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FACE RECOGNITION BASED ATTENDANCE SYSTEM USING RASPBERRY PI

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ABSTRACT: Automatic face recognition (AFR) advancements have seen sensational upgrades in execution over the previous years, and such systems are presently broadly utilized for security and business applications. So Smart Attendance utilizing Real Time Face Recognition is a certifiable arrangement which accompanies everyday exercises of taking care of understudies. The undertaking is extremely troublesome as the constant foundation subtraction in a picture is as yet a test. To distinguish ongoing human face are utilized and a basic quick Principal Component Analysis has used to perceive the faces identified with a high exactness rate. The coordinated face is utilized to check attendance of the understudy.

Our framework keeps up the attendance records of understudies automatically. Manual entering of attendance in logbooks turns into a troublesome errand and it additionally burns through the time. So we planned a productive module that contains face recognition to deal with the attendance records of understudies. Our module selects the understudy face. This enlisting is an onetime procedure and their face will be put away in the database. During selecting of face we require a framework since it is an onetime procedure. You can have your own move number as your understudy id which will be special for every understudy. The nearness of every understudy will be refreshed in a database. The outcomes demonstrated improved execution over manual attendance management framework. Attendance is set apart after understudy recognizable proof. This item gives considerably more arrangements with precise outcomes in client intuitive way instead of existing attendance and leave management systems.

I. INTRODUCTION

The present systems that are utilized for updating attendance automatically are typically RFID based, Bio-metric based and MATLAB based. As a rule, the manual strategy for gauging participation attendance is troublesome and a tedious procedure. Thus it is imperative to develop a proficient strategy for overseeing attendance automatically. Another bit of leeway of these sorts is that incorporation of phony attendance can be forestalled. Open Command Visualization (Open-CV) is open source libraries where the source code is open and it is valuable in visual field, for example, picture preparing. The primary aphorism of this work is to take and oversee attendance utilizing face recognition.

The present day attendance system is manual. It burns through a lot of time both for educators and understudies. The holding up time of the understudies is expanded if attendance is taken physically. There are still possibilities for intermediaries in the class when attendance is taken physically. Manual attendance constantly a have an expense of human blunder. Face is the basic conspicuous verification for any human. So mechanizing the attendance procedure will expand the profitability of the class. To make it accessible for each stage we have picked the Raspberry pi 3 for face recognition. A Webcam is related with the Raspberry Pi module. Face ID isolates faces from non-faces and those faces that can be seen. This module can be used for various applications where face affirmation can be used for approval. In this proposed system we take the attendance utilizing face recognition which perceives the face of every understudy during the class hours.

II. LITERATURE SURVEY

Numerous associations, organizations and foundations are taking intermittent attendance utilizing [1] RFID strategies, [2] Biometric Fingerprint technique and Registers. These strategies by and large set aside more effort for figuring. RFID(Radio Frequency Identification)[1] utilizes electromagnetic fields to automatically distinguish and follow labels connected to people. RFID can disregard the protection and security of people. RFID systems at last impact programming that permits every individual to be examined by the essential database. This condition can be effectively influenced by programmers. In the event that RFID peruser and collector are not appropriately coordinated, at that point less read rate happens. Biometric unique finger impression identification[2] systems utilize unique mark as a remarkable personality. It is one of the most precise systems running adequately today. In any case, recognition of an individual unique mark from a lot of selected fingerprints is a troublesome procedure. The unique mark system doesn't uncover any data in regards to the first fingerprint. This may have been end up being bogus the same number of algorithms[3] uncover that a unique finger impression can be remade with minute layouts. Iris Recognition [4] is another kind of execution

where the iris of individuals are checked, put away and afterward recovered for the examination and attendance is overseen automatically in the server. In any case, there is trouble in catching iris of the understudies or representatives and henceforth a quick usage of face recognition [4] with diminished brightening impact can be utilized.

III.PROPOSED SYSTEM:

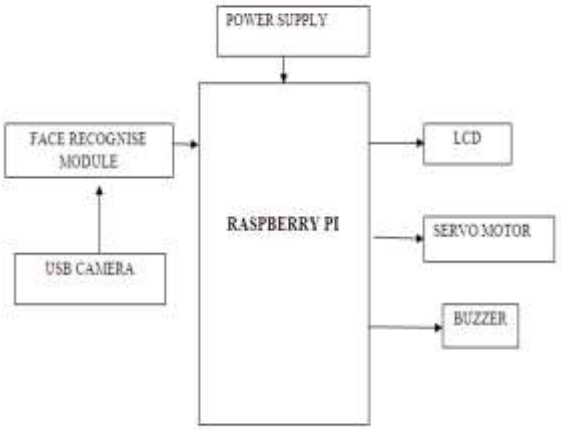
A face recognition system is a technology capable of distinguishing or checking an individual from a digital image or a casing from a video source. [1] There are various strategies in which face recognition systems work, yet when all is said in done, they work by looking at chosen face highlights from given image with faces inside a database[3]. It is likewise portrayed as a Biometric Artificial Intelligence based application that can particularly distinguish an individual by examining designs dependent on the individual's facial surfaces and shapes. [4]

Raspberry pi is a small size computer which can be used with more applications. The processor at the heart of the Raspberry Pi processor. This means that the clear majority of the to prepare a blank SD card for use with the Raspberry Pi, you'll need to flash an operating system onto the card. While this is slightly more complicated than simply dragging and dropping files onto the card, it shouldn't take more than a few minutes to complete. Although no current models of the Raspberry Pi include Wi-Fi networking hardware onboard, it's possible to add wireless Connectivity with a simple USB Wi-Fi adapter. However, you will need to configure the adapter before you can use it to get your online. Here the raspberry pi is connected with the Raspberry pi camera, personal computer. The multi-tasking raspberry pi use with a PYTHON platform for the image processing to find the attendance system So that the final result of the attendance will be sent to an authorized person mobile no. The SD card is used to store the database of the class students. Similar images of same student of nearly ten will be stored in the database. In order to get exact image as an output. This will be done for every student in the class.

We will keep up individual subtleties in the database which incorporates data like Branch, SEM, Name, ID number and so on and we additionally store the image of numerous people in the database for additional procedure. These one of a kind highlights are then put away in the face database with certain id of that individual.

Proposed system configuration utilizes face redesign module utilizing this will check the contribution with put away database in the event that it coordinates the controller will impart sign to driver circuit to open the entryway in any case the buzzer will rang for invalid information.

A.; BLOCK DIAGRAM



IV. HARDWARE REQUIREMENTS:

- Raspberry Pi Board
- Camera
- Servomotor
- Power Supply Unit
- Miscellaneous Components.

A. Raspberry PI:

Raspberry pi3 is dependent on a Broadcom BCM2835 system on a chip (SoC). It incorporates an ARM1176JZF-S 700 MHz processor.

Fig 1: Raspberry Pi

The Raspberry Pi Foundation began served by a256MB RAM, that was labeled as Model A, and later made one B with 512MB RAM. The GPU used may be the Video Core IV, possessed through the Broadcom. The Raspberry Pi's GPIO port is situated on top-left of the p cb, it's labeled as P1. It's a 26-pinport, fitted with two rows of 13 male 2.54 mm headers at the factory [3]. The spacing of those headers is particularly important: 2.54 mm pin spacing,) is a type of sight in electronics, and it is the conventional spacing for prototyping plat forms which include ss trip board and breadboards. Each pin of

the GPIO port features its own purpose, with several pins working together also it forms particular circuits.

B. USB CAMERA

A camera is an optical instrument that records images that can be put away straightforwardly, transmitted to another area, or both. These images might be still photos or moving images, for example, recordings or motion pictures. The term camera originates from the word camera obscura(Latin for "dim chamber"), an early instrument for anticipating images. The advanced camera developed from the camera obscura. The working of the camera is fundamentally the same as the working of the human eye.

Fig 2: Camera

C. SERVO MOTOR:

A servo motor is an electrical device which can push or turn an item with extraordinary accuracy. On the off chance that you need to turn and question at some particular edges or separation, at that point you utilize servo motor. It is simply comprised of straightforward motor which go through servo mechanism. In the event that motor is utilized is DC controlled, at that point it is called DC servo motor, and on the off chance that it is AC fueled motor, at that point it is called AC servo motor. We can get an extremely high torque servo motor in a little and light weight bundles. Doe to these highlights they are being utilized in numerous applications like toy vehicle, RC helicopters and planes, Robotics, Machine and so forth.

Fig 3: Servo motor

V. RESULTS

Outputs for Detection face images from the trained data of the data base.

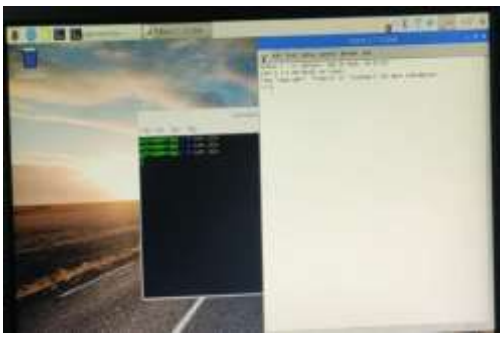


Fig 4 : Path ID

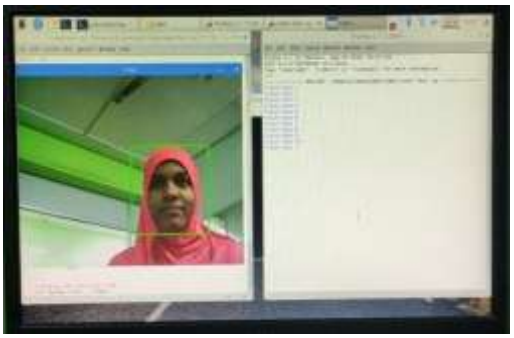


Fig 5: Authorised Face

Fig 6 : Face Detected image

Fig 7: Face Not Detected image

VI. CONCLUSIONS

This project is based on face recognition in real time using Raspberry Pi 3.The project “Real Time Emotion Recognition from Facial Images using Raspberry Pi” has been successfully designed and tested.

The result shows if face matched its allow the person by on dc motor and if not matched buzzer will ON.

We came to realize that there are extensive varieties of methods, RFID based and so on which are tedious and non-productive.

So to defeat this above framework is the better and solid arrangement from each keen of time and security.

Hence we have accomplished to build up a solid and productive participation framework to actualize an image handling algorithm to identify faces in classroom and to perceive the confronts precisely to check the attendance.

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