**PROJECT F.A.C.E**

**F**ace **A**cknowledgement using **C**omputational **E**lements

# Introduction:

Tracking attendance of large workstation or an education system is a tedious task which consumes a lot of time and effort. This can be minimized by automating it I.e., by having the information such as their name and pictures of people that we need to recognize. By linking this information to OpenCV we can recognize and store their attendance without much user interface.

# Concept:

The concept used in this project is face recognition in which we capture a frame using OpenCV module and convert the frame from BGR to RGB channel and further change it to GRAY channel. Then the module reads the complete image pixel wise and marks arrows on it pointing from light to dark region. The obtained image is called HOG (Histogram of Gradient) which eliminates the issue of matching the image with the template image in varying brightness.

As the image we get have different orientation of face, it appears to the computer as completely different image. To resolve this problem, we use an algorithm called 'Face estimation landmark', which basically find 68 specific points that is present on every face. This algorithm uses machine learning to find these points and rotates the scale of these specific points and tries to centre the eyes and the mouth in the same position as the image in database. It then searches through the database and tries to match with every image. The image which has the closest resemblance and measurements is then given as our match. So, algorithm returns the information from the database of the closest matcIt keeps checking and updating the attendance for a specified period.

# Applications of the project in Real life:

* It can be used to mark attendance by recognizing the faces and eliminates human intervention in the process.
* It can be used to detect people and allow entry when the face is recognized. (Restricted Access)
* Can be used to detect a criminal’s face and access database containing his information.
* It can be used to detect if a two-wheeler rider is wearing a helmet of not and send fine to their home.

# Features of the project:

* It is user friendly as it marks the attendance just by recognizing the faces and store the data in an excel sheet.
* It eliminates any human intervention as it is automated.
* It provides faster output compared to humans.
* The chances of making errors are very low.
* It does not require any heavy pre-installation set up.
* It sends warning to the specific users when their attendance is low.
* A time period can be specified for it to work minimizing power consumption.

# Conclusion:

The project of course has its limitations, but the pros are more dominant than the limitations and cons. Implementing such a system where there are a lot of people to keep track of this can prove very beneficial.

# Team Members:

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