FACE RECOGNITION BASED ATTENDANCE BOT

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Abstract: The human face is an important entity which plays a crucial role in our daily social interaction, like conveying individual's identity. Face recognition is a biometric technology that extracts the facial features mathematically and then stores those features as a face print to identify the individual. Bio-metric face recognition technology gained a lot of attention during the past few years due to its wide range of applicability. Face recognition technology has a slight edge on other bio-metric systems like finger-print, palm-print and iris due to its non-contact process. Face recognition system is also able to recognize the person from a distance without touching or any interaction with the person.

Index Terms - Bio-metric, finger-print, palm-print, Face recognition

I. INTRODUCTION

Automatic face recognition (AFR) technologies have seen dramatic improvements in performance over the past years, and such systems are now widely used for security and commercial applications. An automated system for human face recognition in a real time background for a company to mark the attendance of their employees. So Smart Attendance using Real Time Face Recognition is a real world solution which comes with day to day activities of handling employees. The task is very difficult as the real time background subtraction in an image is still a challenge. To detect real time human face are used and a simple fast Principal Component Analysis has used to recognize the faces detected with a high accuracy rate. The matched face is used to mark attendance of the employee. Our system maintains the attendance records of employees automatically. Manual entering of in logbooks becomes a difficult task and it also wastes the time. So we designed an efficient module that comprises of face recognition to manage the attendance records of employees. Our module enrolls the staff's face. This enrolling is a onetime process and their face will be stored in the database. During enrolling of face we require a system since it is a onetime process. You can have your own roll number as your employee id which will be unique for each employee. The presence of each employee will be updated in a database. The results showed improved performance over manual attendance management system. Attendance is marked after employee identification. This product gives much more solutions with accurate results in user interactive manner rather than existing attendance and leave management systems.

II. PROBLEM STATEMENT

Manual attendance is time consuming in educational sector so automated attendance is necessary here. The traditional method of taking attendance in School, colleges is hectic and time consuming and not that much accurate. Smart Attendance Management System facilitates to access the attendance information of a particular student in a particular class. To reduce the time as well as increase the efficiency of attendance marking bio metric face recognition is used.

III. PROPOSED DESIGN

- The system consists of a BOT having a LCD display head with an attached HD Camera to it.

- The BOT will be placed inside the classroom.

- After student enters the class the student will mark his/her attendance by looking in the BOT screen (Two Options Register & Mark Attendance).

- The BOT will compare the real time student image features with the image features present in the database.
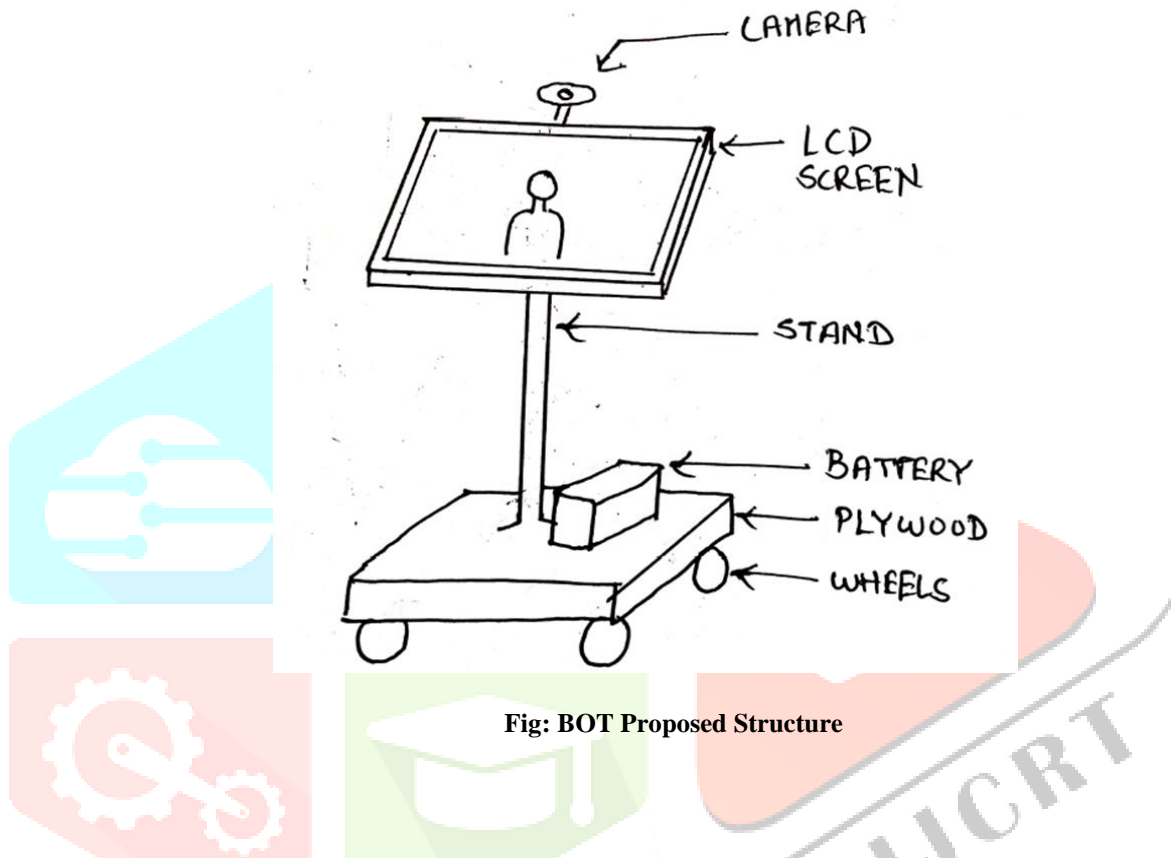
- Marking of attendance is done.
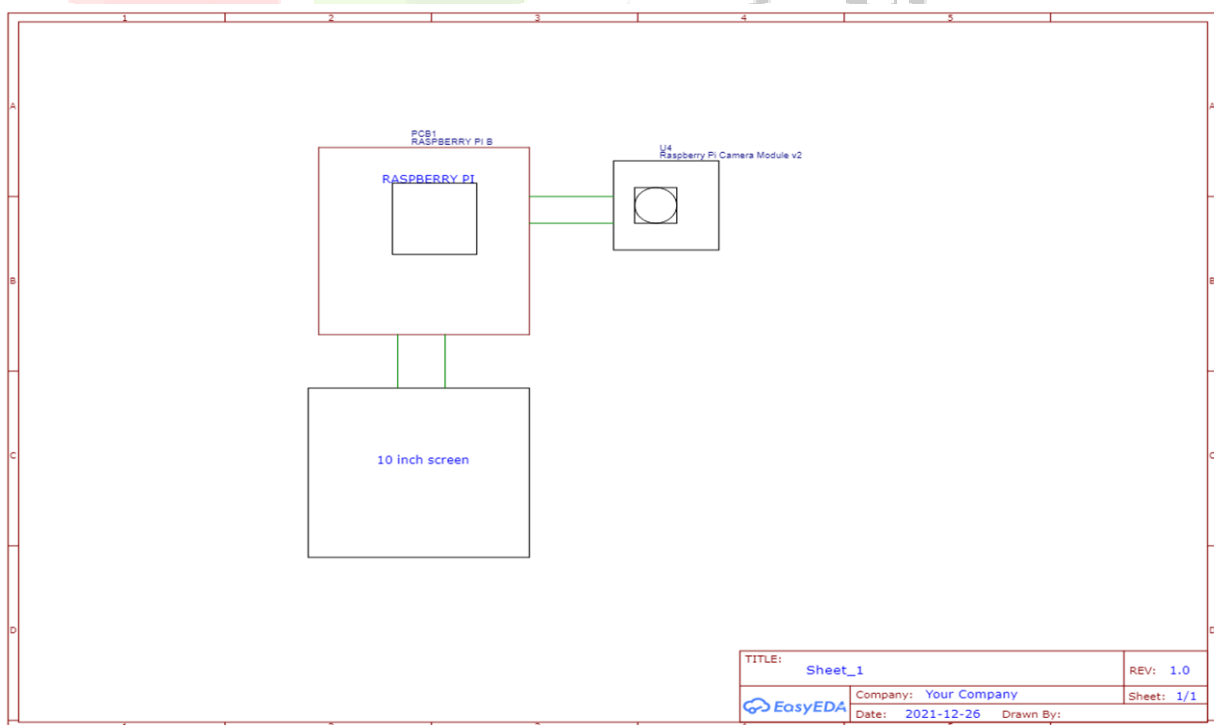

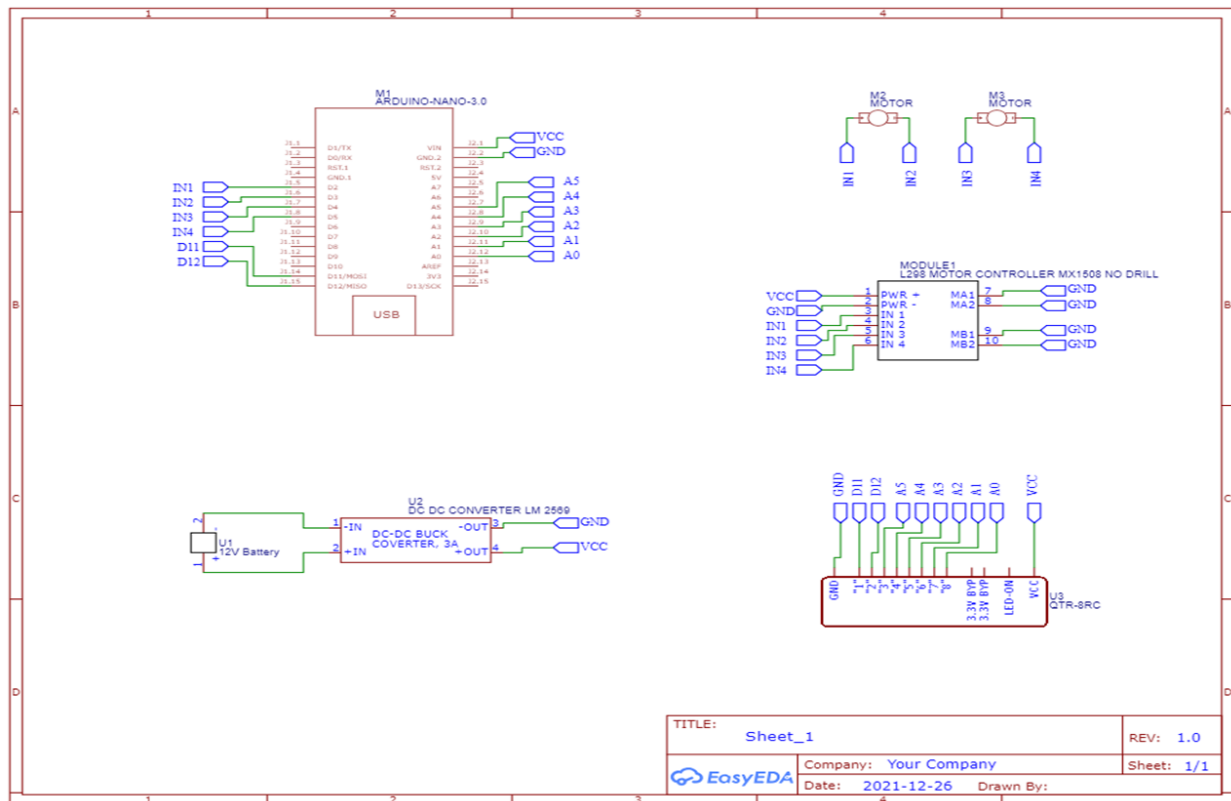**Fig: BOT Proposed Structure**

Fig: External Connectivity

Fig: Internal Connectivity

IV. APPROACH:

A. Enrollment:

In this step, the student is enrolled in the student database. General information like Name, Enrolment Number, Class, and Section is stored in the database. Along with all this information, pictures of the student's face appearing in the camera window are also stored in the student database. With the help of all the images stored in the student database, facial recognition can be performed for all the students are coming to attend a lecture.
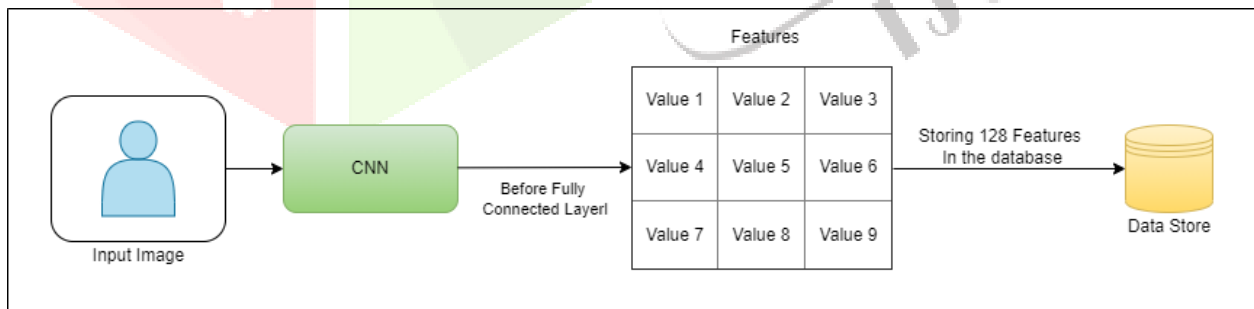

Fig: Enrollment Overview

B. Detection Of Face:

HAAR cascade is a feature-based algorithm for object detection that was proposed in 2001 by Paul Viola and Michael Jones in their paper, "Rapid Object - Detection using a Boosted Cascade of Simple Features". The rectangular features which are similar to the kernel are used to detect different features of the face like eyes and notes as shown in the illustration.
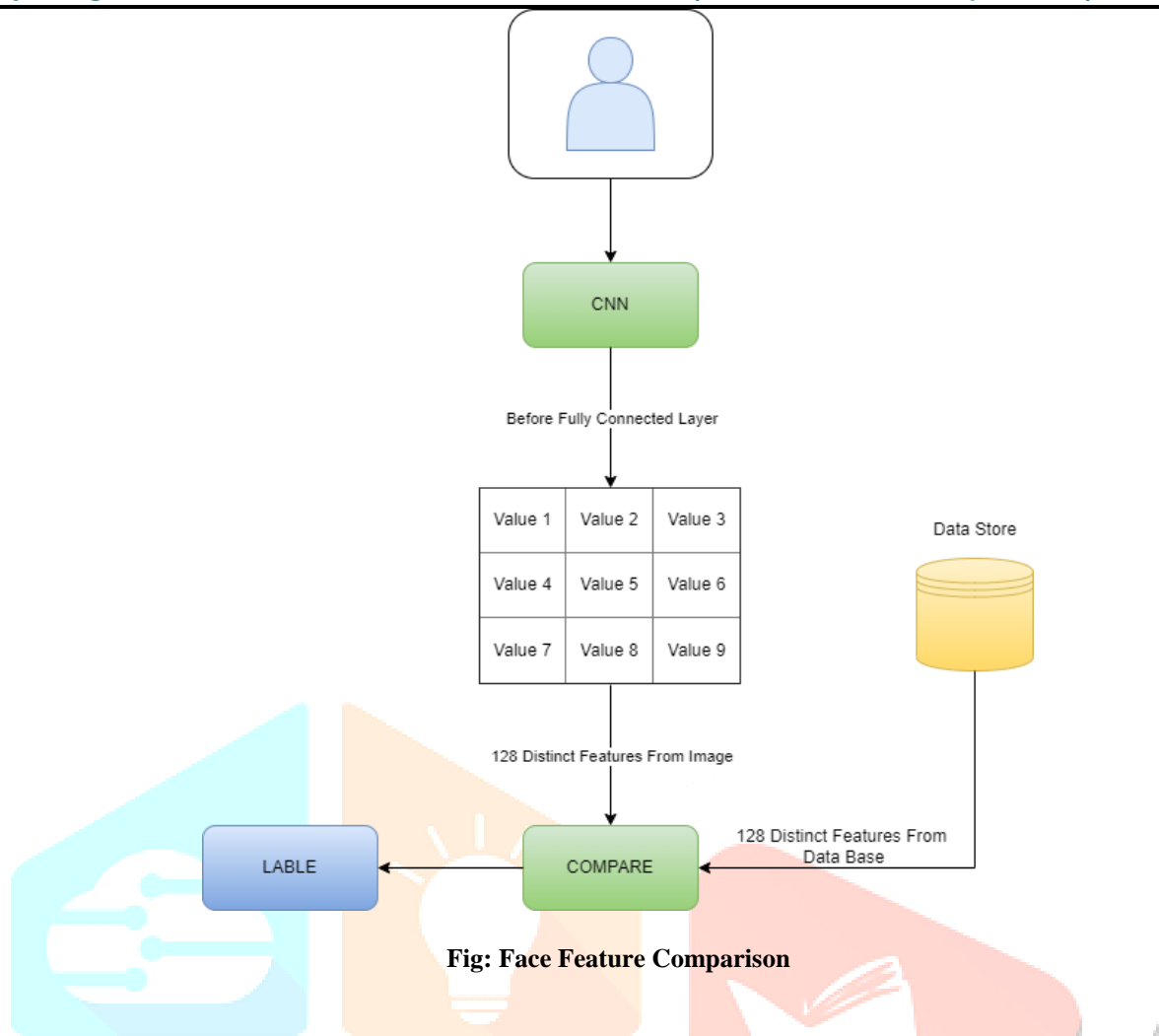
Fig: Face Feature Comparison

C. Mark Attendance:

Then the Attendance will be marked with the label provided absent / present

	A	B	C	D	E
1	Roll No	Name	Attendence		
2	BECOMP-A01	abc	P		
3	BECOMP-A02	def	P		
4	BECOMP-A03	hij	P		
5	BECOMP-A04	klm	P		
6	BECOMP-A05	pqr	A		
7	BECOMP-A06	uvw	P		
8	BECOMP-A07	xyz	A		
9	BECOMP-A08	nop	P		
10					
11					
12					
13					
14					

Fig: Sample Attendance sheet

V. CONCLUSION:

The proposed automated attendance system using face recognition is a great model for marking the attendance of students in a classroom. This system also assists in overcoming the probabilities of proxies and fake attendance. In the modern world, an outsized number of systems using biometrics are available. However, the facial recognition turns out to be a viable option because of its high accuracy along with minimum human intervention. Automated Attendance System has been envisioned for the purpose of reducing the errors that occur in the traditional (manual) attendance taking system. The aim is to automate and make a system that is useful to the organization such as an institute. The efficient and accurate method of attendance in the office environment that can replace the old manual methods. This method is secure enough, reliable and available for use. No need for specialized hardware for installing the system in the office. It can be constructed using a camera and computer.

VI. REFERENCES:

[1] S. Lukas, A. R. Mitra, R. I. Desanti and D. Krisnadi,"Student Attendance System in Classroom Using Face Recognition Technique," in ICTC 2016, Karawaci, 2016.

[2] N. M. Ara, N. S. Simul and M. S. Islam, "Convolutional Neural Network Approach for Vision Based Student Recognition System," in 2017 20th International Conference of Computer and Information Technology (IC- CIT), 22-24 December, 2017, Sylhet, 2017.

[3] P. Wagh, S. Patil, J. Chaudhari and R. Thakare, "Attendance System based on Face Recognition using Eigen face and PCA Algorithms," in 2015 International Conference on Green Computing and Internet of Things (ICGCIoT), 2016

[4] K. Goyal, K. Agarwal and R. Kumar, "Face Detection and track-ing" in International Conference on Electronics, Communication and Aerospace Technology, ICECA 2017, 2017