PROJECT REPORT

on

Face Recognition Attendance System

(CSE V Semester Mini project PCS-504)

2021-2022

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CERTIFICATE

Certified that Mr. Rishav Raj Chaudhary (Roll No.- 1918603) has developed the mini project on "Face Recognition Attendance System" for the CS V Semester Mini Project Lab (PCS-504) in Graphic Era Hill University, Dehradun. The project carried out by students is their work to the best of my knowledge.

Date: 16/12/2021

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We would like to thank particularly our project Coordinator Ms. Manika Manwal and our Project Guide Dr. Akshara Pandey for her patience, support, and encouragement throughout the completion of this project and for having faith in us.

Last but not least We are greatly indebted to all other persons who directly or indirectly helped us during this work.

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INTRODUCTION

➔ A **Face Recognition Attendance 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.

➔ The programming language used is Python. Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation.

➔ Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

PROJECT REQUIREMENTS

Tkinter – GUI Package in Python.

The Tkinter package (“Tk interface”) is the standard Python interface to the Tcl/Tk GUI toolkit. Both Tk and Tkinter are available on most Unix platforms, including macOS, as well as on Windows systems.

Running python -m Tkinter from the command line should open a window demonstrating a simple Tk interface, letting you know that Tkinter is properly installed on your system, and also showing what version of Tcl/Tk is installed, so you can read the Tcl/Tk documentation specific to that version.

Tkinter supports a range of Tcl/Tk versions, built either with or without thread support. The official Python binary release bundles Tcl/Tk 8.6 threaded. See the source code for the _tkinter module for more information about supported versions.

Opencv in Python

OpenCV is a library of programming functions mainly aimed at real-time computer vision. Originally developed by Intel, it was later supported by Willow Garage then Itseez. The library is cross-platform and free for use under the open-source Apache 2 License.

OpenCV is a great tool for **image processing and performing computer vision tasks**. It is an open-source library that can be used to perform tasks like face detection, objection tracking, landmark detection, and much more. It supports multiple languages including python, java C++.

Algorithm used:

- **Haarcascade_frontalface_default**

➔ It is an Object Detection Algorithm used to identify faces in an image or a real-time video.

➔ The algorithm uses edge or line detection features proposed by Viola and Jones in their research paper “Rapid Object Detection using a Boosted,

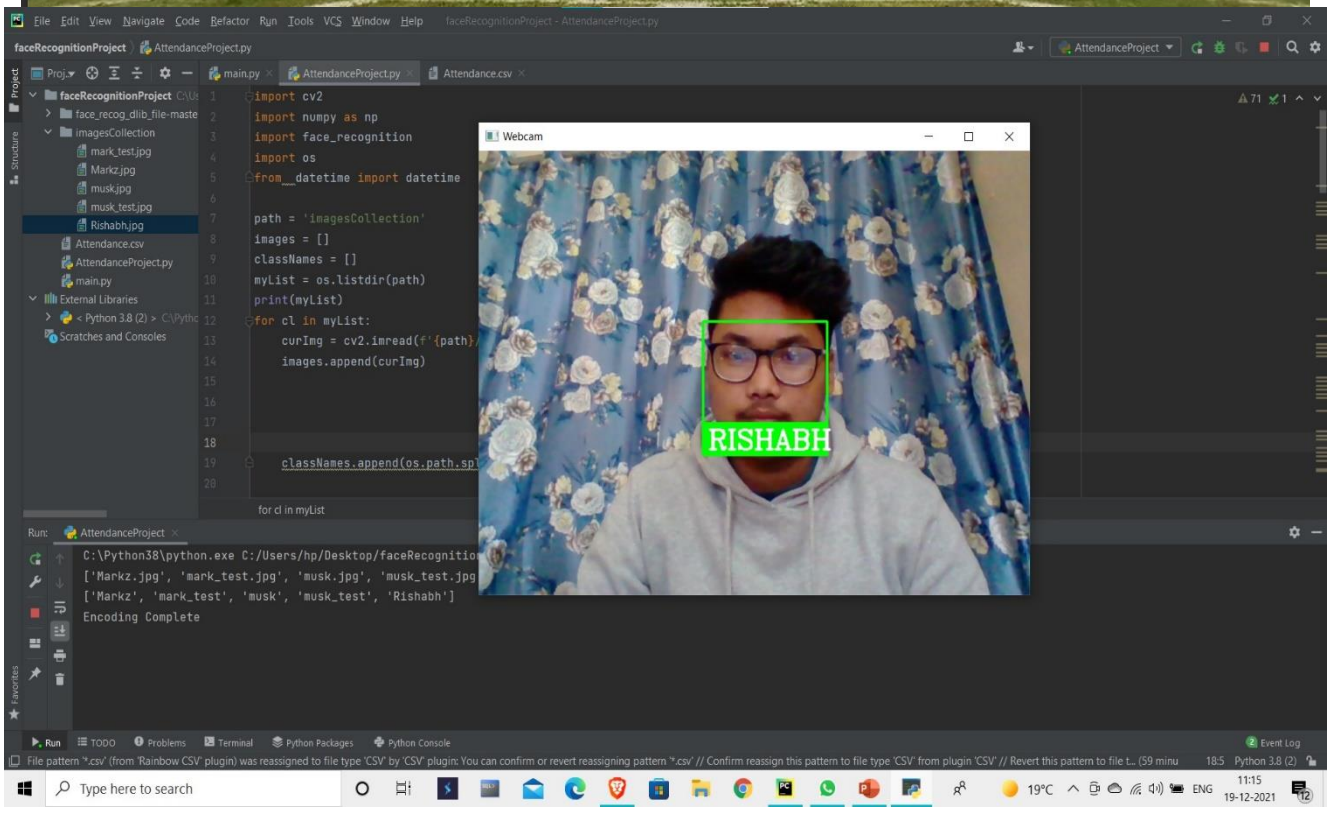
Cascade of Simple Features” published in 2001. The algorithm is given a lot of positive images consisting of faces, and a lot of negative images not consisting of any face to train on them.

Database:

Xampp

➔ XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTPServer, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages.

SNAPSHOTS OF THE PROJECT



Conclusion

Before the development of this project. There are many loopholes in the process of taking attendance using the old method which caused many troubles to most of the institutions. Therefore, the facial recognition feature embedded in the attendance monitoring system can not only ensure attendance is taken accurately but also eliminate the flaws in the previous system. Using technology to conquer the defects cannot merely save resources but also reduce human intervention in the whole process by handling all the complicated tasks to the machine. The only cost to this solution is to have sufficient space to store all the faces in the database storage. Fortunately, there is such an existence of micro SD that can compensate with the volume of the data. In this project, the face database is successfully built. Apart from that, the face-recognizing system is also working well. In the end, the system not only resolves troubles that exist in the old model but also provides convenience to the user to access the information collected by mailing the attendance sheet to the respected faculty.

REFERENCES

1. https://pythonprogramming.net/haar-cascade-face-eye-detection-python-OpenCV-tutorial/
2. Murray, Don, and Cullen Jennings. "Stereo vision-based mapping and navigation for mobile robots." Proceedings of International Conference on Robotics and Automation. Vol. 2. IEEE, 1997.
3. OpenCvDocumentation -https://opencv.org
4. “Attendance System Using NFC Technology with Embedded Camera on Mobile Device” (Bhise, Khichi, Korde, Lokare, 2015)