A Survey on Face Detection Attendance System using Raspberry pi

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Abstract— This process is done with any human face. In the system a Raspberry Pi installed with OpenCV library and a Raspberry Pi Camera is connected for face detection and Recognition. The data is stored in the memory card connected to Raspberry Pi and it can be accessed through the internet. The results show that a continuous observation increases accuracy and maximizes the output. The proposed face recognized system include three part face detection, feature extraction and face recognition. Find Student face and find out the face information. By using binary pattern then extracts the local features of the face. Use the various algorithm identify and verify another algorithm for identification face and stored information in database. Raspberry pi use for face reorganization and communicate the cloud database information.
Keywords: Face recognition, Face Detections, Raspberry pi

I. INTRODUCTION

Maintaining the attendance is very important in all the collages for checking the performance of students. Every collage has its own method in this the regard. But in this methods students have to wait for long time in making a line at a time them entier the classroom. Many biometric systems are available but the key authentications are same is all the methods. Every biometric system include of enrolment process in which unique features of a user is stored in the database and then the three are the processes of identification and verification. This two processes compare the biometric feature of a user with formerly stored template captured at the time of enrollment. Biometric templates can be many types like a Fingerprints, Eye Iris, Face, Hand Geometry, Signature, Gait and voice. Face detection include of two steps, in first step faces are detected in the image and then this detected faces are compared with the database for verification. A number of methods have been a proposed for the face detection i.e. the organization of face detection algorithm can be increased with the fast face detection algorithm. In all the above methods. Privately system utilized these algorithm for the detection of faces in the classroom image. Face detection technique can be Divided into two types Appearance based which is use to texture features that is applied to intact face or some specific Regions, other is Feature based which use the geometric features like mouth, nose, eyes, eye brows, cheeks and Relation between them. Attendance for the students is an important task in the classroom. When done manually it is generally waste a lot of rich time of the classroom. This proposed solution for the current problem is through the automated of attendance system using face detection. Face is the primary identification for any human or student.

II. RASPBERRY PI

Fig. 1: Raspberry Pi

The Raspberry Pi is a low cost. It is a capable small device that is a qualify people of all the ages to explore computing, and to the learn and teach how to program in languages like a Scratch and Python.

Python, C, C++, Java, all come installed by levant on the Raspberry Pi. The people from the Raspberry

Pi suggest Scratch for junior child. Other languages that can be used are HTML5.

Raspberry pi is a minimize computer. The raspberry pi it is small in size, and it is works as a normal computer at low cost server to handle web traffic.

III. WEB CAMERA

Fig. 2: Web Camera

A webcam is a camera this connected to a computer. It captures still pictures or video, and with the help of software, can transmit the video on the Internet in real-time. The images is of a Logitech Webcam C270, an example of a webcam.

A webcam short for 'web camera' is a digital camera this is connected to a computer. It can send live image from wherever it's the sited to another location by means of the internet. .Some are plugged into computers through the USB ports, but others are wireless.

A webcam is an input device that captures digital images. These are transferred to the computer, which moves them to the server. From they can be transmitted to the hosting page. Laptops and desktops are often equipped have with the webcam.

IV. LITERATURE SURVEY

Face detection is a computer technology. Determines the size of human face arbitrary image. The facial features are detected any other object like a tree building or bodies and etc. are ignored from digital image .It can be regarded as a specific case of object class detection where the task is finding the location and sizes of all objects in an image that include to a given class . Face detection, can be regarded as a more general case of a face localization. In a face localization, the task is to find a location and sizes of a known number of a faces (usually one). Basically there are two types of approaches to detect facial part in a given image i.e feature base and image base approach. Feature base approach tries to extract feature of image and match it again the knowledge of the face feature. While image base approach tries to get best match between training and testing images.

V. CURRENT SYSTEM

At the present day include manual student attendance the paper sheet for teachers. This is a very time consuming process and changes of proxy are also an issue that arise in such type of attendance system or database. This systems are currently not available for in school and collages classroom students.

VI. PROPOSED METHOD

The total system is divided into five materials namely Face Detection, Face Preprocessing, Face Training, Face Recognition and Attendance Database. This is proposed system uses viola jones algorithm for face detection which uses modified haar cascades for detection. OpenCV has preinstall cascade classifiers. In this project we have use three cascades in which is one face cascade and other two are for an eyes in which one is for eyes with glasses. For minimize cost we have the used Raspberry Pi model in our project. The architecture of the project is as shown in the below figure.

VII. HAAR CASCADE DETECTOR

Haar cascade identifies is an effective object or things detection method .this is an machine learning approach .a cascade function is teach from a lot of the affirmative or unresponsive images. Later that it is used to the detect one image is in more or the extra images. that we will use face detection procedure in that everybody require a lot of affirmative images that is the images a profile or face and a lot of the negative images that is images unescorted by faces to tech the classifier.
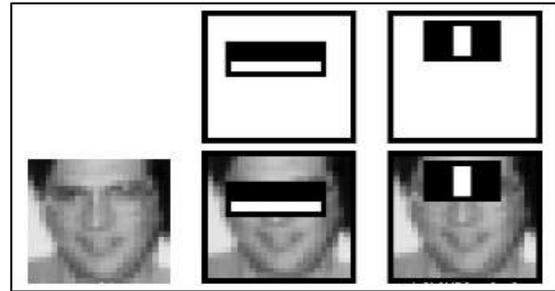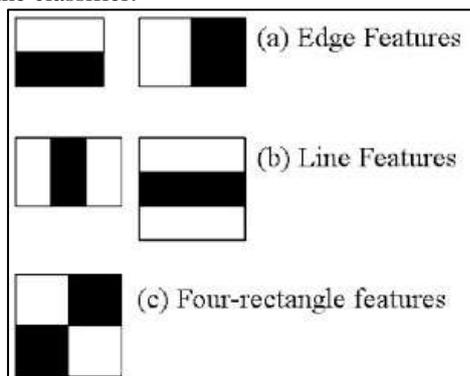

(a) Edge Features

(b) Line Features

(c) Four-rectangle features

Fig. 3: Haar Detection
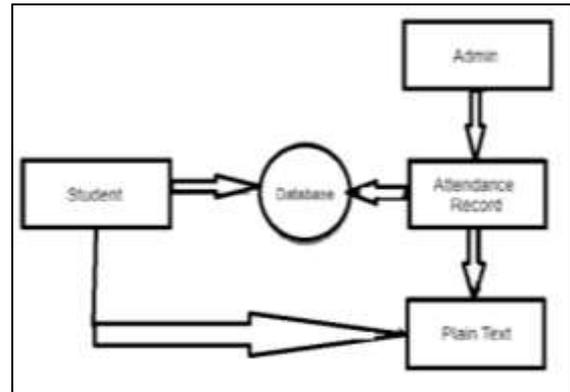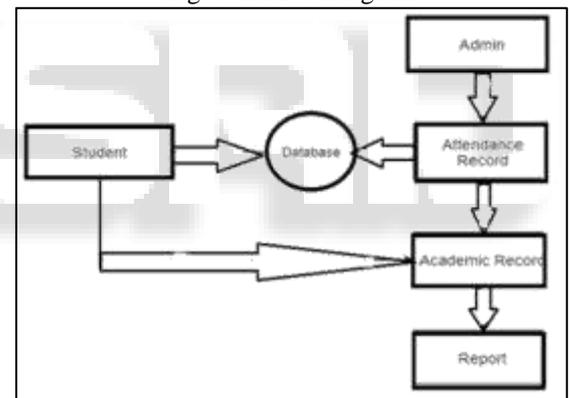
VIII. DFD DIAGRAM

Fig. 4: DFD 0 Diagram

Fig. 5: DFD 1 Diagram

IX. EXISTING SYSTEMS

In the existing system, the teachers takes the attendance of the students during the lecture time by calling each student or by the passing the attendance sheet around the classroom. The teacher then submits the student's attendance information through the online web-based attendance system and finally the students will get final attendance report using the system.

In the existing student's attendance system, there are two types of approach, manual attendance system and automated attendance system.

During the manual system, the lecturer has many works to do the especially when there is a large number of students in the classroom; like collecting, verifying, and managing students record.

In addition to that, the automated system might give better benefits to the lecturer when we compare to the manual system. Because some other staff also shares the burden that was previously difficult to the lecturer.

X. FUTURE SCOPE

The same project can be utilized for several security applications where authentication is needed to access the privileges of the respective system. It can be used in recognizing guilty parties involving in unauthorized business. Face detection algorithm can be improved with respect to the utilization of resources so that the project can detection more number of faces at a time which can make the system far much better. Many variants of the project can be developed for home security and personal benefits. We can also trace a particular student in an organization quickly with the help of this system.

XI. CONCLUSION AND FUTURE WORK

A system generates correct attendance without any human Interfacing. To provide high security or to avoid riski Documentation. Face detection using this system teacher will gets satisfied and give more than more time to teaching other subjects. Automated Time and Attendance system can help schools and collages in many ways. There is no doubt that an attendance management system will help save time .With automatic classroom attendance system, teachers can more accurately, correct and quickly track student's time on the classroom. It eliminate duplicate data entry and attendance entries. Automated Attendance System has been envisioned for the purpose of reducing the errors occur in the manual attendance system. The aim is to automate and make a system that is useful to the organization such as an institute and otherwise collages. The efficient and accurate method of attendance in the collage environment that can replace the old manual methods. This method is secure, reliable and available for use. It can be constructed using a camera, Raspberry pi and computer.

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