

CSE523: Machine Learning

Faculty: Professor Mehul Raval

Group Name.: Code Rockers

Face Recognition & Attendance System

(Report File)

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**Objective:**

* Face detection and face recognition are very important technologies these days.
* The objective is to design an efficient Face recognition & attendance system.
* We will create a system that can be implemented in School, collages and offices for attendance and safety purpose.
* The resulting detected face is then used to compare with the records on a created database to produce the specific information like the student or employee’s name, Roll num., etc.…

Programming language used: Python

Libraries used: OpenCV with haar cascade frontal face algorithm.

* We use OpenCV for image processing and performing computer vision tasks and haar cascade is a machine learning-based approach where a lot of positive and negative images are used to train the classifier.

**KNN Algorithm in face detection:**

* We are using Image Processing Technique in which captured image of any person and processed through multiple algorithms to convert the alpha numerical conversation of image into text format and displayed.
* The KNN algorithms assumes that similar things exist in close proximity. To put it another way, similar things are near to each other.
* Face classification is a stage for the process of matching testing data and

training data from face datasets. The k-nearest neighbors (KNN) are one of the simple algorithms that can be used for classification. Regardless of its simplicity, this method is quite effective as a classification.

**Things we have done:**

* We find several research papers available on the internet and got ideas that which algorithm will work.
* We found some dataset that may be useful in our project.

**Outcomes of the task performed:**

**Dataset links:**

1. <https://www.kaggle.com/olgabelitskaya/yale-face-database>
2. <http://mmlab.ie.cuhk.edu.hk/projects/CelebA.html>

**Research Paper link:**

1. <https://analyticsindiamag.com/a-complete-guide-on-building-a-face-attendance-system/#:~:text=A%20face%20recognition%20system%20is,faces%20with%20a%20digital%20image.&text=based%20attendance%20systems.-,It%20discusses%20the%20challenges%20faced%20in%20face%20recognition%2C%20the%20face,Different%20lighting%20conditions>
2. <https://medium.com/analytics-vidhya/face-recognition-using-knn-open-cv-9376e7517c9f>
3. <https://www.analyticsvidhya.com/blog/2021/11/build-face-recognition-attendance-system-using-python/>
4. Dr. V Suresh“Facial Recognition Attendance System Using Python and OpenCv" Quest Journals Journal Of Software Engineering And Simulation, Vol. 05, No. 02, 2019, Pp. 18-29.

<https://www.questjournals.org/jses/papers/Vol5-issue-2/D05021829.pdf>

1. <https://analyticsindiamag.com/a-complete-guide-on-building-a-face-attendance-system/>

**Task to be performed next week:**

* We would like to study more on resources.
* Following the selection of the best approach, we will conduct data analysis and begin the coding process.