**TEAM – 2\_STARS**

**STUDENT-FACE-RECOGNITION-ATTENDANCE-SYSTEM**

**INTRODUCTION**

Face recognition system – It is a technology capable of identifying and verifying a person from a digital image or video frame from a video source. It is also described as a biometric artificial intelligence based application.

By using this technology, we created our project “STUDENT-FACE-RECOGNITION-ATTENDANCE-SYSTEM” (SFRAS).

SFRAS is a program which uses technologies like ML, AI, Computer Vision to recognize or identify student’s face to mark their attendance. The student only require to stand in-front of the camera and the camera will scan their face using computer vision and check for their details in the database to verify the details and mark their attendance.

**LINK: PROJECT DEMO**

<https://drive.google.com/file/d/1V0ZccIWNSYrleS3RmYqViPyA3MxbMeKM/view?usp=drivesdk>

**STEPS :-**

* Build and run train.py using any text editor with the python extension.
* The python window will open.
* Then enter ID and Name of the person you want to register on the database and click on “REGISTER” button.
* The program will start a new window to capture the video from the camera. It will take around 100 pics for better recognition later in the program.
* Then click on “Verify Registration” button. Using Machine Learning the program will teach the database to attach user’s pictures with their details.
* Notification arises “Verification Completed” if it is successfully done.
* Then to mark your attendance click on “Attendance” button.
* Again a window will open to capture the video from the camera and it will run on forever loop UNTIL YOU PRESS “Q” ON THE KEYBOARD.
* Attendance will get marked.

**TECHNOLOGY USED**:

* We programmed the project using Python language using following libraries and modules :-
* OpenCV – it is a python library for Computer Vision
* tkinter – used for creating and editing of all graphical user interface(GUI)
* numpy – It is used for high level mathematical operations e.g. multi-dimensional array and matrices.
* Shutil – used for automating process of copying and removal of files and directories.
* CSV – used to store tabular data such as spreadsheets or database in form of excel files.
* PIL – used for customization of images such as resizing, color or mode.
* Pandas – used for data analysis.
* Datetime – to retrieve date and time.
* Os – for interaction with operating system.
* Cx\_freeze – used for freezing python scripts into executables.

**BENEFITS**

With the use of facial recognition comes with it a host of potential benefits, including:

* No need of physically contact a device for authentication- compared to other contact-based biometric authentication techniques such as fingerprint scanners, which may not work properly if there is dirt on a person’s hand or he has some injury or wound on his finger or any kind of extra layer such as oil, water, sweat etc. Then the system will reject the scan and will not recognize it.
* Improved level of security.
* Requires less processing compared to other biometric authentication techniques.
* Easy to integrate with existing security features.
* Accuracy of readings has improved over time.

Can be used to help automate authentication.