Dr. AKHILESH DAS GUPTA INSTITUTE OF PROFESSIONAL STUDIES
FC-26, SHASTRI PARK, NEW DELHI.

Department of Artificial Intelligence and Machine Learning

Dated: 15/03/2024

REPORT

AIML Project Exhibition

Date of Event: 15th March 2024

Venue: In Front of 2nd Block

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 for people 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 Tensorflow which 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 get their 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 treatmentplants) 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 installed solar 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**