PROJECT(2020-21)

Facial Attendance
SYNOPSIS

Department of Computer Engineering & Applications

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SUBMITTED TO: SUBMITTED BY:

MR. VINAY AGRAWAL
(Assistant Professor)   Suraj Garg (181500735)
                                 Dharmendra Sharma
                                 (181500215)
                                 Astik Singh (181500158)
                                 Adarsh Kumar Dixit
                                 (181500038)

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Suraj Garg (181500735)

Dharmendra Sharma (181500215)

Astik Singh (181500158)

Adarsh Kumar Dixit (181500038)

FACIAL ATTENDANCE

The management of the attendance can be a great burden on the teachers if it is done by hand. To resolve this problem, smart and auto attendance management system is being utilized. But authentication is an important issue in this system. The smart attendance system is generally executed with the help of biometrics. Face recognition is one of the biometric methods to improve this system. Being a prime feature of biometric verification, facial recognition is being used enormously in several such applications, like video monitoring and CCTV footage system, an interaction between computer & humans and access systems present indoors and network security.

By utilizing this framework, the problem of proxies and students being marked present even though they are not physically present can easily be solved. The main implementation steps used in this type of system are face detection and recognizing the detected face. This paper proposes a model for implementing an automated attendance management system for students of a class by making use of face recognition technique, by using Eigenface values, Principle Component Analysis (PCA) and Convolutional Neural Network (CNN). After these, the connection of recognized faces ought to be conceivable by comparing with the database containing student's faces. This model will be a successful technique to manage the attendance and records of students.

PROJECT ANALYSIS:

Introduction:

Overview
- Face recognition is one of the most popular applications of image analysis
- Facial recognition is a way of recognizing a human face through technology by implementingalgorithms
- In this era facial recognition plays a vital role, It is the most used biometric so we are working upon it for marking attendance in School, Colleges, Office, etc.

Motivation
In current scenario, students and teachers both face problem in marking the attendance manually as it is less time efficient and has a greater risk of error and it is very much time consuming for the teachers in order to do modification of the attendance.
So, we come up with this idea of making an application for helping teachers as well as students where attendance will be marked automatically by face recognition.
The basic advantage of this project is that it is time saving as it saves the time of students as well as the teacher which was being wasted till now in taking attendance and cross checking for fake attendance.

Requirement Allicitation:
The requirements are the descriptions of the system services constraints.

Functional Requirements-
- System functional requirement describes activities and services that must provide.
- Taking and tracking student attendance by facial recognition in specific time.
- Sending the names of the absent student directly to the lecturer Permitting the lecturer to modify the student absent or late.
- Showing the names of who is absent or late in the screen to avoid errors.

Nonfunctional Requirements
Nonfunctional Requirements are characteristics or attributes of the system that can judge its operation. The following points clarify

Accuracy and Precision: the system should perform its process in accuracy and to avoid problems.

Modifiability: the system should be easy to modify

Security: the system should be secure and saving student's privacy.

Usability: the system should be easy to deal with and simple to understand.

Maintainability: the maintenance group should be able to fix any problem occur suddenly.

Speed and Responsiveness: Execution of operations should be fast

User Requirements or Domain requirements -

Tools that the user must have in order to use the system and obtain good results

Software Requirements:

- Windows10
- SQL
- Visual studio
- JavaScript
- HTML
- CSS
- Android studio

Hardware Requirements:

High resolution camera and screen.

Technoligies used:

HTML: It is used for giving eye catching look to the website and also providing easy to use GUI.

CSS: CSS is cascading style sheet which is used to give designer look to HTML using the external file.

JavaScript: Java script is used for client-side scripting which can help in using validation on the website and many more other functions.

Problem Statement:

For attendance teachers as well as students faces many problems like there is a lot of time wasted and it gets difficult to take attendance if there are more no. of students and various other problems can be resolved such as fake attendance(proxy).
So, we design an application which solve all these problems by face recognition .

Objectives:

Face recognition-**based** attendance system **is a process of recognizing the students** face **for taking** attendance **by using** face **biometrics based on mobile application using Android technology.**
- There are following users: Students, Faculty.
- Mode of marking attendance becomes much easier.
- Proxy during attendance time also becomes very typical because in the facial recognition based attendance system does not require a manual working just like earlier that teacher take attendance by calling student name.
- Main objective is to reduce the time which was wasted during Attendance, so the teacher can take a lecture without wasting any time.
  Following user functionalities -
- The range of an application is fixed and only adjusted by faculty/teacher.
- Both teacher as well as student have to install the app

Methodology:

Research Methodology

What is Research ?
Research is a logical and Systematic search for new and useful information on a particiular topic . It is an investigation of finding Solutions or problems of scientific and social platforms through objective and systematic analysis . The information might be collected from different sources like experiences , books , journals , nature etc . A research can lead to new contributions tp the existing knowledge

Research is done with the help of study , experiment , observation , analysis , comparision and reasoning . Research is in fact ubiquitos . For example , we know the cigarette smoking is injurious to health ; heroine is addictive ; cow dung is a useful source of biogas, etc. We became aware of all these informations only through research . More precisely , it seeks predictions of events , explanations , relationships and theories for them .

Research Methods and Research Methodology

Research Methods :
Refers to various procedures and schemes researches use in performing research operations .

Research Methodology :
It is a systematic way to solve a problem . It is a science of studying how research is to be carried out. Essentially , the procedures by which researchers go about their work of describing , explaining and predicting phenomena are called research methodology . It is also defined as the study of methods by which knowledge is gained . Its aim to give the work plan of research .

What are the Objectives of Research ?
- The prime Objctives of Research are :
- To discover , verify and test new and important facts .
- To analyse an event or proecss or phenomenon to identify the cause of   effctive relationship.
- To develop new scientific tools , concepts and theories to understand scientific and non - scientific problems.
- To find solutions to scientific , non - scientific and social problems.

Various Stages of a Research
A general set of sequential components of research is the followong :
- Selection of topic
- Definition of problem
- Literature survey and reference collection
- Assessment of current status of the given chosen
- Actual investigation
- Data analysis
- Interpretation of result
- Report

Implementation:

Step1 We design two apps one for the faculty and other for the students.
Step2-Student have to make account with their college id.
Step3-Just after login students face recognizing will start .
Step-4 Then after recognition the app wil ask for for the id in studets app and that id will be generated by the respected teacher with the app which is designed for the teachers
Step5-Then the app will be asking the permission of enabling Bluetooth and gps , in order to get in particular range
Step6-After bluetooth enable the bluetooth device availability has been showing in the teacher's facial attendance app so that those students whose bluetooth enables after face recognition will be marked present automatically if the details of a particular student matches the the details that is been registered in the teacher's account.

Summary:

Automatic 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 institutes. The efficient and accurate method of attendance in the college environment that can replace the old manual methods .This method is secure enough, reliable and available for use .The matched face is used to mark the attendance of the employee/student .No need for specialized hardware for installing the system in the college.

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  - Mr.Vinay Agarwal sir