

Design And Implementation Of Attendance Marking Camera

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Abstract: Attendance system by utilizing camera as a source to capture image is made as a intriguing, challenging and accurately for real time system. It is not easy to mark the attendance for students in a large classroom. However, the attendance system using image recognition have issues that allows the research for improving the present research for making the attendance system to work well. This paper also provides information and suggestion for future work.

Keywords—Battery, Camera, Raspberrypi, Switch, Shutterbutton, 3.5” display.

1. Introduction

Recognition of image is implemented widely in educational sectors such as attendance system. The present attendance system consumes more time for managing attendance, there by automated attendance system has brought into field for resolving the issues. Therefore, an efficiently recognition of image system is necessary for complex work.

Here we use a OpenCV as a library for programming functions and a tensor flow which is an open source and free library software for machine learning and it as a great focus on inference of neural networks and training. Image recognition has put up many efforts recently and is expected to do works based on biometric applications.

2. Literature survey

- In [18] Kawaguchi who introduced the lecture attendance system using a method continuous monitoring and the attendance was marked by camera which was able to capture the images of students in a classroom.
- In [22] Thakare Priyanka proposed a method by using Eigenface and PCA. The author also implemented the same with the classification of skin which was able to change the pixel to black provided the pixel was closer to the skin.
- Kanti Jyotshana who proposed a smart attendance system which was implemented with two different algorithms such as ANN and PCA. The main purpose of this project is to change the traditional attendance system as it is time consuming. As a conclusion of this project subjected by the author the system implemented can be used to recognize in various environment.
- Arsenovic Marko who developed face recognition attendance system which was implemented using CNN Cascade.
- Pantic Maja presented multi detect method to facial localization to partially sample the contour and facial components such as mouth and eyes.

3. Problem definition

There are a lot many challenges in previous face recognition-based attendance system which is disturbs the performance of system such as size of image, the brightness of image, inability of the system and the quality of training with different image expressions.

The existing attendance marking system consumes a lot of time and it interrupts the students and lecture in large classroom, therefore automatic attendance system has been developed for resolving this problem.

4. Proposed methodology

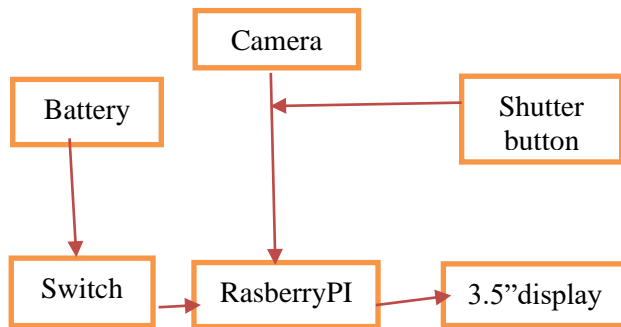


Fig:1.Block diagram of attendance marking camera sytem.

In our proposed project we are using Raspberri Pi4, norio, camera v2, 2GB development board,500mah battery and 3.5" display.

The steps to get the images of all students, then the images are resized to size and finally face vectors were created. In this step the names of given students are obtained and ID was given when it was stored in vector.

The steps which are involved in implementing attendance system are as follows:

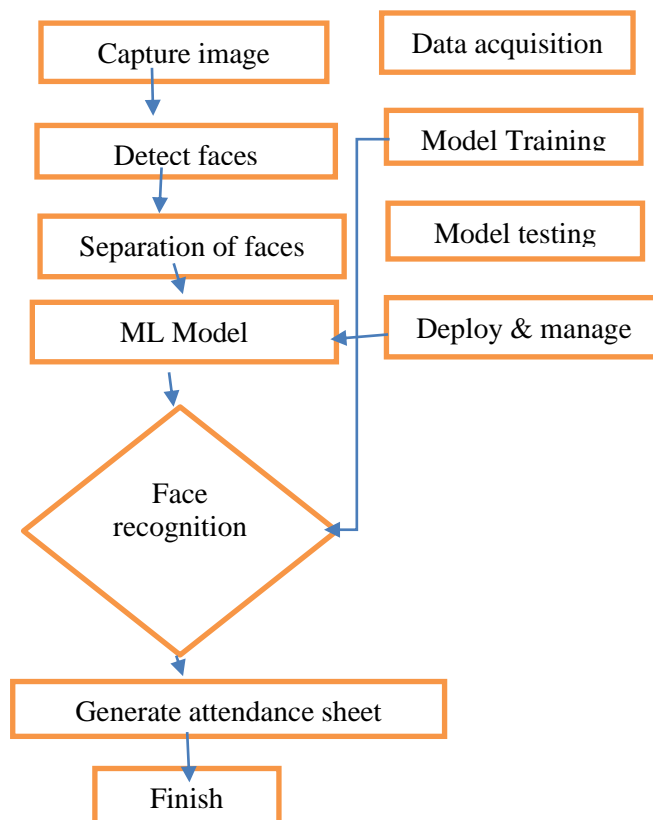


Fig:2 Flow Chart of attendance marking system

camera is installed to capture image and we have to ensure that the camera can capture images. The image which is captured by the camera is saved in database for the upcoming process. Then the acquired images are cropped and resized to 110×110 size and then the brightness is removed.

Image detection helps in separation of images and also helps in detecting the front view of a face from the captured image. The images captured from the camera are used for recognition process for future step.

Training and testing of captured images are done. This image recognition model is built using KNN algorithm. In the final process we are giving the unknown images to the model which is trained and saved to the database to predict and for listing the recognized people in csv file.

Discription of components present in block diagram is;

***Raspberry pi*:-** Raspberry pi is a low cost computer device which uses mouse and standard keyboard to plug into a computer

It helps in computing and learning programming language like python and scratch.

Raspberry pi 4model is the latest version having a quad core ARM-cortex A74 which is of 2GB RAM and it is faster in decoding videos.It supports wireless internet with Bluetooth and built-in Wi-Fi.

***Camera*:-** The infrared camera of module v2 has a 8-mega-pixel sensor which offers a difference that does not employ any infrared filter.

This camera works with all models of raspberry pi.

***Shutter- Button*:-** shutter Button is a push button found on many of cameras which is used to record videos of photographs

***Battery*:-** A battery is an electrical device which converts chemical energy into electrical energy. As a result it allows the positive charges to travel from positive to negative terminal.

***Switch*:-**A switch is an electric component which is capable of connecting or disconnecting the electric path.

The main purpose of switch in a series circuit is make the electric circuit open or close that is flow of electric current is on or off.

***3.5"Display*:-** A display is an output device which presents information in the form of visual or tactile in text or image pattern.

5. Resultandconclusion

After analyzing by different methods PCA technique is better for attendance management based on face recognition whose main aim is for securing the attendance and replacing manual attendance system. There are many automated attendance systems which are implemented with biometric applications. However, the proposed system by the complete analysis has proved the intensity of the images and accuracy too.

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