

A Project/Dissertation Review-1 Report

on

Login Monitoring Software

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B.TECH (CSE)



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Abstract

Face recognition is a technology capable of identifying or verifying a subject through an image, video or any audiovisual element of his face. Generally, this identification is used to access an application, system or service. It is a method of biometric identification that uses that body measures, in this case face and head, to verify the identity of a person through its facial biometric pattern and data. The technology collects a set of unique biometric data of each person associated with their face and facial expression to identify, verify and/or authenticate a person.

Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications

B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

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CHAPTER-1

Introduction:-

1.1 Face Recognition:- Humans are very good at recognizing faces and complex patterns. Even a passage of time doesn't affect this capability and therefore it would help if computers become as robust as humans in face recognition. Face recognition system can help in many ways:-Checking for criminal records, Enhancement of security by using surveillance cameras in conjunction with face recognition system. Finding lost children by using the images received from the cameras fitted at public places. Knowing in advance if some VIP is entering the hotel. Detection of a criminal at public place can be used in different areas of science for comparing an entity with a set of entities. Pattern Recognition this project is a step towards developing a face recognition system which can recognize static images. It can be modified to work with dynamic images. In that case the dynamic images received from the camera can first be converted in to the static ones and then the same procedure can be applied on them. But then there are lots of other things that should be considered. Like distance between the camera and the person, magnification factor, view [top,side, front] etc.

1.2 Biometrics:- is used in the process of authentication of a person by verifying or identifying that a user requesting a network resource is who he, she, or it claims to be, and vice versa. It uses the property that a human trait associated with a person itself like structure of data with the incoming data we can verify the identity of a particular person [1]. There are many types of biometric system like detection and recognition, iris recognition etc., these traits are used for human identification in surveillance system, criminal identification, face details etc. By comparing the existing finger print recognition.



1.2 Formulation of Problem :- A general statement of face recognition problem can be formulated as follows:- Given still or video images of a scene, identify or verify one or more persons in the scene using a stored database of faces. One can broadly classify the challenges and techniques into two groups:- static and dynamic/video matching.- The problem of face recognition can be stated as follows : Face Recognition human facial features like the mouth, nose and eyes in a full frontal face image. We will be adapting a multi-step process in order to achieve the goal. To detect the face region we will be using a skin-color segmentation method. Morphological techniques will be adapted to fill the holes that would be created after the segmentation process. Morphological techniques will be adapted to fill the holes that would be created after the segmentation process. From the skeletonization process,a skeleton of the face will be obtained from which face contour points could be extracted.Facial features can be located in the interior of the face contour. We will use several different facial-images to test our method.

1.2.1 Tool and Technology Used-

A Required libraries:

pyttsx3-It is a library for converting text into audio. Unlike other libraries, it compatibility is with both Python 2 and Python 3. Example of engine. is an easy-to-use tool that converts text into speech. The pyttsx3 module supports two voices first for the female and the second for the male provided by “sapi5” for windows.

Supports three TTS engines:

sapi5 - SAPI5 for Windows

nsss - NS Speech Synthesizer on Mac OS X

espeak - eSpeak on all other platforms

Py Audio- PyAudio provides Python Bonds for Port Audio, a cross-platform audio library

I / O. By using this library, you can easily use Python to play and record audio in various formats. PyAudio inspired by: py PortAudio / fast audio: Python Bonds for Port Audio v18 API.,tkSnack: a cross-platform soundkit toolkit for Tcl /Tk and Python.

Speech Recognition:- Some of these packages - such as wit and apiai - offer built-in features, such as native language processing to identify the purpose of the speaker, which goes beyond basic speech recognition. Some, like google-cloud-speech, focus only on speech-to-text conversion. There is one outstanding package for ease of use: Speech Recognition.

Deep Face- DeepFace is an in-depth face recognition program created by a research team on Facebook. Identifies people's faces in digital photos. The program uses a nine-layer network with over 120 million connections and trained on 4 million photos uploaded by Facebook users. The Facebook Research team states that the DeepFace method achieves an accuracy of 97.35% ± 0.25% on Labeled Faces in the Wild (LFW) data set where people have 97.53%.

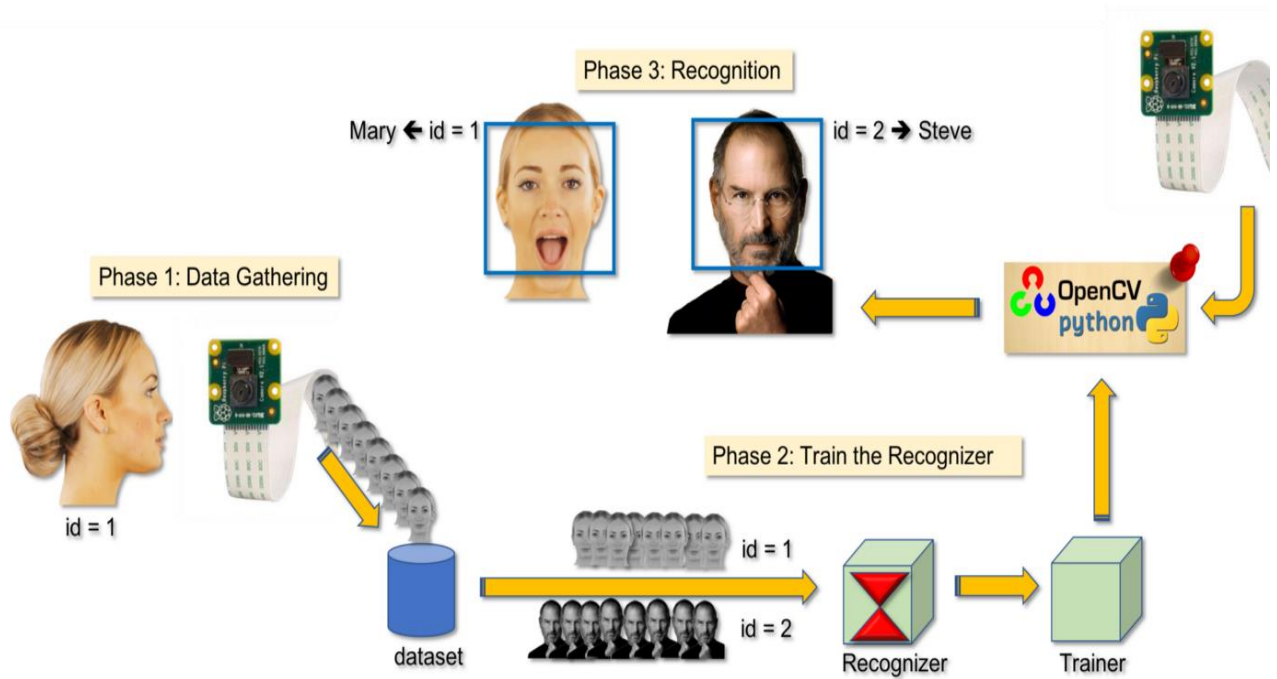
- **1.2.2 Key Features:-** It requires no physical interaction on behalf of the user.
- It is accurate and allows for high enrolment and verification rates.

- It can use your existing hardware infrastructure, existing cameras and image capture devices will work with no problem.

1.3 Objective of the Project :-

1. Trying to find a face within a large database of faces. In this approach the system returns the possible list of faces from the database. The most useful application contains crowd surveillance, video content indexing, personal identification(example-drivers license),mugshots matching etc.
2. Real time Recognition :- Here, face recognition is used to identify a person on the spot and grant access to a building or a compound, thus avoiding security hassles. In this case the face is compared against a multiple training samples of a person.

1.4 Data Flow Diagram:-



CHAPTER-2

Literature Survey :- As one of the most successful applications of image analysis and

understanding, face recognition has recently received significant attention, especially during the past several years. At least two reasons account for this trend: the first is the wide range of commercial and law enforcement applications, and the second is the availability of feasible technologies after 30 years of research. This paper provides an up-to-date critical survey of still- and video-based face recognition research. There are two underlying motivations for us to write this survey paper: the first is to provide an up-to-date review of the existing literature, and the second is to offer some insights into the studies of machine recognition of faces. To provide a comprehensive survey, we not only categorize existing recognition techniques but also present detailed descriptions of representative methods within each category. In addition, relevant topics such as psychological studies, system evaluation, and issues of illumination and pose variation are covered.

From the literature, we identified that this is a unique software for providing the privileges for the normal peoples and as well as Security and law enforcement purposes also.

CHAPTER 5

5.1 Conclusion:- In the above prototype we got that simple implementation of libraries and tools gave so wonderful result hence we can say that implementing machine learning technique will give us far more better results. Face recognition technology has come a long way in the last twenty years. Today, machines are able to automatically verify identity information for secure transactions, for surveillance and security tasks, and for access control to buildings etc. These applications usually work in controlled environments and recognition algorithms can take advantage of the environmental constraints to

obtain high recognition accuracy. However, next generation face recognition systems are going to have widespread application in smart environments -- where computers and machines are more like helpful assistants.

To achieve this goal computers must be able to reliably identify nearby people in a manner that fits naturally within the pattern of normal human interactions. They must not require special interactions and must conform to human intuitions about when recognition is likely. This implies that future smart environments should use the same modalities as humans, and have approximately the same limitations.

These goals now appear in reach -- however, substantial research remains to be done in making person recognition technology work reliably, in widely varying conditions using information from single or multiple modalities. Therefore, we can say this technology will be surely a boon.