A review of Face Recognition Based Car Ignition and Security System

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Abstract - *A vehicle key is the only way to start the car or to provide ignition to the engine. The face recognition based car ignition system literally replaces the car ignition by replacing the key with specific user face. While dealing with the topic the objective arises is the achievement of luxurious features and the safety concern, which can be achieved by means of the automotive electronics. In this paper, we are proposing facial recognition system by embedding face detection and face tracking system algorithm found in MATLAB with use of Raspberry pi B. The option of facial recognition and detection have been taken into consideration just because it is widely used in the interactive user interface and plays a crucial role in computer vision. There is a strong need for robust and efficient face detection algorithm.*

***Key Words*: Ignition, automotive electronics, face recognition, MATLAB, Raspberry pi B, computer vision.**

1. INTRODUCTION

With the knowledge and applications of large amount embedded techniques, car security program study and analyses are consistently improving. Many trendy techniques, a well-known as biometric passport campaign, perception processing technique, communication technique thus, have been entire into car security systems. At the same anticipate, the approach to the cars remains valuable. So, one efficient car security program should be sensible, competent and reliable. So to prohibit vehicles stealing from thieves, owners of the automobiles are facing towards technology as an anti-robbery system.

There are heaps of anti-theft systems ready to be drawn in the complete market. However, the price camp on the doorstep of such anti-theft system is low expensive. In this business, we confirm a prototype of a real anticipates anti-theft system which can be doubtless implemented by automobile owners worldwide. This prototype uses a Microcontroller and GSM service.
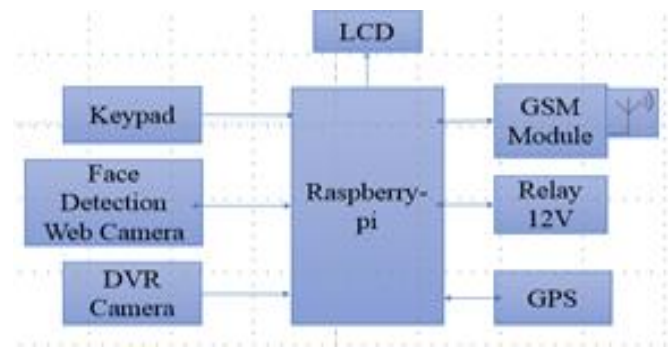

Figure. The architecture of face recognition based car ignition system.

Detecting faces in images is a fundamental task for realizing surveillance systems or intelligent vision-based human computer interaction [1]. To build flexible systems that work in a variety of lighting conditions and run on mobile phones or handheld PCs, robust and efficient face detection algorithms are required. Appearance-based methods are mainly employed to achieve high detection accuracy.

After image face recognition, which has been researched for years, the research on the video-based face detection and recognition can be considered as the continuation and extension and some good results have been reported. For example, the well-known methods such as Principal Component Analysis, Linear Discriminant Analysis, Hausdorff distance measure for face recognition, Elastic Graph Matching, eigenspace-based face recognition, a novel hybrid neural and dual eigenspaces methods for face recognition, eigenspaces, and Fisher faces methods. In order to capture the face image accurately, many face detection methods have been proposed, such as discriminating feature analysis and Support Vector Machine (SVM) classifier for face detection, face detection in color images based on the fuzzy theory, neural network-based face detection. Face color information is an important feature in the face detection. In reference, the latest survey of skin-color modeling and detection methods was presented. Statistical color modules with application to skin detection were reported in reference. For face detection, the quantized skin color regions were given in the reference. The eye is another important feature for face detection and recognition process.

2. METHODOLOGY

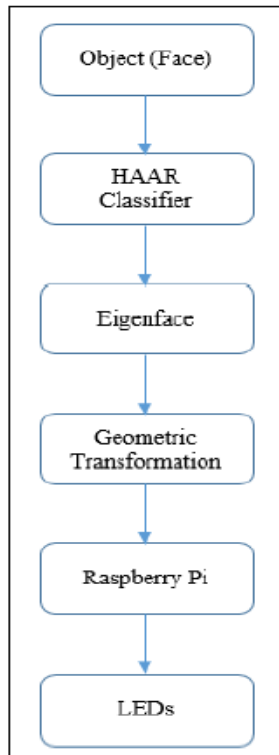A typical stepwise flow for the aforementioned system is as follows:

Figure: System flow

In this paper mainly the use of Haar-like feature has been used to detect and recognize the face of the authenticated user so as to achieve the secure environment for ignition and accessing the car a typical rectangular haar-like feature can be shown as follows:
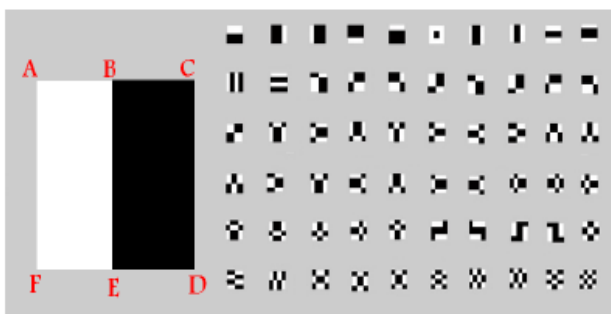

Figure: Rectangular haar like feature

3. CONCLUSIONS

In this paper the main objective of car ignition in secure environment is associated with the face of an individual, in further the research on gesture identification and control is taken into account.

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