

Image Processing (Face Recognition) Based Door Lock

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ABSTRACT

This is the era of Technology; this era belongs to us. The word Internet of Things will be like our new family member really soon, it can be implemented in different aspects of our daily lives to make the result accurate and desirable. The term Face Recognition and detection is like a ocean of research and innovation with the applications of image analysis and algorithm based understanding which can be called as computer vision. Security is a right which no one can deny and to justify this right lots of works and researches are taking place in this world. With development of IOT home security has been developed in the recent years with different advancements. We have, Face Recognition as our project. Facial recognition involves the detection and the identification of the image. It uses an image capturing technique in the system. The camera catches the facial picture and compares it with the image which is stored in the database. If the picture is matched with the database the gate will open or else a notification will be sent. The recognition algorithms will be from the Open Cv library.

OBJECTIVES

The objective of this project is to use traditional Computer Vision techniques to develop an advanced and robust algorithm that can detect and track lane boundaries in a video. The pipeline highlighted below was designed to operate under the following scenarios:

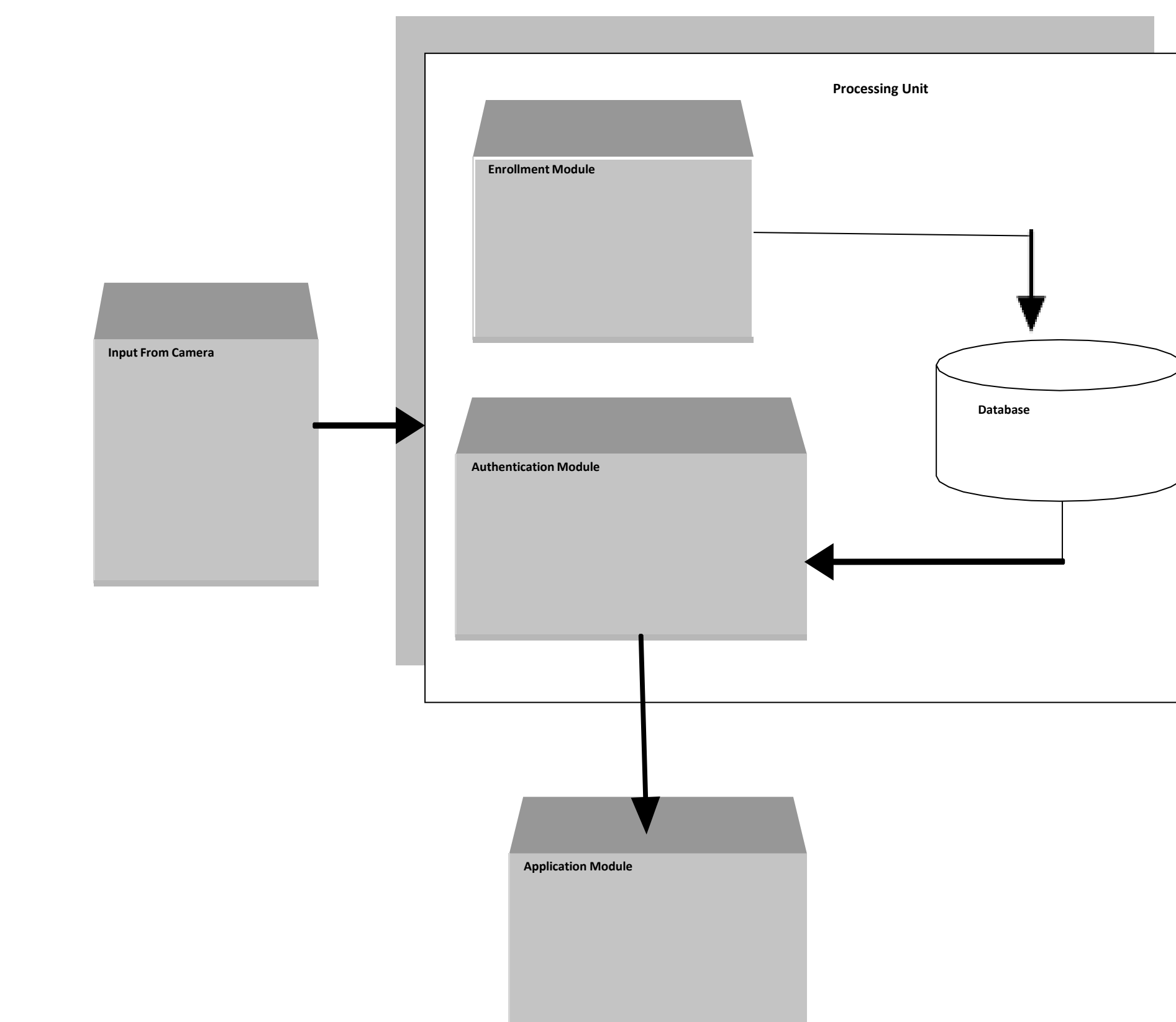
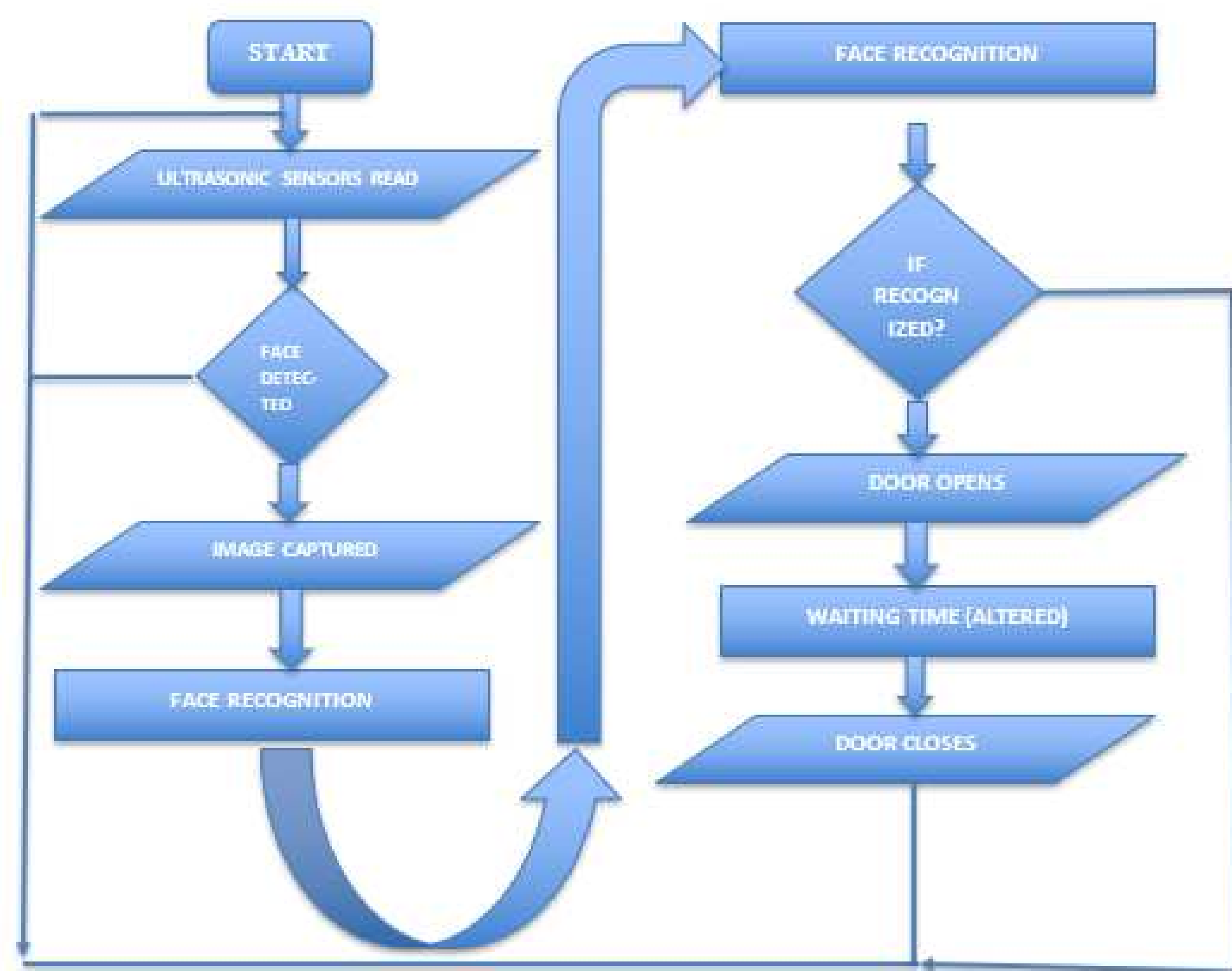
- To detect the face of an individual so that system could verify the identity.
- To store a database of faces that can be identified by the system with the help of a camera.
- To verify whether the face present on the camera actually matches the face that is already processed into the system.
- To indicate a sign of negation or affirmation when the face readings are taken as an input by the computer.
- To set up a camera in an angle such that the individual entering the premises can be clearly observed.
- To implement a more reliable way in door lock system.
- To eliminate intrusion threats by making the user aware about them.
- To provide hassle-free and user-friendly way to access the door.

PROPOSAL

The proposed works are as follows:

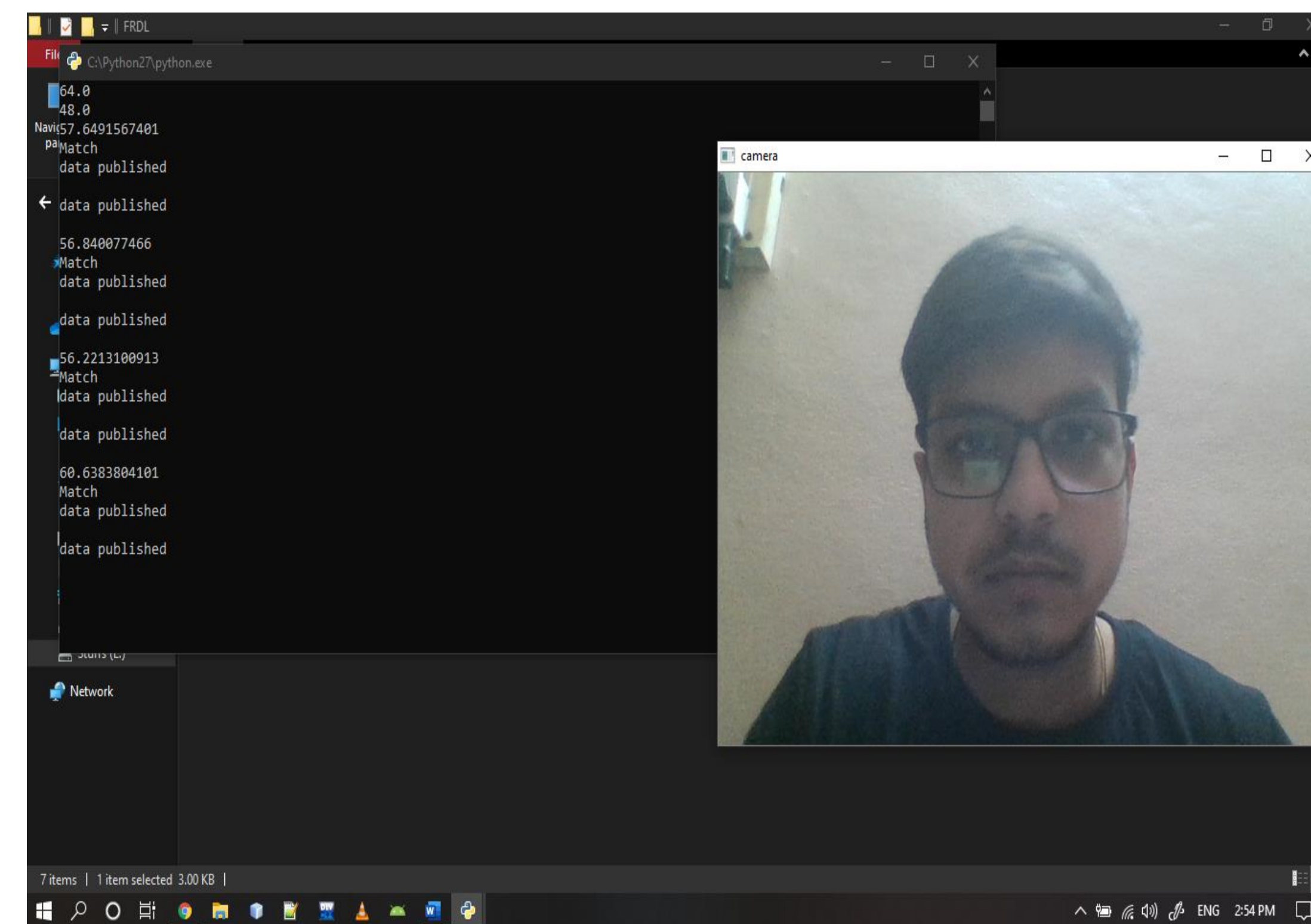
- Interfacing of camera to capture live face images.
- Create a database of authorized person if they exist.
- Capturing current image, save it and compare with the database image.
- Interface application module to send alert to authorized person while unlocking the locked door in the form of notification.
- The project can also be used for surveillance. For instance, it can capture the images of unidentified individuals and store it which can later be used to determine the impostors who tried to gain illegitimate access.
- Interface relay as an output.

The system will work in two different parts. The first part is for capturing and creating a database by storing the image. And the second one is to compare the image with the stored images in the database. For feature extraction we will use Eigen faces methodology and Euclidian distances will used for recognition of the face.



RESULTS

We have proposed an advance system for door lock which is using face recognition to provide access to the user for entering into the house. Face is a unique identifier for humans and is intrusion free. Also, the user will not have to worry about losing keys or password into the wrong hands. The classifier that we used has provided us acceptable accuracy and this technology can be used in areas which are less vulnerable. We have not applied modern technology to prove that we can achieve higher accuracy even with traditional features extraction and domain reduction methods using a correlated training dataset between images. However, in future work we plan to use different feature extraction methods such as convolution NN and compare them to the current results.



CONCLUSION

In this proposed door access system by using face recognition the images are stored in a data base. This system is used door lock access for Residential and Commercial Purposes. Here we have designed a highly secured door locking system by using Digital Circuit and Laptop Webcam. This system has been used with home door lock access control based on face recognition method by verifying enrolled facial images. Concern persons will be informed successfully about the person detection via e-mail alert generations along with details attached. Face recognition is one of the several techniques for recognizing people. There are several methods that can be used for that purpose. Though there are other new techniques more simple to understand the use and implement but also with very good performance.

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