Dr. Akhilesh Das Gupta Institute of Professional Studies
(Formerly known as Dr. Akhilesh Das Gupta Institute of Technology & Management)
(A unit of Babu Banarsi Das Group of Education Institutions)
FC-26 Shastri Pak, New Delhi – 110053 (India)

REPORT

on

Project Exhibition 15/03/2024

(As Part of ANNUAL TECHNO-CULTURAL FEST UTKARSH 2024)

Department of Civil Engineering

Dated:	15-03-2024
Department:	Civil Engineering
Venue:	Block 2 Ground Floor

Objective: To check technical and creative skills of students through their models and project work, Project Exhibition was organized by NEEV Society of Civil Engineering Department, named NIRMAAN, students has to select thetheme of the model related to civil engineering technical topics. This event will helpto express and communicate knowledge and concept provided in form of models. This report details the project exhibition by Team NEEV from Dr. Akhilesh Das Gupta Institute of Professional Studies (ADGIPS) during the college fest UTKARSH 2024. Team NEEV and students of Civil Engineering Department displayed 10 models for project exhibition.

Resource Person: Dr. Kavita Verma H.O.D Civil, Ms. Niharika Sharma, Mr. Ashish Juneja (Event Coordinators), Ula (General Secretary, Neev), Mohd Shuaib (Event Head, Neev)

Outcomes: Students will enhance their presentation skills and creative skills by making innovative solutions to ongoing challenges and problems faced in Civil Engineering field.

Beneficiaries: Faculties and students of Civil Engineering Department.

Best Project & Models were displayed in Model Exhibition from 2nd, 3rd and 4th Year

Name	Project	Branch	Year	Degree
Pankaj Kumar			4th	B.Tech (CIVIL)
Rahul Jha	Interlocking Permeable concrete pavement		4th	B.Tech (CIVIL)
Harsh			4th	B.Tech (CIVIL)
Yash Chaudhary	Measurement of undulations on road using Nano Indicator : A compact and IoT technology based device.		4th	B.Tech (CIVIL)
Aditya Pratap Singh			4th	B.Tech (CIVIL)
Vipin Kumar Gautam			4th	B.Tech (CIVIL)
Sarthak Vats			4th	B.Tech (CIVIL)
ABHISHEK PANT	Investigating the Properties of Eco-Friendly Concrete through Partial Substitution of Cement & Aggregates in Alkaline		4th	B.Tech (CIVIL)
HARSHITA POKHRIYAL			4th	B.Tech (CIVIL)
Suraj	To enhance properties of papercrete block with addition of admixture		4th	B.Tech (CIVIL)
Sangam Kumar			4th	B.Tech (CIVIL)
NATASHA BARUAH	Contour survey using total station and theodolite		3rd	B.Tech (CIVIL)
ULA AKRAM			3rd	B.Tech (CIVIL)
ASHU BHARDWAJ	Translucent Concrete		3rd	B.Tech (CIVIL)
MOHD SHUAIB		Civil	3rd	B.Tech (CIVIL)
PRIYANSHU VERMA			2nd	B.Tech (CIVIL)
AYUSH KUMAR	Hydraulic bridge		2nd	B.Tech (CIVIL)
Siddhant Bhardwaj			2nd	B.Tech (CIVIL)
SHIVAM KUMAR			2nd	B.Tech (CIVIL)
Aakash			2nd	B.Tech (CIVIL)
ANSH GAUTAM			2nd	B.Tech (CIVIL)
LAKSHAY SINGH BEDI	water purification system		2nd	B.Tech (CIVIL)
Snehit Kashyap			2nd	B.Tech (CIVIL)
AAYUSH JOSHI			2nd	B.Tech (CIVIL)
MOHD MAAZ HASAN			2nd	B.Tech (CIVIL)
MOHD SAHIL SAIFI	Escalator		2nd	B.Tech (CIVIL)
Vasu Sharma			2nd	B.Tech (CIVIL)
Devanshu Sagar			2nd	B.Tech (CIVIL)
Shazid khan	rainwater harvesting		2nd	B.Tech (CIVIL)
Sumit Kumar			2nd	B.Tech (CIVIL)
Jahanvi Saraswat			2nd	B.Tech (CIVIL)

Key highlights of Projects:

1. The project, titled "**Measurement of undulations on road using Nano Indicator**: A compact and IoT based device," aims to revolutionize road maintenance practices. Leveraging Nano Indicator technology, this compact device provides precise measurements of road undulations in real-time. Integrated with IoT capabilities, it offers seamless data collection and analysis, facilitating proactive maintenance strategies. By detecting and addressing uneven surfaces early, the project contributes to enhanced road safety and reduced maintenance costs. With its innovative approach, this project paves the way for more efficient and sustainable transportation infrastructure management.

2. Title of Project "**Interlocking Permeable concrete pavement"** Interlocking Permeable Concrete Pavement is a sustainable paving solution that offers numerous benefits for storm water management and site utilization. The provides valuable insights into its composition, benefits, limitations, and characteristics, emphasizing the importance of hydrological design, structural design, construction, and maintenance considerations. Consists of solid concrete paving units with permeable joints filled with aggregates, allowing water to freely enter the surface at high flow rates of up to 1,000 in./hr. The document outlines the components of, including bedding layers, base materials, and geosynthetics, highlighting the diverse applications and limitations of this innovative pavement system. By following the guidelines and recommendations presented in the stakeholders can effectively implement to reduce runoff, improve water quality, and enhance site sustainability
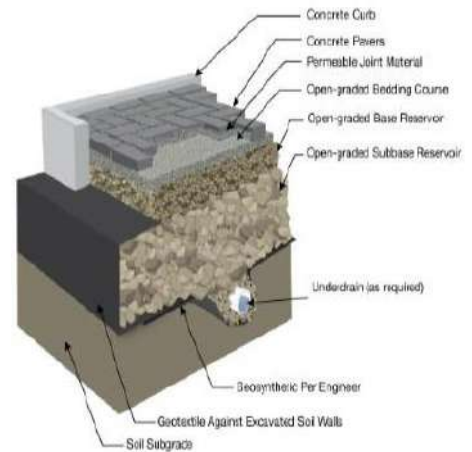
3. The project, titled **"Examining the Attributes of Eco-Friendly Concrete through Partial Substitution of Cement & Aggregates"** The workability of concrete had been found to be decrease with increase RHA in concrete keeping the replacement of aggregates by 20% Clay Powder and 5% Glass Powder constant. Compressive strength increases with the increase in the percentage of Fly ash and Rice Husk Ash up to replacement (25% FA and 5% RHA & 20% Clay Powder and 5% Glass Powder) of Cement & aggregate in Concrete for different mix proportions. The maximum 28 days flexural strength was obtained with a combination of 25% fly ash and 5% rice husk ash including 20% Clay Powder and 5% Glass Powder mix.

Photographs

Students explaining their work to Hon'ble Delegates

Poster of the Event

Glimpse of Event

Glimpse of Event

Social Media Post

Mechanical Department

Introduction:

This report details the project exhibition by Team ANAGATA from Dr. Akhilesh Das Gupta Institute of Professional Studies (ADGIPS) during the college fest UTKARSH 2024. Team ANAGATA participated in the ISRO Robotics Challenge 2024 and successfully built parts of rover for competition by using 3D printer and qualified for further rounds at this national level competition.

Exhibition Details:

During UTKARSH 2024, Team ANAGATA showcased their ISRO Robotics Challenge rover parts at a designated exhibition booth. The exhibition aimed to:

- Inform the college community about their participation in the ISRO Robotics Challenge.
- Generate interest in robotics and space exploration.
- Provide an opportunity for visitors to interact with the team and learn about their rover's functionalities.

Exhibition Highlights:

- The exhibition booth prominently displayed the ISRO Robotics Challenge 2024 rover parts.
- Team members were present to answer questions about the rover's design, capabilities, and their participation in the ISRO Robotics Challenge.
- Visual aids such as posters or presentations might have been used to explain the rover's technical aspects and the challenges faced during its development.
- We utilize a 3D printer to produce various parts of the rover, including the wheels, sample holder, and gambles. We also utilize it to create different patterns of wheels with varying densities for testing purposes.

Visitor Engagement:

The exhibition attracted students and faculty members from ADGIS and other colleges participating in UTKARSH 2024. Team ANAGATA likely:

- Engaged with visitors through interactive demonstrations of the rover's movement and functionalities.
- Explained the technical aspects of the rover in a clear and understandable manner.
- Provided information about the ISRO Robotics Challenge and its significance.

Conclusion:

Team ANAGATA's project exhibition at UTKARSH 2024 was a successful platform to showcase their accomplishment in the ISRO Robotics Challenge 2024. The exhibition not only served to inform the college community but also garnered interest in robotics and space exploration among the visitors.

Department of Electronics & Communication Engineering

Projects Details

Sr. No.	Project Name	Students Name	Year	Date
1	USB Rubber Ducky2.0	Chhavi Dudeja	4th	15.03.24
2	Sonar Glove: Giving Sonar to theblind	Viraj Khanna	4th	15.03.24
3	Waste Segregation System	Yash Singh	4th	15.03.24
4	Smart Agriculture system	Kanav	4th	15.03.24
5	Pet Feeding and Weather monitoring system	Aashish Rawat	4th	15.03.24
6	IOT-based Health Monitoringsystem	Aditya Tyagi	4th	15.03.24
7	IOT-enabled EV charger	Anmol Mishra. Nitika Maini	4th	15.03.24
8	Blind Man Assist Helmet	Aman Nagar	4th	15.03.24
9	Home Automation system	Mohd Adeel, Parnav Jastora	2nd	15.03.24
10	IoT based pollution controlsystem	Bharat Nargotra Rohan	2nd	15.03.24

USB Rubber Ducky2.0

Chhavi Dudeja (01196202820/F-15)

Overview: An attack in the form of retrieval of Google Chrome browser login data in Windows operating systems using Raspberry Pi Pico devices as USB Password Stealers, also giving administrative access to the attacker. This mechanism allows the attacker to connect to the target computer using a USB Human Interface Device (HID) in the form of a keyboard and then retrieve the username and password stored in the browser from the target computer using the Chrome Password Decrypted program through Command Prompt (CMD) and PowerShell. After the attacker gets persistent administrative access, he/she can retrieve decrypted chrome passwords. This project uses various tools and technologies such as Raspberry Pi Pico, Ducky Script, Python, Adafruit library, GitHub, and Circuit Python. At the end of the study, recommendations are also provided for prevention regarding this attack.

CONCLUSION:

If your user account is not in the Administrator group, it will make it harder for a Rubber Ducky to operate. The weakness of the Rubber Ducky is running pre-created scripts (payloads), and most of them are meant for accounts like most Windows PCs in the Administrator group. In a limited account,you will need to enter the Administrator credentials to do certain actions (i.e., change a Registry value) or run certain programs, and without these credentials, the Rubber Ducky won't be able to proceed.

Sonar Glove: Giving Sonar to the blind

Viraj Khanna (08815602820/F5)

Introduction:

The integration of sonar technology into wearable devices opens up new possibilities for navigating and interacting with the world.
By deploying ultrasound waves and analyzing their reflections, these wrist-mounted devices offer real-time spatial awareness, enabling users to detect obstacles and navigate their surroundings with increased independence.

Objectives:

- To implement sonar sensors to detect and measure distances to nearby objects accurately.

- To integrate tactile feedback mechanisms into a wrist-mounted device using Arduino.

- To integrate GPS functionality, allowing the device to provide precise navigation guidance.

Results and Output:

- Design the overall system architecture, including the integration of sonar sensors and Arduino microcontrollers.

- Develop algorithms to translate object data into meaningful tactile feedback signal

- Assemble the hardware components into a prototype wrist-mounted device.
- The tentative result of the project is a functional and wearable wrist-mounted device that combines sonar sensors and Arduino technology to provide accurate obstacle detection.
- The device, with an ergonomic design, aims to enhance navigation in various environments.
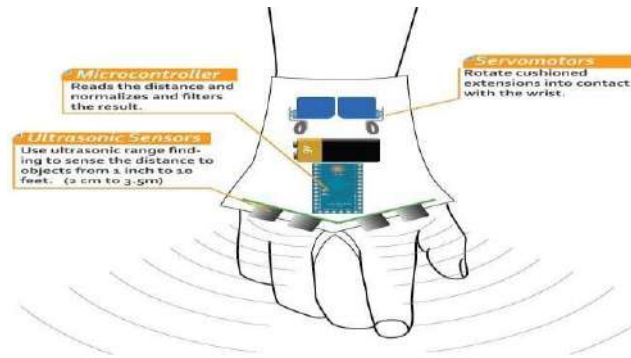
Conclusion:

A small, light, and portable smart glove system for blind people is developed by using an ultrasonic sensor, a servo motor and the Neo 6m GPS module are the extra characteristics of this tool compared to the existing ETA for this group of people. These two indicators will operate simultaneously as the blind approach the obstacles in front of them. The designed system has been able to detect the object or obstacles up to 80cm long so that the early warning is informed to blind for their safety. The glove will also help the parents/guardians of the user to locate the wearer's location in case of an emergency.

Glimpses of Technical Exhibitions

Department of Artificial Intelligence and Data Science

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Sr. No.	Project Name	Students Name	Year	Date
1	FemineSync- Break The Taboo	Hardik Sharma Ansh Varshney Sahil Gupta	3rd year	15.03.24
2	CanvasAI-Draw With Hand Gestures	Nandini Singh Jatin Singh	3rd year	15.03.24
3	Driver Drowsiness Detection System	Subham Singla Anurag Kumar Jha Ayushmaan Kamboj	3rd year	15.03.24
4	Inventory Management And Performance Automation Control Tool (IMPACT)	Mayank Garg Jyoti Rana	1st year 2nd year	15.03.24

FemineSync- Break The Taboo

Hardik Sharma(35215611921/T-13) , Ansh Varshney(03215611921/T-13)
Sahil Gupta(35315611921/T-13)

Overview: FemineSync, is a groundbreaking initiative dedicated to revolutionizing conversations surrounding menstrual health and periods. In a world where the menstrual cycle is often shrouded in stigma and silence, Feminesync emerges as a beacon of empowerment and education. For far too long, menstruation has been a taboo topic, relegated to hushed tones and hidden away from public discourse. Yet, the menstrual cycle is a natural and integral aspect of the female experience, affecting individuals across the globe in profound ways. From adolescence to menopause, the menstrual journey is a complex interplay of physiological changes, emotional fluctuations, and societal influences. Feminesync seeks to dismantle the barriers of shame and misinformation that surround menstruation. The platform provides a safe and inclusive space for individuals of all genders to engage in open dialogue, gain knowledge, and foster a deeper understanding of menstrual health. Through a combination of advocacy, education, and community-building,

FemineSync strives to:

Destigmatize Menstruation: By fostering open conversations and challenging societal norms, we aim to normalize discussions about menstruation and eradicate the shame associated with it.

Promote Education: We believe that knowledge is power. Feminesync offers comprehensive resources and evidence-based information to empower individuals to make informed decisions about their menstrual health.

Advance Menstrual Equity: Recognizing the disparities in access to menstrual products and healthcare, we advocate for policies and initiatives that promote menstrual equity and ensure that everyone has access to the resources they need.

Celebrate Diversity: Celebrate the diversity of menstrual experiences across cultures, ages, and identities. Feminesync embraces intersectionality and amplifies the voices of marginalized communities within the menstrual health movement.

Foster Supportive Communities: Through online forums, support groups, and events, Feminesync facilitates connections and fosters a sense of solidarity among individuals navigating their menstrual journeys.

CanvasAI - Drawing with Hand Gestures

Nandini Singh (03815611921/T-13), Jatin Singh (02115611921/T-13)

Introduction:

CanvasAI is a computer vision project aimed at providing an innovative platform for creative expression through gesture-based drawing. Utilizing the capabilities of OpenCV and machine learning via Mediapipe, CanvasAI detects and tracks hand landmarks, enabling users to draw in the air with hand gestures. This report outlines the objectives, implementation details, outcomes, and future scope of the CanvasAI project.

Objectives:

- The primary objectives of CanvasAI are as follows:
- Develop a system for gesture-based drawing using hand gestures.
- Provide an interactive canvas where users can draw using different colors.
- Implement functionalities for clearing the canvas and selecting colors.
- Create a user-friendly interface for intuitive interaction.

Results and Output:

CanvasAI successfully provides a real-time demonstration of gesture-based drawing, allowing users to express their creativity by drawing in the air. Users can choose from a variety of colors, clear the canvas, and enjoy an interactive drawing experience.

Conclusion:

CanvasAI represents an innovative approach to digital drawing, leveraging computer vision and machine learning technologies. The project demonstrates the feasibility of gesture-based interaction for creative applications and opens avenues for future research and development in this domain.

Driver Drowsiness Detection System with alarm using OpenCv and Deep Learning

Shubham Singla(02215611921/T-13) , Anurag Kumar Jha(01615611921/T-13)
Ayushmaan Kamboj(00815611921/T-13)

"Driver Drowsiness Detection System" is a comprehensive project aimed at enhancing road safety by leveraging cutting-edge technology. Our system employs state-of-the-art computer vision and machine learning techniques to detect signs of driver drowsiness in real time, thus preventing potential accidents caused by driver fatigue.

For training purposes, we used a vast image dataset {MRL}, i.e. Media Research Lab dataset which contains more than 60,000 images of eyes divided into two main categories (open/closed). After training the model by applying various neural network layers and activation functions, we saved the model by name (model.h5) checkpoint where it was giving the maximum accuracy (94% approx.) at around 10 epochs.

After the model had been created, we also made a separate GUI for visualization purposes and exhibition. In the GUI, once we run the code, a tkinter window appears with the camera on and recording the face especially focusing on the eyes. Once the person in front of the camera slightly shuts his/her eyes off for a few seconds (threshold value of around 3-4 seconds), the camera will detect it and the screen will show a red text saying "Eyes are closed" with an alarm buzzing off for a few seconds. For closing the GUI, directly pressing "E" will close the Tkinter window.

Inventory Management and Performance Automation Control Tool (IMPACT)

MAYANK GARG (005115611923/1st Yr. -M), Jyoti Rana (05415611922/S-11)

The project aims to develop an advanced **Inventory Management and Performance Automation Control Tool** to streamline inventory tracking, management, and performance monitoring processes for businesses. This project involves adapting digital bill-making, due management, low system requirements and no high education requirement.

IMPACT offers a range of features that cater to the needs of small businesses or individuals, providing a user- friendly, cost-effective, and versatile solution for managing digital billing, inventory, and credit transactions.

Glimpses of Technical Exhibitions

Department of AIML

PROJECT 1

Title: Fraud Detection Using Face Recognition

Objectives: To authenticate the online transaction and to prevent unauthorized access to the system, facilities, and confidential information by leveraging the power of computer vision for face detection and machine learning for recognition, the project aims to create a robust system to bolster security and prevent fraud.

Students: Mr. Krishna Tripathi, Ms. Vaishali Premani, Ms. Priyanshi Sharma (2nd Year AIML Students)

Key Takeaways:
- To get knowledge about the face recognition model.
- To solve the problem of fraudulent transactions.
- Knowledge about Open CV and Flask.

Description: The feasibility of the proposed face recognition project utilizing Flask, OpenCV (cv2), and the face recognition library appears highly promising. With Flask serving as a lightweight web framework, the model can be easily deployed as a web service, allowing for seamless integration into various applications. Leveraging OpenCV facilitates efficient image preprocessing, face detection, and manipulation tasks, essential for accurate face recognition. Additionally, the face recognition library simplifies the process of facial landmark detection and recognition, streamlining the development of the model. Overall, the combination of these technologies offers a robust and scalable solution for implementing a web-based face recognition system with potential applications in security, authentication, and access control.

PROJECT 2

Title: Sign Language Recognition Using Convolutional Neural Network (CNN)

Objectives: To create a Convolutional Neural Network (CNN) based sign language recognition system that can recognize and interpret sign language gestures into text accurately. The project aims to create a system that will bridge communication barriers forpeople with hearing impairment, allowing them to communicate effectively.

Students: Ms. Princika Khattar (2nd Year AIML Student)

Key Takeaways:

- To get knowledge about Convolutional Neural Networks (CNN).
- Learn more about the Python modules like OpenCV, Tkinter.
- To create a tool that can help the individual with hearing impairment.

Description: The project uses camera technology to translate sign language gestures into text by training a deep learning model using a Convolutional Neural Network (CNN) and integrating it with various Python modules to create an accurate and efficient tool. Through CNN we can easily analyze different hand movements and spatial patterns in sign language and by training it on a large dataset, it can accurately classify different sign language gestures. This project also uses various Python libraries like Numpy, Tkinter, and Tensorflowwhich is an open-source machine learning framework. The main goal of this project is to create and enable effective communication between sign language users and the broader community by translating sign language gestures into text in real-time.

PROJECT 3

Title: SOUNDBOT.AI (Voice Assistant)

Objectives: The objective is to build a Desktop assistant that can perform tasks and provide information to users through voice commands. We can play music, manage schedules, and even search for common information regarding college using our voice. Our desktop assistant will provide a user-friendly interface for carrying out a variety of tasks. There is a wide scope of voice technology.

Students: Ms. Komal Goel, Mr. Atharva Singh (2nd Year AIML Students)

Key Takeaways:
- To get knowledge about AI natural language processing technology to interpret human speech and respond accordingly in a human-like voice.
- Learn more about Python modules like pyttsx3(TTS library for converting text to speech), speech recognition, and OS modules.

Description: A voice assistant is a digital assistant that uses voice recognition, language processing algorithms, and voice synthesis to listen to specific voice commands and return relevant information or perform specific tasks as requested by the user. The main goal of our Desktop voice assistant is to provide people with an easy and quick way to gettheir questions

answered to manage their time more effectively and increase productivity and interaction. Here we are using PyCharm IDE for the development of our overall project, python libraries like pyttsx3(TTS library for converting text to speech), speech recognition, and using "Kivy" for creating user interfaces, MySQL for creating datasets. It will be compatible with different operating systems (e.g., Windows, macOS, Linux) and hardware configurations.

PROJECT 4

Title: Water Effluent Treatment Plant

Objectives: The main objective of this project is to remove one of the major pollutants present in water i.e., effluents by using different sustainable techniques to make water reusable and fit for human use i.e., domestic, or industrial purposes.

Students: Mr. Ojasvi Bhatnagar, Ms. Vaishali Kumari, Ms. Vani Gupta, Mr. Ritik Choudhary, Ms. Nishita Aggarwal, Mr. Nishant Kumar Yadav, Ms. Sanvi Jindal (1st Year AIML Students)

Key Takeaways:
- To use sustainable products for water filtration.
- To bring awareness amongst youth regarding water pollution from effluents.
- Knowledge about water pollution and effluents.

Description: The project showcases the primary stage of a water effluent treatment plant. Being Environmental studies students, we are concerned about increasing levels of pollution in water bodies. To solve this problem to an extent we made this project, the working of which is as follows. In 1st stage water sample undergoes the process of sedimentation, then when water enters stages 2nd and 3rd which consist of gravels and pebbles respectively the big impurities are separated. In the 4th stage due to the presence of activated charcoal the process of coagulation takes place. Following this in the 5th stage the minute particles are removed as cotton absorbs them and only filtered water is passed to the last container. The water collected in the container is then passed through secondary and tertiary treatment plants based on the use of water. We aim to upgrade our project in the future by adding sensors at the very first and last stage of the treatment plant, to measure the capability of filtration and further requirements (secondary and tertiary treatment plants) for the treatment of water.

PROJECT 5

Title: IndiTranslate

Objectives: IndiTranslate revolutionizes government-citizen communication by translating official resources into regional languages. It employs advanced OCR for text extraction and utilizes specialized machine-learning models like Hugging Face Transformers for accurate

translations. What sets it apart is the seamless integration of translations onto posters, preserving their design.

Students: Ms. Vedanshi Bansal, Ms. Radhika Gupta (3rd Year AIML Students)

Key Takeaways:
- IndiTranslate revolutionizes government-citizen communication through linguistic inclusivity.
- Cutting-edge OCR technology ensures precise text extraction.
- Enhanced accessibility and comprehension for diverse communities.

Description: IndiTranslate stands at the forefront of revolutionizing government-citizen communication by ingeniously bridging linguistic barriers through its innovative platform. By leveraging cutting-edge OCR technology for precise text extraction and harnessing the power of specialized machine-learning models like Hugging Face Transformers, IndiTranslate ensures unparalleled accuracy in translating official resources into regional languages. What truly sets it apart is its seamless integration of translations onto posters while preserving their original design aesthetics, thereby enhancing accessibility and comprehension for diverse communities. This distinctive approach not only facilitates inclusive communication but also underscores IndiTranslate's commitment to fostering effective and culturally sensitive interactions between governments and citizens on a global scale.

PROJECT 6

Title: DevBroz

Objectives: DevBroz is a dynamic venture founded by three enthusiastic engineering students who recognized the challenges of establishing a distinctive online identity for brands. As young entrepreneurs, we intimately understand the struggle to craft websites and apps that truly reflect a unique personality. At DevBroz, we have embarked on a mission to revolutionize the digital landscape. Our approach goes beyond conventional development; we infuse character into each project, ensuring your online presence stands out.

Students: Mr. Daksh Suryavanshi, Mr. Yash Raj Singh, Mr. Qamar Ali (3rd Year AIML Students)

Key Takeaways:
- The venture guarantees that clients' online presence resonates and distinguishes itself in the competitive digital world. Cutting-edge OCR technology ensures precise text extraction.
- Their mission extends beyond conventional development, focusing on infusing character into each project to ensure a standout online presence.

Description: DevBroz is an innovative venture spearheaded by three enterprising engineering students who keenly identified the hurdles in creating a memorable online identity for brands. With a deep understanding of the challenges faced by young entrepreneurs in crafting websites and applications that truly embody individuality, DevBroz has set out on a mission to redefine the digital sphere. Their approach transcends traditional development methodologies by

injecting personality and character into every project, thereby guaranteeing that each client's online presence not only resonates but also distinguishes itself in the ever-evolving landscape of the digital world.

PROJECT 7

Title: Object Detection Using Deep Learning

Objectives: Object detection involves identifying and localizing objects within an image or video, enabling applications such as autonomous driving, surveillance, and image retrieval.

Students: Mr. Gaurav Balodi, Mr. Nitin Rawat, Mr. Dev Yadav (AIML 3rd Year Students)

Key Takeaways:
- It enables applications such as autonomous driving, surveillance systems, and image retrieval by allowing machines to understand and interpret visual information.
- Applications of object detection include identifying pedestrians and vehicles on roads, monitoring security footage for suspicious activities, and retrieving relevant images from large databases based on content.

Description: Object detection is a crucial computer vision task that involves the identification and precise localization of objects within images or videos. By leveraging sophisticated algorithms and deep learning techniques, object detection enables a diverse range of applications including autonomous driving, surveillance systems, and image retrieval. It allows machines to understand and interpret visual information by detecting the presence, class, and spatial extent of objects in a scene. This capability is essential for tasks like identifying pedestrians and vehicles on roads, monitoring security footage for suspicious activities, and retrieving relevant images from large databases based on the content of interest. Object detection plays a vital role in advancing various fields where understanding the visual world is essential, paving the way for safer, more efficient, and intelligent systems

PROJECT 8

Title: AIML Solar Project

Objectives: The AIML solar project is a solution to increasing the solar efficiency of already installedsolar setups, it is based on a combination of 2 widely used technologies namely the Internet of Things and machine learning the solution has an IoT device that captures the environmental variables which then used by the machine learning model to predict the generative efficiency and produce alerts based on that

Students: Mr. Rahul Sharma, Mr. Gursharan Singh, Mr. Lakshay Singhal, Mr. Sachin Kumar Ray (3rd Year AIML Students)

Key Takeaways:
- ML Solar Project aims to boost the efficiency of existing solar setups using IoT and machine learning technologies.
- Real-time alerts are generated by the model, allowing operators to promptly address

potential issues and optimize energy production.

Description: The ML Solar Project represents an innovative solution aimed at enhancing the efficiency of existing solar setups through the integration of two cutting-edge technologies: the Internet of Things (IoT) and machine learning. At its core, the solution incorporates an IoT device strategically positioned to capture crucial environmental variables relevant to solar energy generation. These variables, such as sunlight intensity, temperature, and humidity, are then relayed to a machine-learning model. Leveraging advanced algorithms, the machine learning model analyzes this data to predict the efficiency of solar energy generation. Furthermore, the model is designed to generate real-time alerts based on these predictions, allowing operators to proactively address any potential issues and optimize energy production. By seamlessly combining IoT-enabled data collection with the predictive capabilities of machine learning, the ML Solar Project offers a forward-thinking approach to maximizing solar energy output while minimizing operational disruptions.
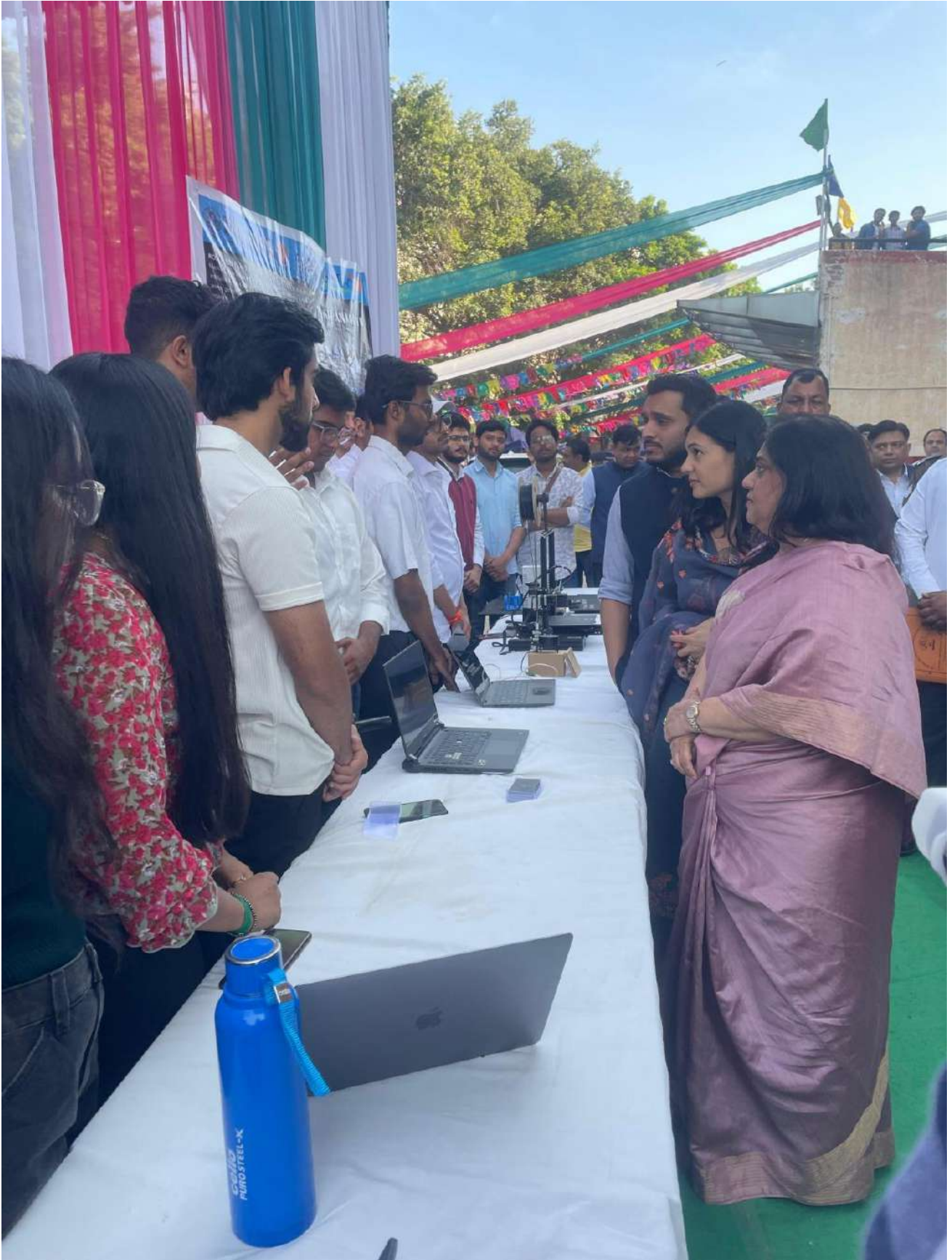
Dr. Mohd. Izhar   Prof. (Dr.) Ankit Verma
Event Organizer   **Head of Department**

Department of Applied Science and Humanities

Theme : Celebrating Innovation and Sustainability

Presented by: B.Tech First Year Students

Event Project exhibition in Utkarsh 24

  Students of B.Tech First year, under the guidance of Prof(Dr.) Daisy Bhat and Project Coordinator Dr. Pooja Sharma, had the privilege of presenting their projects in Project exhibition of Utkarsh 24.on March 15th , where innovation and sustainability took centre stage. The event showcased projects based on renewable energy and sustainability, highlighting the creativity and ingenuity of students in addressing environmental challenges.

Project 1: Free energy generation; - Power energy generation by utilising kinetic and potential energy of water was the depicted in this project . All readily available materials like used water bottle . disposable spoons wooden stand and rubber tubing was used to run the system.

Key learning: The power generation from water which is a renewable resource has huge potential for sustainable development.

Project 2: water Treatment: This project showcased the huge potential that natural materials like pebbles , charcoal , gravel etc possess for treatment and purification of impure water. Various stages of affluent treatment were depicted by an interconnected series of tanks depicted by disposable glasses filled with these materials cleaned water at every stage till clear water is obtained in last container:

Key learning :Awareness about use of natural materials for water treatment and its potential to improve quality of water and subsequently our rivers which are deteriorating due to direct entry of untreated effluent water.

Project 3 : use of wing energy; This project depicted power generation from wing energy . using mechanical moment of wind mill to light up a small bulb.

 Key learning: promotion of alternative resources of energy to reduce pressure on environment;