APPROACH DETAILS :

Ministry Category : Dte of IT & Cyber Security, DRDO

Problem Statment : Video based dynamic human authentication system for access control

Problem Code : CK107

Team Leader Name : Kapil Londhe.

College Code : 1-3517156853

IDEA :

- The idea is to design a system which will detect and recognize people entering the gate. Dynamic human recognition is done with the help of deep learning model. In case of unauthorised entry, an alert will be generated to the concerned authority. An entry log of visitors with their images will be maintained.

PROTOTYPE :

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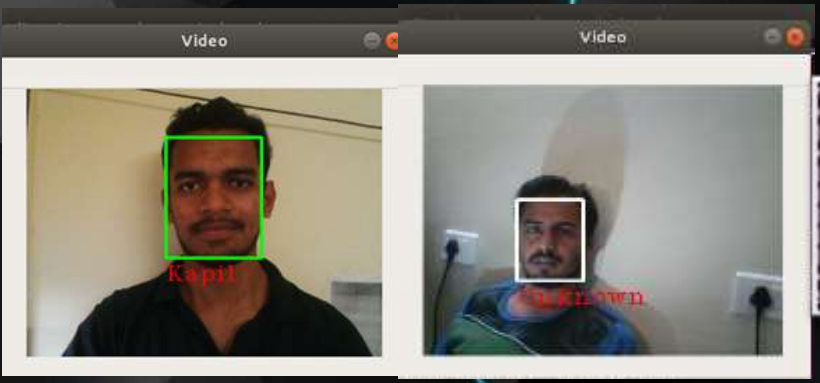
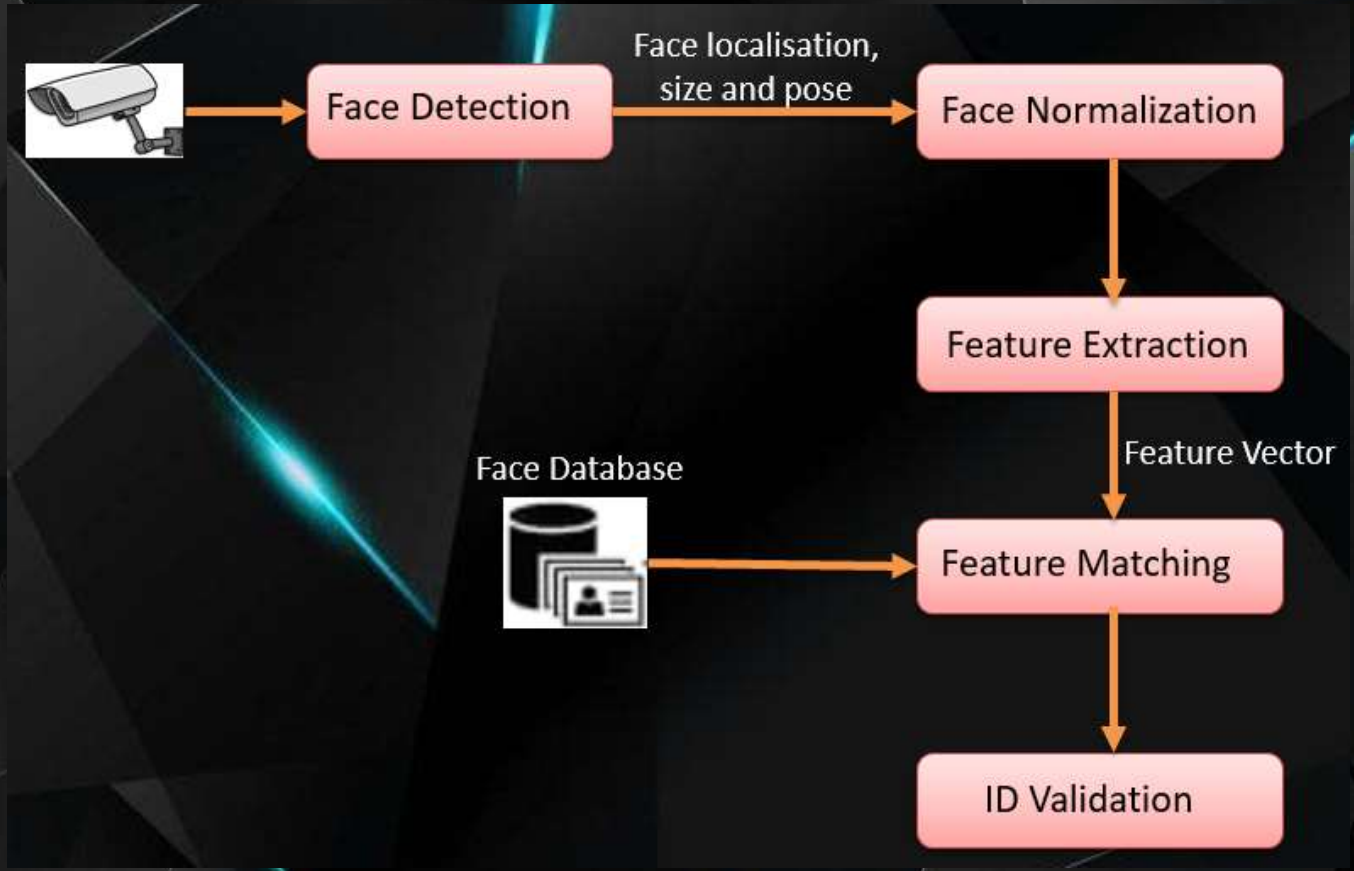


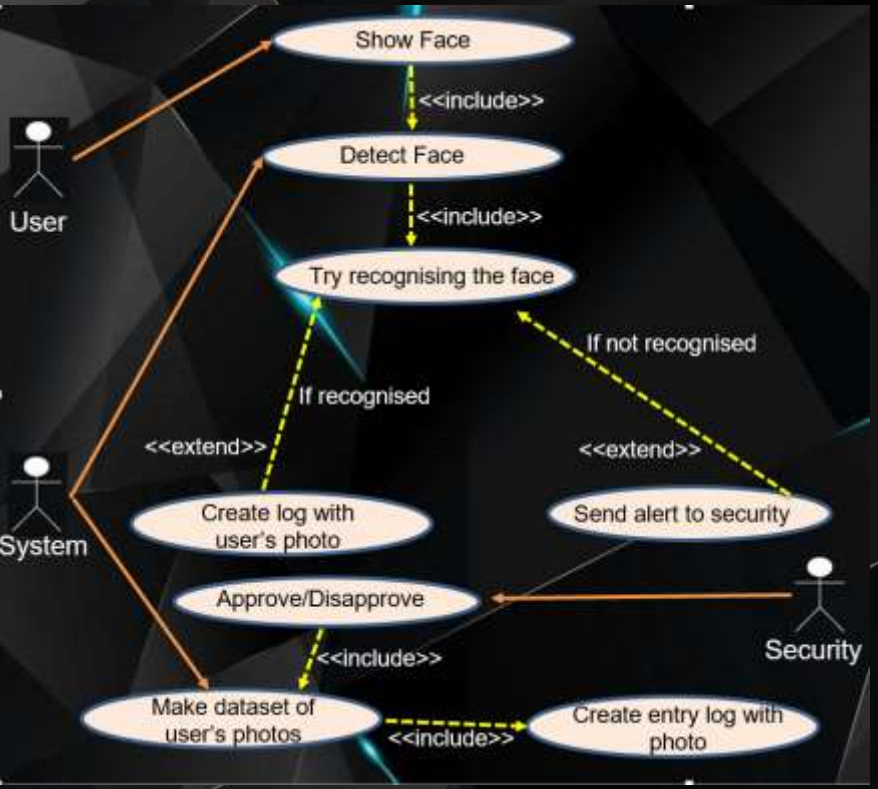

```
mysql> select * from Entry_List;
+---------------+-----------+---------------------+---------+-----------------------------------------------+
| serial_number | Name      | Time                | Verfied | photo                                         |
+---------------+-----------+---------------------+---------+-----------------------------------------------+
|             1 | Kapil     | 2020-01-05 17:51:38 |       1 | C:/users/public/Desktop/kapil_021.png         |
|             2 | UNKNOWN   | 2020-01-05 17:53:20 |       0 | C:/users/public/Desktop/UNKNOWN_025.png       |
|             3 | Rohit     | 2020-01-05 17:54:04 |       1 | C:/users/public/Desktop/rohit_029.png         |
|             4 | UNKNOWN   | 2020-01-05 17:57:39 |       0 | C:/users/public/Desktop/UNKNOWN_034.png       |
|             5 | chintamani | 2020-01-05 17:55:14 |       1 | C:/users/public/Desktop/chintamani_035.png    |
+---------------+-----------+---------------------+---------+-----------------------------------------------+
5 rows in set (0.00 sec)
```

TECHNOLOGY STACK :

- OpenCV.
- GPU Server
- Python(Tkinter).
- TensorFlow.
- NoSql(MongoDB).
- RDBMS(MYSQL).


Face Detection
Face localisation, size and pose
Face Normalization
Feature Extraction
Feature Vector
Face Database
Feature Matching
ID Validation

USE CASE :



DEPENDENCIES :

SYSTEM:

Start

Live streaming of video and search for faces

If face found in stream search for similar faces in database

If face is known then allow that person to pass

If face is unknown then alert the security person regarding it

Retrain the model in nighttime for all the images of known people captured in daytime

SECURITY:

Login

View all the log of people entered or exit.

Generate pdf or excel file of employees enter and exit times on particular date or for range of period

Add new employee for detection by capturing threshold number of images of new employee

Enquire on response to alert generated by system for unknown person detected.