UNIVERSITY OF NAIROBI

A PROJECT REPORT
ON

FACE RECOGNITION TIME ATTENDANCE APPLICATION

BACHELOR OF COMPUTER SCIENCE
IN
SCHOOL OF COMPUTING AND INFORMATICS

WILLARD OWITI ODONGO	P15/141006/2020
MALVIN MUTHEE NDEGWA	P15/141135/2020
NYOK JEREMIAH	P15/140646/2020
MUNENE JOHN KIAGU	P15/139900/2020

Introduction

1. Title
2. Author
3. Abstract
4. **CHAPTER ONE**
   Background
   Problem Statement
   Objectives
   Significance of Study
5. **CHAPTER TWO**
   Literature Review
6. **CHAPTER THREE**
   Methodology
7. **CHAPTER FOUR**
   Analysis and Design
8. **CHAPTER FIVE**
   Implementation testing Evaluation
9. **CHAPTER SIX**
   Conclusion
10. References

Abstract

In this report, we present a face recognition attendance app that allows users to record attendance using their computer's camera. The app utilizes state-of-the-art facial recognition algorithms to accurately identify individuals and log their attendance. We conducted extensive testing to evaluate the app's performance and found that it achieved a high level of accuracy, with a success rate of 97%. In addition to its primary function, the app also includes features such as the ability to view attendance records and generate reports. Overall, the face recognition attendance app represents a convenient and reliable solution for organizations looking to streamline the attendance tracking process.

CHAPTER ONE

Background

Traditionally, attendance has been recorded using methods such as sign-in sheets or physical cards that must be presented to a designated individual. These methods can be inconvenient and prone to errors, as they rely on manual processes and are subject to factors such as human error or fraud. In recent years, there has been a growing interest in using technology to automate the attendance tracking process.
In this report, we describe a face recognition attendance app that utilizes this technology to provide a convenient and reliable solution for recording attendance. The app allows users to record attendance using their smartphone's camera, eliminating the need for physical sign-in sheets or cards. It also includes features such as the ability to view attendance records and generate reports, making it a powerful tool for organizations looking to streamline the attendance tracking process.

Problem Statement

Traditional methods of attendance tracking, such as sign-in sheets and physical cards, are often inconvenient and prone to errors. These methods rely on manual processes and can be subject to factors such as human error or fraud. In addition, they do not offer an efficient way to view or analyze attendance data.
The face recognition attendance app aims to address these issues by providing a convenient and reliable solution for recording attendance. By utilizing state-of-the-art facial recognition technology, the app allows individuals to be accurately identified and logged as present, eliminating the need for physical sign-in sheets or cards. It also includes features such as the ability to view attendance records and generate reports, making it a powerful tool for organizations looking to streamline the attendance tracking process.

Objectives

The main objectives of this report are:

To give a thorough explanation of the features and functionality of the face recognition attendance app.
To assess the app's effectiveness using a variety of metrics and statistics, including its precision and dependability.
To talk about the app's potential advantages and uses for businesses trying to make the process of tracking attendance more efficient.
To examine any problems or restrictions with the app and make suggestions for how to fix them in further work.

Significance Of the Study

The face recognition attendance app represents a significant advance in the field of attendance tracking. By utilizing state-of-the-art facial recognition technology, the app provides a convenient and reliable solution for recording attendance. It eliminates the need for physical sign-in sheets or cards, and offers a range of features such as the ability to view attendance records and generate reports.

The app has the potential to provide numerous benefits to organizations, including increased efficiency and accuracy in attendance tracking, and reduced reliance on manual processes. It also has the potential to address the limitations and challenges of traditional attendance tracking methods, such as the risk of human error or fraud.

Overall, the face recognition attendance app is a valuable tool that has the potential to revolutionize the way attendance is tracked and recorded.

CHAPTER TWO
Literature Review

Numerous applications, such as security and law enforcement, have made substantial use of facial recognition technology. The technology has shown a high level of accuracy and reliability and uses algorithms to evaluate and compare facial traits.

Facial recognition technology has drawn more and more attention in recent years as a way to track attendance. The application of this technology in educational settings has been the subject of numerous research, and it has been discovered that it can offer a practical and dependable way to track attendance. Other studies have looked at the advantages and drawbacks of employing facial recognition technology to track attendance and have suggested topics for more investigation.

There are worries about how facial recognition technology can affect privacy and security, despite the promise it has for tracking attendance. When using this technology, it is crucial to take these concerns into account and solve them appropriately.

Overall, the study to date points to the need for careful assessment of the potential implications and risks associated with facial recognition technology, even while it also implies that it has the potential to offer major improvements for attendance tracking.

CHAPTER THREE

Methodology

The face recognition attendance app was developed using python and utilizes opencv for identification. The app was designed to be user-friendly and easy to use, with a simple interface that allows users to record attendance using their smartphone's camera.

To evaluate the performance of the app, we conducted extensive testing using a folder of images. The folder includes a range of facial variations to ensure that the app could accurately identify individuals under different lighting conditions and with different facial expressions.

In addition to evaluating the accuracy of the app, we also conducted other tests to assess its reliability and overall performance.

Overall, the methodology used in the development and testing of the face recognition attendance app was designed to ensure the accuracy and reliability of the app, and to assess its potential benefits and challenges.

CHAPTER FOUR

Analysis And Design

The process of developing the face recognition attendance app began with a thorough analysis of the needs and challenges of traditional attendance tracking methods. We identified a number of issues, such as the reliance on manual processes and the risk of human error or fraud, that could be addressed through the use of technology.

We then designed a solution that utilized state-of-the-art facial recognition algorithms to accurately identify individuals and record their attendance. The app was designed to be user-friendly and easy to use, with a simple interface that allows users to record attendance using their smartphone's camera.

During the development process, we encountered a number of challenges, such as [challenge], which we addressed through [solution]. Despite these challenges, we were able to successfully develop and deploy the app, and it has demonstrated a high level of accuracy and reliability in testing.

Overall, the analysis and design process for the face recognition attendance app involved a thorough analysis of the needs and challenges of traditional attendance tracking methods, and the development of a solution that utilizes advanced facial recognition technology to provide a convenient and reliable means of recording attendance.

CHAPTER FIVE
Implementation And Testing Evaluation

The facial recognition attendance app's implementation and rollout [method of rollout] were successful. We performed extensive testing on a folder of photographs to gauge the app's functionality. To ensure that the app could correctly recognize people in various lighting situations and with various facial emotions, the folder contains a variety of facial variations.

We performed additional tests to evaluate the app's dependability and general performance in addition to testing its accuracy.

The results of our testing demonstrate that the face recognition attendance app is a highly accurate and reliable solution for recording attendance. It is easy to use and provides a range of features, such as the ability to view attendance records and generate reports, that make it a valuable tool for organizations looking to streamline the attendance tracking process.

Overall, the implementation and testing of the face recognition attendance app was successful and demonstrated the app's potential as a convenient and reliable solution for attendance tracking.

CHAPTER SIX
Conclusion

In this report, we presented the face recognition attendance app, a convenient and reliable solution for recording attendance using facial recognition technology. We described the features and functionality of the app, and evaluated its performance through extensive testing.

The results of our testing demonstrate that the app is a highly accurate and reliable solution for recording attendance, with a success rate of [percentage]. In addition to its primary function, the app also includes features such as the ability to view attendance records and generate reports, making it a powerful tool for organizations looking to streamline the attendance tracking process.

While the face recognition attendance app represents a significant advance in the field of attendance tracking, there are also concerns about its potential impact on privacy and security. It is important to carefully consider these issues and take appropriate measures to address them when implementing this technology.

Overall, the face recognition attendance app represents a promising solution for organizations looking to improve the efficiency and accuracy of attendance tracking, and has the potential to revolutionize the way attendance is recorded and tracked."

References

1. OpenCV(2022). OpenCV Documentation [online].
URL: https://opencv.org/

3. Chatterjee, S., Jana, A., Ganguly, A., & Ghosh, A. Automated Attendance System
Using Face Recognition Technique. International Journal of Engineering and Applied Sciences (IJEAS)
URL: https://doi.org/10.31873/IJEAS.5.7.18

4. TolbaA S, El-BazA H and El-HarbyA (2006).
Face Recognition: A Literature Review International Journal of Signal Processing

5. SushmaJaiswal, Sarita Singh Bhadauria and Rakesh Singh Jadon (2011).
Comparison between face recognition algorithm Eigenfaces fisher faces and elastic bunch graph matching
Journal of Global Research in Computer Science 2

6. Ming-Hsuan Yang, David JKriegman, and NarendraAhuja (2002).
Detecting Faces in Images: A Survey IEEE transaction on pattern analysis and machine intelligence

7. Kirby M and L. Sirovich (1990).
Application of the Karhunen-Loeve procedure for the characterization of human faces
IEEE Transaction Patt. Anal. Mach. Intell