

# Project Proposal

1. **Project title:** Real-time Face Detection and Recognition – This project deals with the real-time person identification from a stream of video which helps us to take appropriate actions with respect to the scenario.
2. **Team details:**
  - Team Number: 6
  - Team Members:
    1. Sri Harsha Chennavajjala (4)
    2. Priyadarsini Nidadavolu (16)
    3. Tej Kumar Yentrapragada (27)
    4. Chaitanya Sai Manne (14)
3. **Project goal:**

To develop a real-time video analyzing application to identify and recognize the persons. This helps us to automate the tedious process of face recognition from surveillance cameras in order to track the suspects.
4. **Project objectives:**
  - To develop an application that automates the process of extraction of human faces from a stream of video and stores it in a database.
  - To develop the functionality that compares the human faces from a video stream with the local database and recognizes the persons.
  - To develop the functionality of sending alert messages to the security authorities in the case of a suspect was found in the video stream.
5. **Project significance:** In recent times, the use of surveillance cameras by the organizations as well as by the individuals has been increased in order to increase the security to their properties. But most of these surveillance systems do not include the automatic decision making capabilities (machine learning) such as alerting the owners about the possible theft, suggesting items to buy to the customers etc. Our project minimizes the long tedious manual work of identifying the suspects in the surveillance video by recognizing the persons in the video. If the system finds a possible threat, it will immediately alert the security authorities. There by we can reduce the crimes in the organization.
6. **Project uniqueness:** The Unique Selling Point of the project is that the project not only records the activities, it can also identify the persons in the video by comparing them with the local database and takes appropriate decisions. This process reduces the man power required and also makes it easy for the security personnel to take actions immediately before the situation goes out of hands.

## 7. **System features:**

- **Database of faces:** We will have a precompiled database of the faces of all the suspects.
- **Face Recognition:** The application continuously processes the video stream and searches for the suspects in the video.
- **Notification:** The application alerts the security personnel if it finds a suspect in the vicinity.
- **Reports:** The application logs each and every instance of security threat and generates reports like the time of the day at which the possibility of robbery is high, the suspects history of robberies etc.
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## 8. **Related Work:**

**Face recognition using eigenfaces:** This application uses the eigenvectors to map a face to the 'face space'. Later it compares the obtained faces with these eigenfaces.

**Face recognition using Laplacianfaces:** This application works based on appearance-based face recognition method called the Laplacianface approach. This can be achieved by using locality preserving projections.

## 9. **Backup Project:**

Dynamic Traffic Signal Controlling System - To develop a signaling system, which is automatic and is basic on the traffic at a particular time. The automatic signaling system will give signal to the direction which has the highest traffic.

### **Features:**

1. Process the video and identify the vehicles.
2. Calculate the total number of vehicles coming in each direction.
3. The direction which has the higher count will be given signals.
4. Keep the limit of the signaling to some constant value, such that not every time a single direction will be given signals.

## 10. **Bibliography:**

- Face recognition using Laplacianfaces - <http://ieeexplore.ieee.org/document/1388260/?arnumber=1388260>
- Face recognition using eigenfaces - <http://ieeexplore.ieee.org/document/139758/?arnumber=139758&tag=1>
- Facial recognition techniques - [https://en.wikipedia.org/wiki/Facial\\_recognition\\_system](https://en.wikipedia.org/wiki/Facial_recognition_system)
- Computer Vision - <http://opencv.org/>