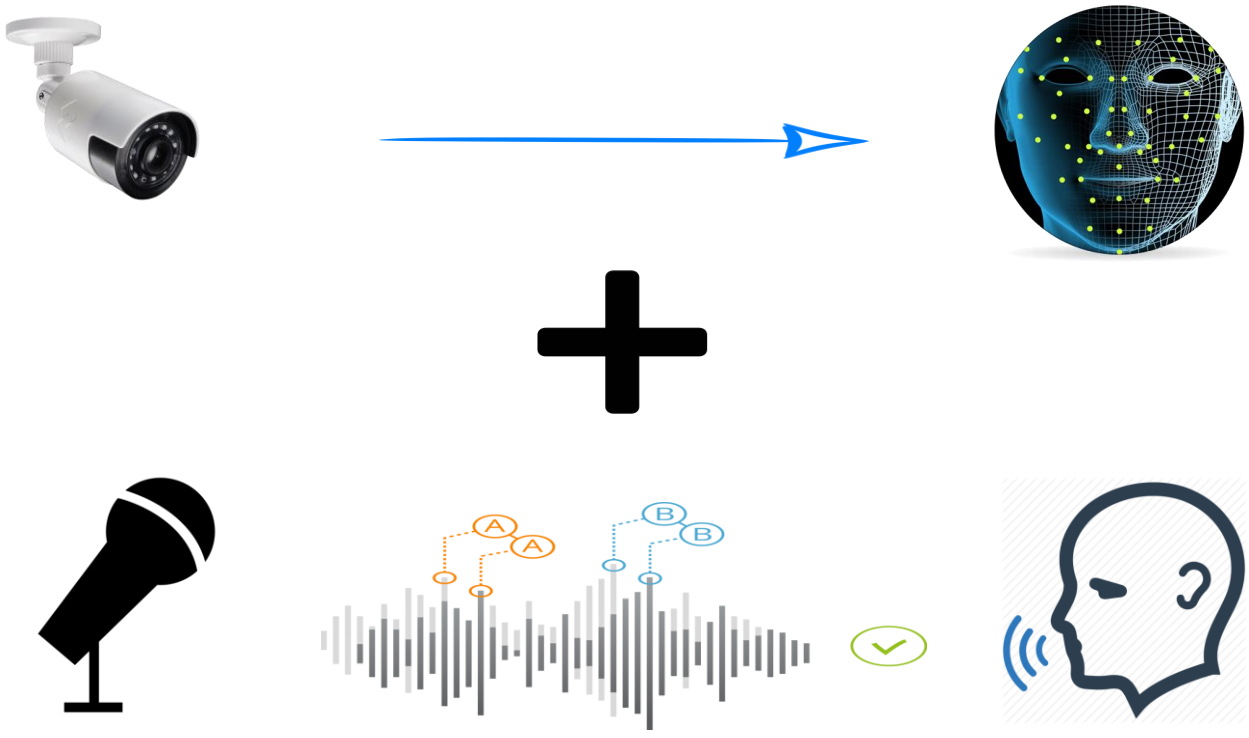
FACIAL AND VOICE BASED AUTHENTICATION SECURITY SYSTEM

PROJECT PROPOSAL

Today security systems are getting more and more advanced and the need for high end security systems are a much-needed demand in the market. The most high-end security systems aim to combine voice authentication and facial recognition. What we propose is a two-factor security system that combines voice inputs and facial recognition. We also propose to add a third security measure of motion detection for detecting unknown persons activity. This type of dual security system will enable secure access in places like banks, secure facilities or even houses. The motion detector captures any movement in the screen and notes the time when a motion occurred internally.



Once a person comes in front of the camera, it asks him to verify with the two-factor authentication. First his face is scanned to ensure that he is an authorized person. But since these days, the most secure facial recognition systems fail at times, we propose to use the voice authentication. We plan to train our voices with the system and use an API for voice authentication. We have gone through a couple of voice authentication API's but will know which to use when trying to implement it. We also intend to give random catch phrases to the system so that no user can use a prerecorded voice and can only use the catch phrase mentioned at that time by the system. Motion detection we are going to try to build by taking into account the contours and leveraging OpenCV. We also

plan to use Twilio to send text messages to the owner or even 911, that an unknow person is trying to get access. It depends on how the user sets it.

Proposed Libraries:

- Face_Recognition – Python (DLIB)
- Twilio

The face_recognition package is a python version of the dlib (C++) package for face recognition. The model for the face recognition architecture is a ResNet network with 29 conv layers. The idea is we feed a couple of images of the user to the database and use the package to identify known faces. Twilio is used for sending text messages from the python app. Twilio API is what we are planning to use for now for voice authentication. The API provides free voice calls for a month. The main goal for us it to develop an app that combines multiple packages and API's and to build a cognitive application that can be considered for future security devices.