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Hostel Attendance Management System Using Face Recognition

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ABSTRACT

In building an attendance system which utilizes facial recognition to mark the presence, time-in, and time-out of employees. It covers areas such as facial detection, alignment, and recognition, along with the development of a web application to cater to various use cases of the system such as registration of new employees, addition of photos to the training dataset, viewing attendance reports, etc. In intends to serve as an efficient substitute for traditional manual attendance systems. It can be used in corporate offices, schools, and organizations where security is essential.

Keywords: Face recognition, Convolutional Neural Network, Student details, Attendance, Database.

INTRODUCTION

"Face recognition" redirects here. For the human cognitive process, see face perception. For other uses, see facial recognition. Automatic ticket gate with face recognition system in Osaka Metro Morinomiya Station A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image.[1]

IMAGE PROCESSING

Image processing is a way to convert an image to a digital aspect and perform certain functions on it, in order to get an enhanced image or extract other useful information from it. It is a type of signal time when the input is an image, such as a video frame or image and output can be an image or features associated with that image. Usually, the Image Processing system includes treating images as two equal symbols while using the set methods used. It is one of the fastest growing technologies today, with its use in various business sectors. Graphic Design forms the core of the research space within the engineering and computer science industry as well. Image processing basically involves the following three steps. Importing an image with an optical scanner or digital photography. Analysis and image management including data compression and image enhancement and visual detection patterns such as satellite imagery. It produces the final stage where the result can be changed to an image or report based on image analysis. Image processing is a way by which an individual can enhance the quality of an image or gather alerting insights from an image and feed it to an algorithm to predict the later things. The growing popularity of digital photography demands every attempt of improvement in terms of quality and speed of the features provided in digital cameras.

LITERATURE REVIEW

According to research journal "Face Recognition Based Attendance Monitoring System Using Raspberry-pi and Open-CV" (Omkar Biradar, Anurag bhave, 2019). In this system the attendance is mark by using a camera attached with the system which captures images of students employees, and detect the faces in images and compare with the detected faces which is in the student database and mark their attendance. Then the attendance will be updated automatically on the web page which they have created by using face detection and face recognition, the facial recognition process can be divided into two main stages: processing before detection where face detection and alignment take place and afterwards recognition occur through feature extraction and matching steps. As well as according to requirement of the system image normalization is also done with the help of Raspberry pi and Open-cvsoftware.

PROPOSED SYSTEM:

The task of the proposed system is to capture the face of each student and to store it in the database for their attendance. The face of the student needs to be captured in such a manner that all the feature of the students' face needs to be detected, even the seating and the posture of the student need to be recognized. There is no need for the teacher to manually take attendance in the class because the system records a video and through further processing steps the face is being recognized and the attendance database isupdated.

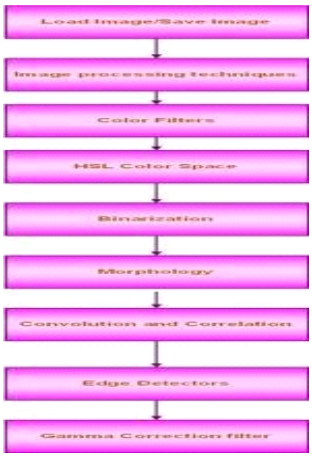
ALGORITHM

- Convolutional Neural Network (CNN) operates from a mathematical perspective and is a regularized variant of a class of feed forward artificialnetwork (ANN) known as multilayer perceptron's that generally means fullyconnected networks.
- Convolutional Neural Network is a Deep Learning algorithm Which can take in an input image, assign importance to various aspects object inthe image and be able to differentiate one from each other.

ADVANTAGES:

- Low cost system is used .
- No special external hardware is needed.
- Software based system leading to low chanceof complete system failure.

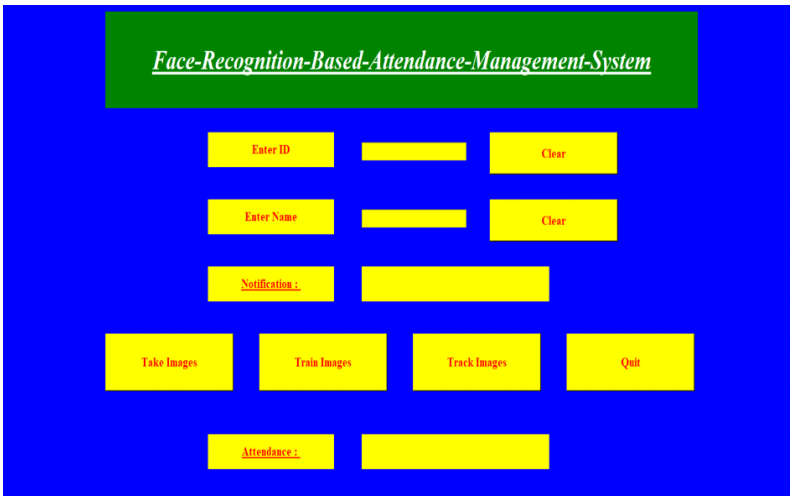
SYSTEM ARCHITECTURE:



HARDWARE REQUIREMENTS

- System : Intel 6.0
- Hard Disk : 250 GB
- RAM : 2 GB
- Monitor : 14" Color Monitor
- Mouse : Optical Mouse

RESULT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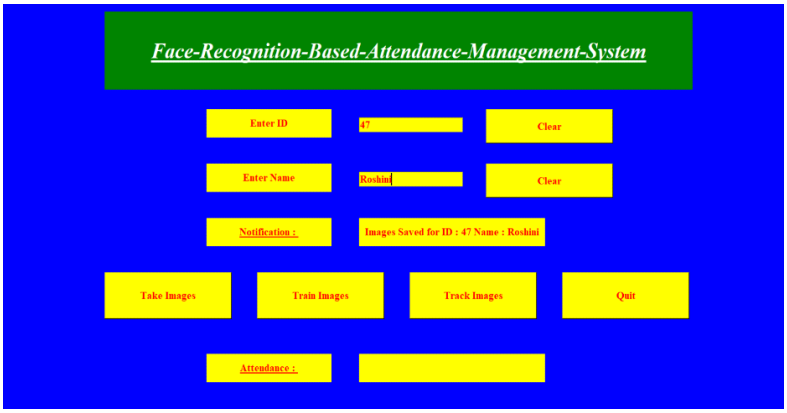
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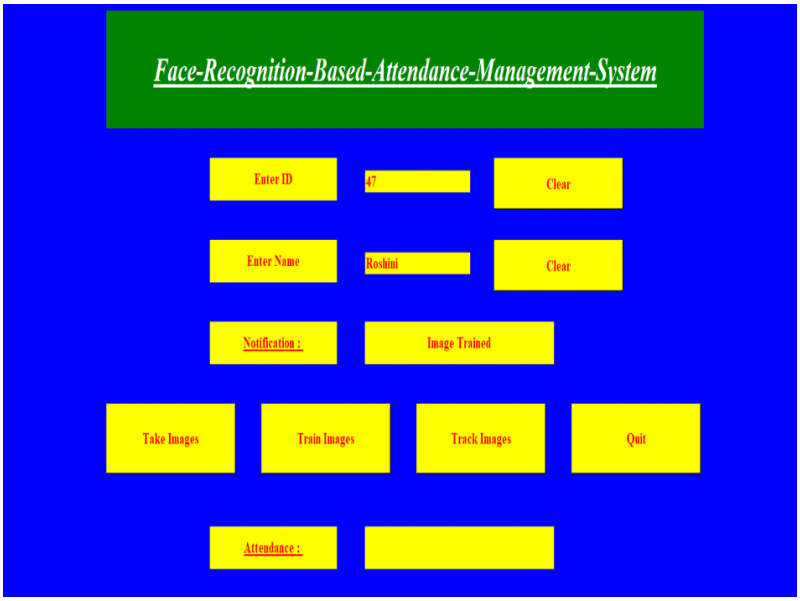

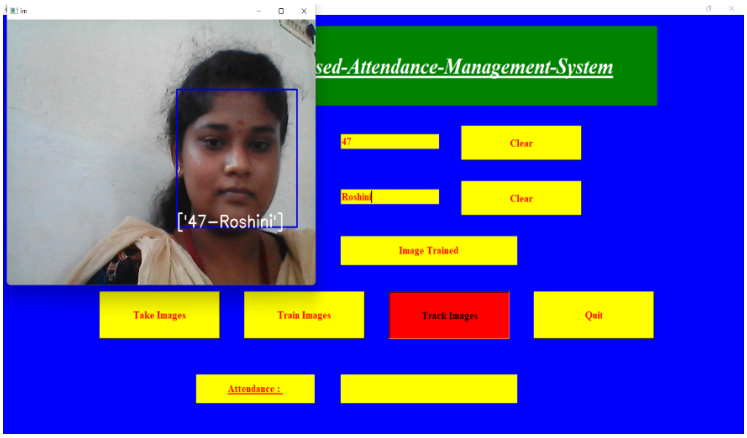

IMPLEMENTATION

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that thenew system will work and be effective. The implementation stage involves careful planning, investigation of the existing system and it's constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

CONCLUSION

As a result of this literature survey we aim to get a more accurate face recognition based attendance system, we aim to get accuracy up-to 95% and also using this attendance system will also help the students to geta safe & touch less entry. And also it will easy to maintain the attendance

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