REPORT 1

Face Recognition for Attendance System

08/11/23

—

Group Members:

Abhishek Malik, Aditya Tiwari, Arnav Gautam

12140040, 12140090, 12140280

BTech, IIT Bhilai

Data Preprocessing

We have **collected 6 pictures of 14 students** per each registered CS550 course. We first removed the background via an app available online, then we also removed some of the noise and also some classes had more that 6 pictures available, so we designed our code in such a way that for those classes, we randomly picked 6 pictures for training and 2 pictures for validation.

Models Used

We used 3 parallel models -

1. CNN for scratch using tensorflow for image classification into 14 groups.
2. DeepFace which is a pretrained model for increasing the accuracy.
3. FaceNet which is also a pretrained model.

Accuracy

Validation accuracy we achieved was 90% for Facenet, 60% for deepface and 30% for CNN we built from scratch. We assigned them weights according to their accuracy. Data pipelining is also done.

Task

We are now able to predict the person whose image is being fed to the predictor. The model whose weight is more, will be considered as more reliable during prediction.

Challenges

We currently have very little data for each student and the number of students is also very less i.e 14. We also have not received state of art accuracy for the basic

CNN model which we have built from scratch. So we plan to improve our dataset and CNN model accuracy.
Ensembling the models based on the weights are also crucial for the performance which would be enstaged in Phase-2 of the project.

Also we will finally produce one final result combining the results of all of the models into one final answer depending on the weights of the models.