

KEYLESS CAR ENTRY AND MESSAGE INDICATION USING GSM

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Abstract- The main work is to offer advance security program in car, which consists of a password custom and meet face to face recognition program, a GSM module and a control platform. The program is mainly used to notice the thief who is trying to steal the car. FRS (Face Recognition System) is used to notice the face of the driver and compare it by the entire portfolio. The GSM plays a significant role in this system. FRS compares the obtained approach by all of the predefined approach if it matches once the engine automatically turns on and if the approach doesn't match, then the engine won't start on and the evidence is sent to owner through SMS that a there is some issue with their car. So now owner can receive the details of the thief in database as the system will store that person's approach and can handle that image for any sort of investigation.

Keywords — Face Recognition System, GSM

I. INTRODUCTION

This system of face detection and authentication plays an important role in many security systems. However, the vulnerability to attacks from authorized person limits its usability in unsupervised applications. Here whenever the unauthorized person access the system the system will take that person photo and save it into the database at the same time it will send the message by using GSM module. System will also take a number of images of each person to create our own database by using webcam. In these images, Viola-Jones algorithm is used for face detection and then these images have been standardized and obtained our own database. The face recognition system is a computer application that can recognize or check a person from the digital image or video stream from a video source by comparing the selected facial features. Face detection and recognition systems are one of the popular studies in the field of image analysis and computer vision system.

II. EXISTING SYSTEM

In modern world, communication techniques have been integrated into car security systems. At the same time, the amount of cars lost still remains high. Previous techniques are sensor based systems, alarm and physical key systems. Sensor based security systems rely on many sensors and cost a lot. When one car is really lost, no more feedback could be valid to help people to find it back. No information to the owner if car got Lost about the car position in the alarm and physical key systems. Communication techniques using transmitters also fail to give complete information and also some systems uses Bluetooth, mails also cannot give information about the thief face and similar details. Some systems with face detection system will not have the password facility to allow other persons to drive the car.

III. PROPOSED SYSTEM.

The A GSM-based vehicle anti-theft system development is designed and developed to improve the performance of the current vehicle security system. SMS is a good choice of the communication to replace the conventional alarm, because it can be done and does not require much cost and Password Based Door Lock System is designed using ARDUINO UNO where in once the correct code or password is entered, the door is opened and the concerned person is allowed access to the secured area.

These methods are a combination of mechanical and electronic devices and are highly intelligent. One of the distinct features of these intelligent lock systems is their simplicity and high efficiency.

In this system, we have Arduino UNO microcontroller (ATMega328P) which acts as brain of the system and the entire system program is stored in it. Here, we have a web camera and is connected to PC which is installed with MATLAB software. All the authorized member images are stored in database. If the face of a person is matched with any one image of the database, through RS232 and a signal is given to the controller. If the image is not matched then, alternatively they have the option of typing a password in Keypad, if either the face matching is done or the entered Password matches then, the LCD displays that it is an authorized person. If both options fail then through GSM the message is sent to the owner of the car that someone is trying to break-in the car.

IV. BASICS USING MATLAB

MATLAB is a high-level interactive language, which enables fast development and execution. Using MATLAB you can program and develop algorithms faster than with traditional languages because you do not need to perform low-level administrative tasks, such as declaring variables, specifying data types, and allocating memory. In many cases, MATLAB eliminates the need for the 'for' loops. As a result, one line of MATLAB code can often replace several lines of C or C++ code.

A vector in MATLAB is defined as an array which has only one dimension with vectors which don't make a lot of sense with other arrays such as matrices. However, since a vector is a special case of a matrix, any matrix functions can also be performed on vectors as well provided that the operation makes sense mathematically (for instance, you can matrix- multiply a vertical and a horizontal vector). This section focuses on the operations that can only be performed with vectors.

Declare vectors as if they were normal arrays, all dimensions except for one must have length 1. It does not matter if the array is vertical or horizontal. For instance, both of the following are vectors:

```
>> Horizontal = [1, 2, 3];
```

```
>> Vertical = [4; 5; 6];
```

Functions

MATLAB allows you create variables on the fly. To create a variable just use it on the left hand side of an equal sign. The following examples show how to assign values to three variables, x, y and z. It also shows the MATLAB response to the assignment statements.

Image Recognition

Image Recognition consists of three parts database, feature extraction and classification. Database consists of set of known faces. Feature extraction means calculating the Eigen values and Eigen vectors. Classification means comparing the Eigen values of database images with new image.

V. PROJECT FLOWCHART

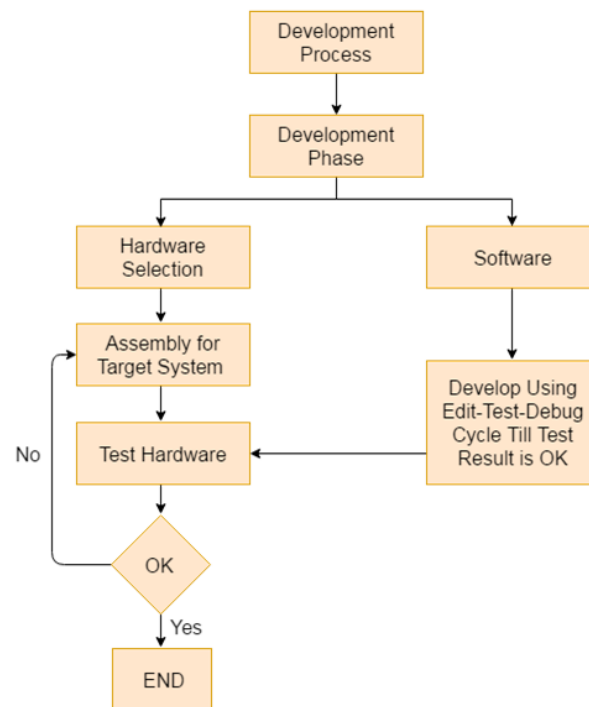


Fig. 1: Project Flowchart

VI. EXPERIMENTAL RESULTS

Experiments are performed on gray scale images to verify the proposed method. These images size is 640 x 480. The following images show the experiment outputs.

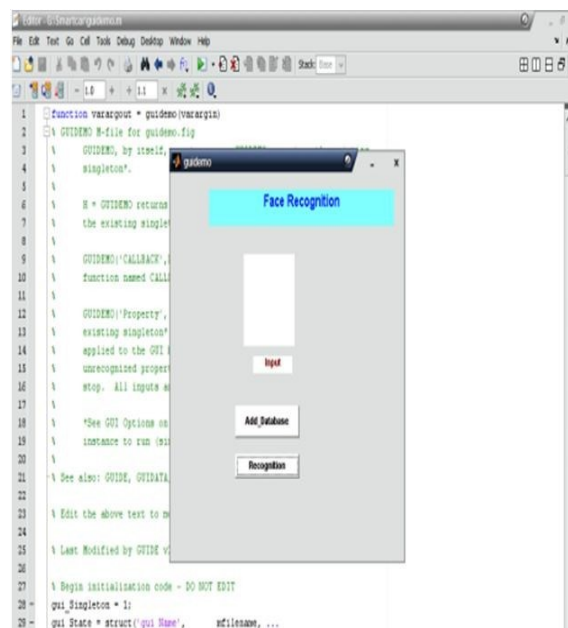


Fig. 2: The first screenshot when code runs

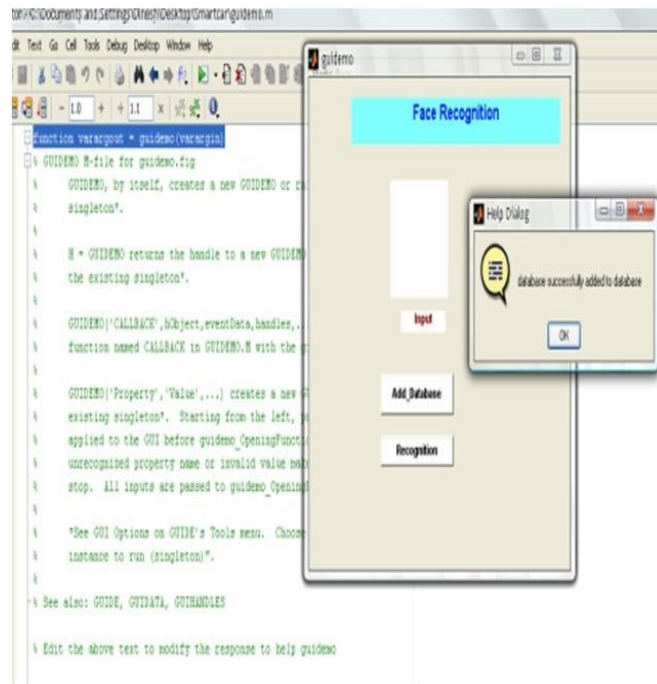


Fig. 3: Once the database is added

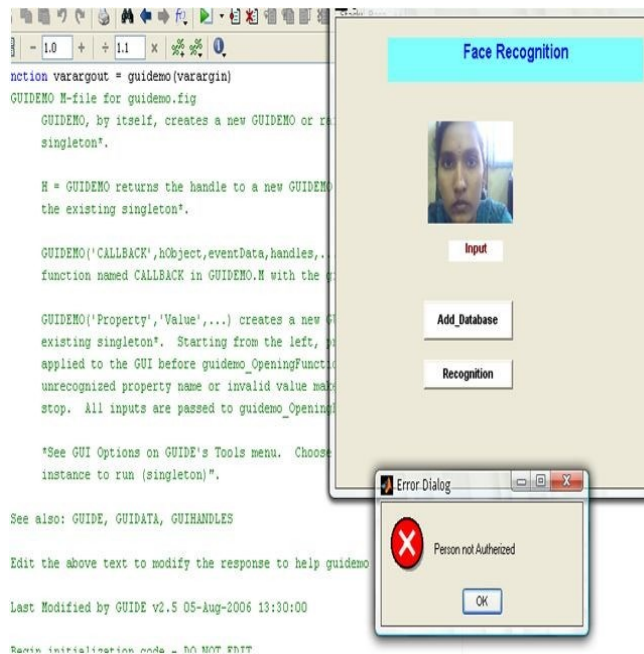


Fig. 4: Image when person is not authorized

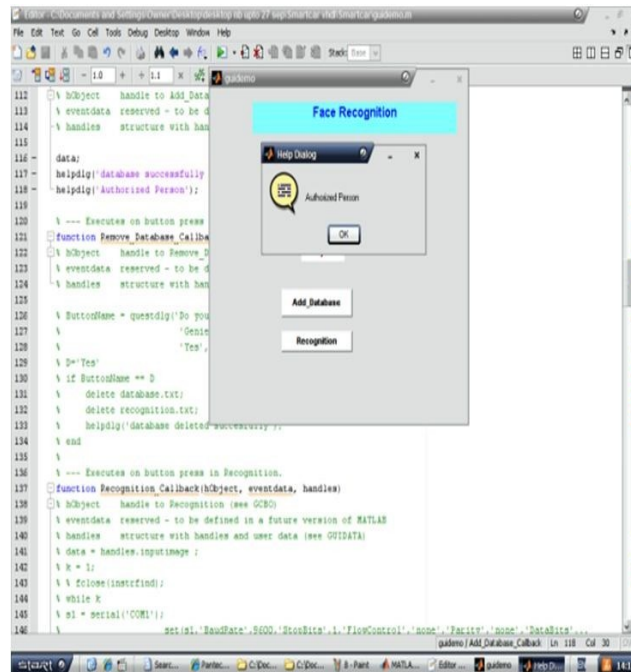


Fig. 5: Face Recognition Output

In this study, programs were implemented for face detection using the Viola-Jones algorithm, creating our own database of faces and recognizing faces utilizing the correlation based method in MATLAB package. The system takes the input image of the face from the camera and recognizes it from the training set. Recognition is carried out by finding the difference in comparisons of correlation between the input image and our own database.

The experiments have been carried out with different test images to find the minimum average distance from different minimum distances of test images of each person by using statistical data processing method. All experiments were simulated using MATLAB and the results of the comparisons are presented in this paper. In future, with more time and with more comprehensive research the proposed system can be made more accurate.

Also new face detection algorithms can be added so as to give the better identification of faces. A face recognition system is a computer application for automatically identifying or verifying a person from a digital image or a video frame from a video source. It is typically used in security systems and can be compared to other biometrics such as fingerprint or eye iris recognition systems. It is typically used in security systems and can be compared to other biometrics such as fingerprint or eye iris recognition systems.

VII. CONCLUSION

This project implements a secure and safe system for cars. Face is the most important biometric and as we are recognizing the face with its features security is high in these systems. By using face recognition we can get the intruder image as well as location, so we can easily find the car. It can also be used for home safety and banking related security applications.

VIII. REFERENCES

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