III	
13	Akanksha Singam	MCA III	
14	Aman Kusray	MCA III	
15	Vishal Jangde	MCA III	
16	Ankit Barai	MCA III	
17	Tanish	MCA III	
18	Kuldeep Sahu	MCA III	
19	Nitesh Ku. Dikhar	MCA III	

ATTENDANCE SHEET



DEPARTMENT OF COMPUTER SCIENCE AND APPLICATION

ATAL BIHARI VAJPAEE VISHWAVIDYALAYA, BILASPUR (C.G.)

EVENT NAME : Senselization program.....

DATE : 14/09/24.....

TIME : 2:30.....

VENUE : COE lab.....

ATTENDANCE SHEET

SN.	STUDENT NAME	CLASS	SIGNATURE
	Abhishek Keshavnani	MCA III	
	Shivangi Pandey	MCA III	
	chandeeakala Rathor	MCA	
	A.Kanksha Gautam	MCA - III	
	Aanchal Dewangan	MCA - III	
	Pooja Kaiwari	MCA - III rd	
	Nodra Khokhroo	MCA - III rd	
	khushi Dewangan	MCA - III rd	
	Sumitee Semanta	MCA - III rd	
	Neetu Patel	MCA - III rd	
	Tanupriya Sao	MCA - 3 rd	
	Durgaa Manhar	MCA - 3 rd	
	Shivangi Pathak	MCA - 3 rd	
	Tanu Bhasini	MCA - 3 rd	
	Bhuwan Singh	MCA - 3 rd	
	Ravindrao	MCA - 3 rd	
	T. Anisha	MCA - III rd	