

A Review Paper on Deep Learning Based Identification System In Bank

Shailaja Kadam,

Assistant Professor,

*Department of Electronics Engineering, Terna Engineering College, Nerul,
Maharashtra, India.*

Chandan Sharma , Vikas Verma , Yukta Jambhale , Gautam Pattnaik

*UG Student, Department of Electronics Engineering, Terna Engineering College, Nerul,
Maharashtra, India.*

ABSTRACT:

In this project ,a video based objection detection method is proposed for a traceability system with deep learning methods. The surveillance video is collected first, from which an annotated image database of target objects such as people was constructed to train convolutional neural network models off-line. With the trained model, a real-time target detection and recognition system is designed and implemented. The proposed method mainly includes three aspects: video processing, target detection and object recognition. It provides a variety of video interfaces to support the downloaded video and real-time video stream. The experimental results indicate that the proposed deep learning based detection method is efficient for the traceability application. The proposed System uses object detection using deep learning to make a biometric security system to separate authorized personnel from regular people. If the person trying to access a restricted area is not authorized by the bank, then the system's alarm goes on alerting the security department of the intruder, where appropriate action is taken to detain the intruder.

KEYWORDS:

Esp32-S, FTDI module, Arduino IDE, Wi-Fi, object detection with Face recognition.

INTRODUCTION:

Object Detection & Identification is a very important part of bank security. It helps to detect and identify objects within the image. ESP32 CAM-Based Object Detection & Identification with OpenCV. OpenCV is an open sourced image processing library that is very widely used not just in industry but also in the field of research and development. Here for object detection cvlib Library is used. The library uses a pre-trained AI model on the COCO dataset to detect objects. The name of the pre-trained model is YOLOv3. For hardware, the ESP32 Camera Module was used which can be programmed through FTDI Module. It is required to set up the Arduino IDE for the ESP32 Camera Module. It is important to upload the firmware and then work on the object detection & identification part. This project makes use of OpenCV for Object Detection & Identification. OpenCV is a free and open source computer vision library. It provides a wide range of video & image processing algorithms that can be used to detect faces, eyes, gestures, and other objects from images or videos. It also offers face recognition, identification of persons in a video etc. This project makes use of OpenCV for Object Detection & Identification. A pretrained AI model on the COCO dataset is used to detect objects. The name of the pre-trained model is YOLOv3. For hardware, the ESP32 Camera Module was used which can be programmed through FTDI Module. It is required to set up the Arduino IDE for the ESP32 Camera Module. Advantage of using CNN for banking security is that it allows you to track movement across different parts of an image rather than just identifying individual objects within those same areas over time (which would be more difficult). This makes it easier for users' The system can track movement and determine whether a person has entered or exited a building, for example. CNN is also helpful when it comes to identifying different types of targets, such as people. This can be important for banks that need to verify that a person has entered or left a building, but it's also useful for others.

LITERATURE REVIEW:

1. Paper 1 : Video Object Detection for Tractability with Deep Learning Method [2017] Citation : Bing Tian ,Liang Li, Yansheng Qu, Li Yan Information and Telecommunication Company of State Grid Shandong Electric Power Corporation Jinan 250021, China Deep learning methods to detect and recognize targets from videos. We collect surveillance videos and use an image database of targets such as people or vehicles to train convolutional neural network models off-line. With the trained model, we design and implement a real-time detection and recognition system that can accurately identify targets from video.

2. Paper 2 : Tracking People and Objects with an UAV using Face and Colour Detection [2019]
Citation : Olarik Surinta Multi-agent Intelligent Simulation Laboratory (MISL) Faculty of Informatics, Mahasarakham University Maha Sarakham, Thailand First, face detection using images and applied to the popularity of face detection, is a Haar-cascade classifier and max-margin object detection with convolutional neural network based features because they have high precision in analysis. Second, a colour detection system, which only focuses on the colour of objects which can be developed as an obstacle detection system.
3. Paper 3 : Yolo Objection detection algorithm based social distancing detection system Citation : Sudhir Sidhaarthan Balamurugan Computer Science Engineering, Lovely Professional University, Jalandhar, India[2021] This social distance detection system brings an emphasis on monitoring the distance between people using technologies namely open-cv and deep learning. In this topic we'll explore how to apply it in your project which will allow you to add value and enhance user experience by reducing risk
4. Paper 4 : Real-time detection and classification of arrow marking using curve-based prototype fitting Citation : Georg Maier and Sebastian Pangerl and Andreas Schindler [2011] In this paper we focus on the problem of detecting and classifying supplementary lane markings like painted arrows. We present a general geometric approach using curve-based prototype fitting. Although our method can process data from various sensor sources, we focus on the usage of a monocular grey value camera 15 Terna Engineering College
5. Paper 5 : Wi – Fi Door Lock System Using ESP32 CAM Based on IoT [2021] Citation : Dilip Prathapagiri# , Kosalendra Eethamakula*1 #Department of ECM, J. B. Institute of Engineering & Technology, * Independent Researcher, The proposed Door Security System application uses WiFi Door Lock with ESP32 CAM and Internet of Things (IoT) technology to monitor the status of the door, manage the door, and increase security in a home. Blynk is a communication protocol that connects a smartphone to a door lock system and is used to increase the security of a home. 6. Paper 6 : Smart Home Monitoring System Using ESP32 Microcontrollers [2020] Citation : Marek Babiuch and Jiri Postulka The proposed system secures a house by detecting an intruder in the building, triggering an alarm and capturing it all with camera images and then sending data to the owner's smart mobile phone. The secondary task of the system is to collect data from sensors for monitoring the temperature of an object and presenting it via a web server.

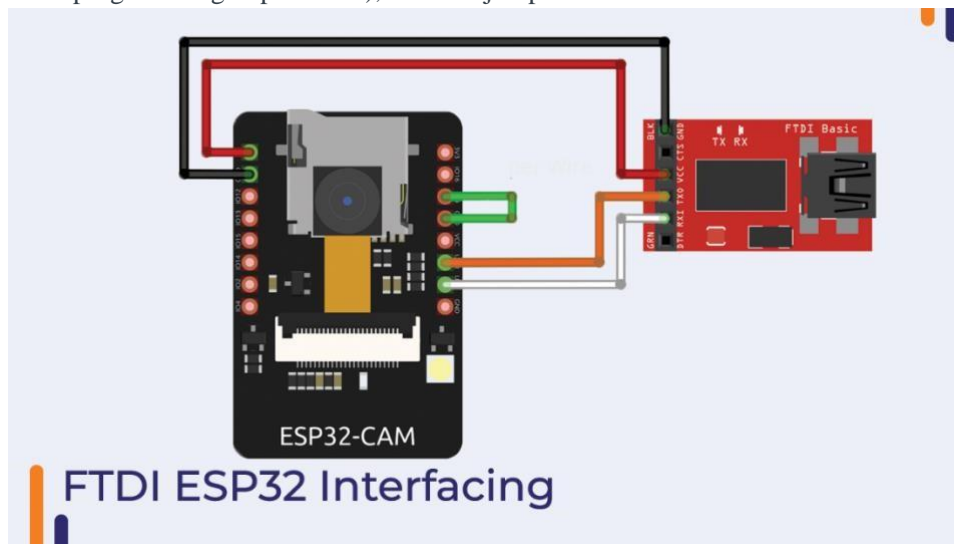
AIM AND OBJECTIVE:

- ❖ System should be able to recognize the face of the person coming into the bank and detect and identify whether the person is an employee or not based on the database given in the bank.
- ❖ In case of any suspicious activity or unauthorized person entering a restricted room will immediately report it to the security department.

- ❖ Only authorized personnel according to the given database should be allowed.

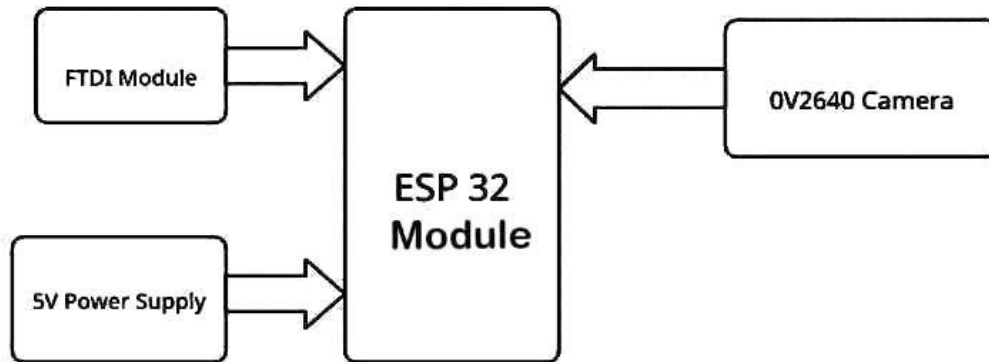
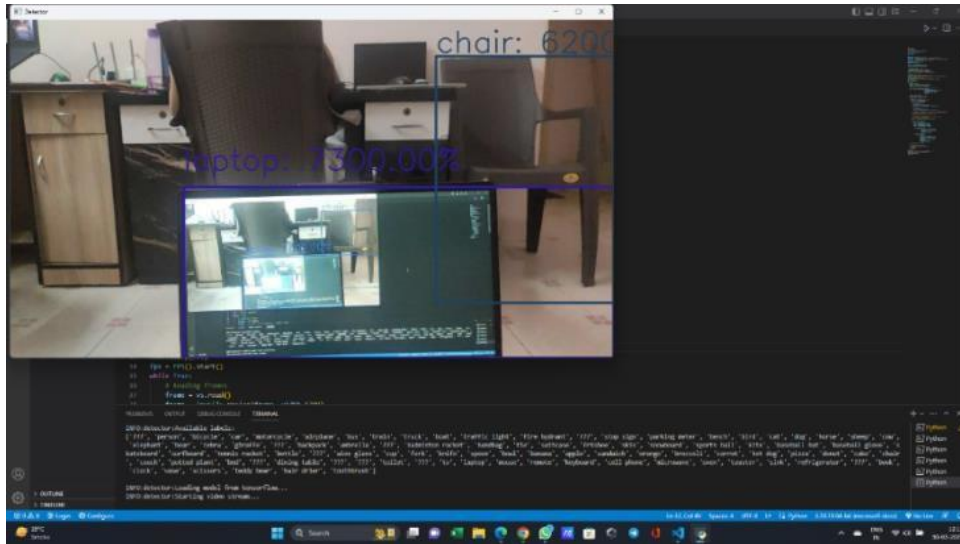
WORKING :

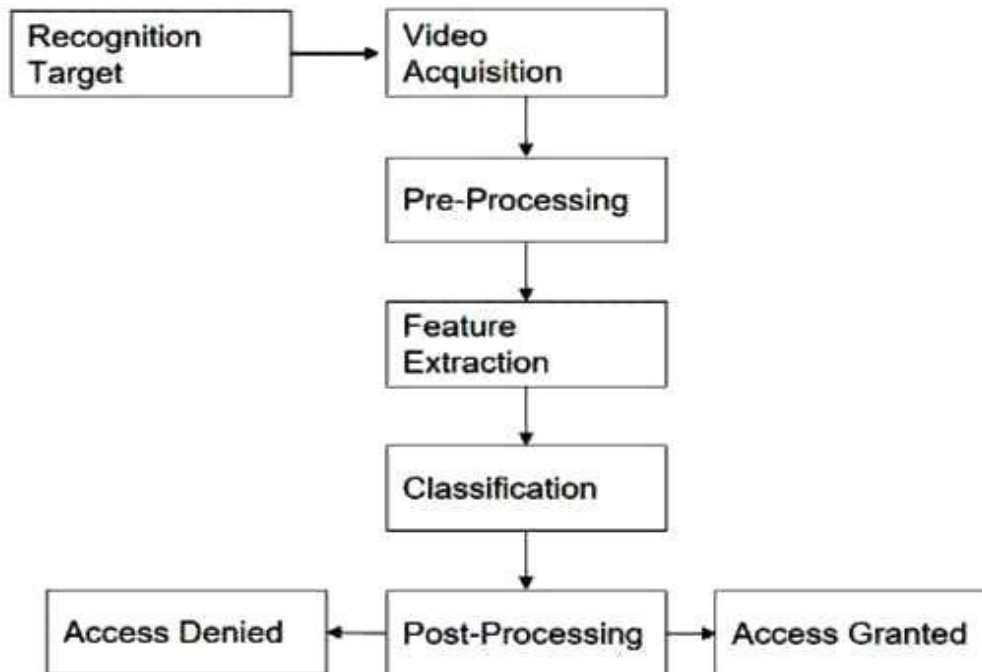
The ESP32-CAM is a development board with an ESP32-S processor, an OV2640 camera, several GPIOs for connecting peripherals, and a microSD card slot for storing images when communication is not possible. The ESP32-CAM module is rapidly gaining popularity in applications that require image broadcasting, facial recognition, image processing, and, most importantly, built-in WiFi and Bluetooth. It is connected to FTDI module with pin connection as follows: 3.3v-3.3VCC, GPIO 0pin – Gnd pin(this connection only necessary while programming Esp-32 cam), here the jumper wire is used.



First the ESP-32 kit is downloaded in Arduino IDE, after which you connect the ESP32 board to your computer. Open the Tools > Board menu in your Arduino IDE and select the AI-Thinker ESP32-CAM board, after selecting the connected port and working baud rate it is ready to be programmed.

After writing it's code, click on the upload button. After this step is done, disconnect the board and remove the jumper wire and open the serial monitor section and run it on both NL & CR and 115200 baud rate. Copy paste the ip address into the the python code and run it. The output will show as below:





CONCLUSION:

In this study, we construct and put into practise a motion detection and CNN-based target detection system. The system's overall solution is presented first. The motion detecting component introduces a target deception technique using nonparametric contrast of modeling and frame differences common techniques. The object is classified and labeled by the data collection.to get ready for additional CNN training. In the CNN section We describe the creation of the CNN model, the method of CNN network model training is conducted, and the outcomes are examined.

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