**PURBANCHAL UNIVERSITY**

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**DEPARTMENT OF COMPUTER ENGINEERING**

**KHWOPA ENGINEERING COLLEGE  
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**A PROJECT PROPOSAL**

**ON**

**"Face Recognition Attendance System"**

A project proposal submitted for the partial fulfillment of requirements for the degree of Bachelor of Engineering in Computer Engineering (Seventh Semester)

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# ABSTRACT

This report briefly describes about the seventh semester project proposal on "Facial Recognition Attendance System”. Normally, an attendance system is collected and managed manually through the use of deep learning the system can be trained to automatically keep the track of the attendance of the teachers. Automated Attendance System is when a system records the absence or presence of teachers by using the face detection of the teachers. In this system, the process starts by the input device detecting the frontal face of the teacher matching it with the faces in the database and based on which the student is matched to the available images and hence record the available data. This system hopes to overcome the problem of finger print.

Keywords: Facial Recognition, Attendance.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

In an educational environment, attendance is considered to be one of the important factors for the teachers. The attendance system makes sure of the presence of teachers in the college premises. Deep learning being of the fast evolving subject in the modern world, the system can now automatically detect and keep the track of the presence of the teachers as well as record and manage the data.

Generally, an attendance system is collected and managed manually. Through the use of deep learning the system can be trained to automatically keep the track of the attendance of the teachers.

Automated Attendance System is when a system records the absence or presence of teachers in the college by using the face detection of the teachers. In this system, the process starts by the input device detecting the frontal face of the teacher matching it with the faces in the database and based on which the teacher is matched to the available images and hence record the available data.

Face recognition is not really anew topic in the current world. It has been widely used in the face unlock system in the mobile phones. The auto focus system in cameras is very common these days as well. Extending the application of the face detection technique we focus in capturing the same for the attendance purpose in the concerned sector.

Principal Component Analysis (PCA): In simple words, principal component analysis is a method of extracting important variables (in form of components) from a large set of variables available in a data set.

Local binary patterns (LBP): It is a type of visual descriptor used for classification in computer vision which is found to be a powerful feature for texture classification; it has further been determined that when LBP is combined with the Histogram of oriented gradients (HOG) descriptor, it improves the detection performance considerably on some datasets.

Eigen Face: Eigenfaces is the name given to a set of eigenvectors when they are used in the computer vision problem of human face recognition.

### 1.2 Motivation

With the rapid technological advancement, image processing and deep learning is to reach its peak. Utilizing the same opportunity to extend its use we wish to create the system that will make use of the knowledge on same to create the system that can detect, recognize, compare and record the data based on the frontal facial recognition. With the automated attendance system, the presence of teacher can be known.

### 1.3 Statement of Problem

1. Difficult and time consuming to take in attendance through traditional method.
2. Finger print is time consuming and boring.

### 1.4 Objectives

The main aim of the project is to create a system that will recognize the frontal face of teachers and make an automated attendance.

### 1.5 Scope

One of the main scopes of the project is schools and colleges to keep easy track record of presence and absentees of teachers.

## CHAPTER 2

## LITERATURE REVIEW

For our project we got motivation by the research carried out by the following people and their published papers:

“Deep Neural Network for Human Face Recognition” (Dr. Priya Guptaa, Nidhi Saxenaa, Meetika Sharmaa, Jagriti Tripathia) [1], here they have made use of haar cascade for extracting facial features and feeding them instead of raw pixel values helped in decreasing the complexity of neural network based recognition framework as the number of redundant input features has been decreased. Also the use of Deep Neural Network instead of CovNets made the process lighter and faster. Also, the accuracy is not compromised in the proposed method as average accuracy obtained is 97.05%. Though one additional step of extraction of facial features from each image is added, still the process is better for small datasets.

The authors, Dr.Eyad I. Abbas, Mohommed E. Safi and Dr.Khalida S. Rijab initiate their paper by describing the need of face recognition and the attention that it possessed during the last decade. They mentioned that keeping the optimal security in public places such as airports and parks is one of the needs and the second is securing the ecommerce transactions which occur in internet. Lastly, they mention that face recognition in identifying an individual is one of the higher accuracy identification methods and it is one of the least intrusive processes. They described about Principal Component Analysis and mentioned that PCA is a powerful statistical approach that is used to reduce the dimensions and analyse a large data set. The mathematical part of the Principal Component Analysis is based of calculating eigenvectors, eigenvalues and standard deviation. Distance measuring is the final step of face recognition and it is performed by calculating the distance between test image and the train images. According to them there are many methods to optimize the image distances which would be an immense help with the face recognition.[2]

# CHAPTER 3

## METHODOLOGY

For developing the Facial Recognition Attendance System, various phases and methods will be proceeded with the help of various software, tools and languages. In our project, we will gather data in form of image and use it to train the system and later utilize it to recognize the person. We will be using the technique of local feature based on Discrete Cosine Transform (DCT). For this project, we will be using Principle Component Analysis (PCA) algorithm which is a face geometry based approach.

### 3.1 Block Diagram

Fig 3.1 : Block Diagram of Face Recognition System

### 3.2 Closed loop system

Fig 3.2: Closed loop system

### 3.3 Use-Case Diagram

Fig 3.3 Use-Case Diagram

### 3.4 Flow Chart

Fig 3.4: Flowchart

### 3.5 Work Schedule

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.  N | Week Job  Description | 1st  Week | 2nd  Week | 3rd  Week | 4th  Week | 5th  Week | 6th  Week | 7th  Week | 8th  Week |
| 1. | Problem  Identification |  |  |  |  |  |  |  |  |
| 2. | Analysis |  |  |  |  |  |  |  |  |
| 3. | Design |  |  |  |  |  |  |  |  |
| 4. | Coding |  |  |  |  |  |  |  |  |
| 5. | Testing and  Debugging |  |  |  |  |  |  |  |  |
| 6. | Documentation |  |  |  |  |  |  |  |  |

### 3.6 Tools and Platform

1. Python
2. Matlab
3. MYSQL Database
4. Eclipse IDE

# CHAPTER 4

## EXPECTED RESULTS

Our project (Face Recognition Attendance system) will create a attendance record of teacher. Beside it, this project can also be use for the security purpose. And this will minimize the paper work so this project will be efficient for the implementation.

# Reference

[1] Priya Gupta, Nidhi Saxena, Meetika Sharma, Jagriti Tripathi,"Deep Neural Network for Human Face Recognition", International Journal of Engineering and Manufacturing(IJEM), Vol.8, No.1, pp.63-71, 2018.DOI: 10.5815/ijem.2018.01.06

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[4] [www.academia.edu/26763120/Automated\_Attendance\_Based\_on\_Facial\_Recognition](http://www.academia.edu/26763120/Automated_Attendance_Based_on_Facial_Recognition) [November 20, 2019]