



# RASPBERRY PI BASED VEHICLE ANTI-THEFT SYSTEM BY FACE RECOGNITION

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**Abstract-** Now day's vehicles are stolen by the criminals. The mechanical key based lock is not so safe in the present vehicle systems. If someone gets the vehicles key he can easily have the access to the engine of the vehicle. To protect the vehicle from being stolen, the present key based security system has to be replaced with new face detection based system. The main aim of this project is to make the use of face recognition technique for vehicle engine, as opposed to the current method of using keys and if the driver consumes alcohol, then the vehicle cannot start. Face recognition is a new technique which is rapidly increasing, interesting area in real world. The face recognition methodology enables face recognition of the authorized users of the vehicle to be enrolled in the records. Before any user can access the vehicle, the image of his face is checked with the faces in the database. The driver with no match in the database is not allowed to accessing the vehicle also SMS, mail and buzzer alert give immediately This is implemented on "Raspberry Pi" micro-controller and this is very low cost system.

**KEYWORDS:** FACE RECOGNITION, VEHICLE ,USER , ALERT, IMAGE , DATABASE

## I. INTRODUCTION

The current security authentication system for cars using a face recognition structure is explained below, in this embedded car security system, FDS (Face Detection System) is used to detect the driver's face and compare it to the specified face For example, if someone steals a car while the owner is sleeping, FDS gets photographs using a small web camera that may easily be disguised in somewhere in the car. If the received image does not match the predetermined images, FDS sends the information to the owner via the automobile and its navigation system, speed can be displayed to the owner through SMS. As a result, the owner may identify the thief's image as well as the car's location by using the system. Even though there are a variety of security systems on the market today that consume a lot of electricity, the robbery rate is still relatively high. We propose a novel system to prevent robbery in high-security areas while using less energy. Face recognition technology is used in this system, allowing only authorized people to enter the area. When individuals gain access to the facility without permission through other ways, the system notifies security personnel and transmits the video acquired by the security camera. The PCA algorithm is used to recognize faces.

## II. PROPOSED ALGORITHM

The Importance of Anti Theft system is to improve the security system by utilizing advanced Face recognition system to protect the vehicle from Theft. This system is powered by Raspberry pi circuit. Raspberry Pi electronic board is operated on power supply, wireless internet connectivity by using USB modem, it includes camera, alcohol sensor, buzzer, GSM, LCD and a relay with motor. Whenever the person comes in front of the door, it recognizes the face and if it is registered then it unlocks the door, if the face is not registered it will raise an alarm and clicks a picture and send registered mail id and send SMS to registered mobile number through GSM modem and one more feature has included that is if driver consume the alcohol then vehicle cannot start also send SMS to registered mobile number. This is how the system works. The face recognition methodology enables face recognition of the authorized users of the vehicle to be enrolled in the records. Before any user can access the vehicle, the image of his face is checked with the faces in the database. The driver with no match in the database is not allowed from accessing the vehicle also SMS, mail and buzzer alert give immediately This is implemented on “Raspberry Pi” micro-controller and this is very low cost system. One more proposed system is if the driver has consumed alcohol then vehicle cannot start.

## BLOCK DIAGRAM

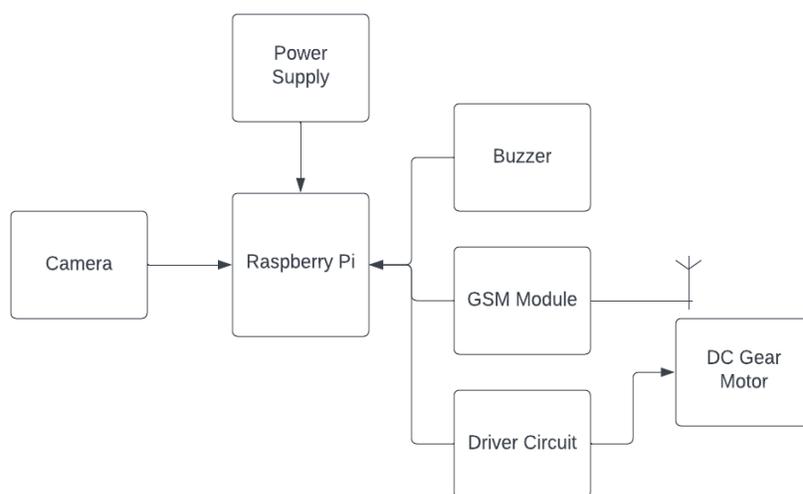


Fig 1. Block Diagram

## III. EXPERIMENT AND RESULT

The software used for experimenting with our test data and inputs is Proteus 8 Professional . We have experimented with 2 different circuits : one with keypad sensor for demonstrating with the anti-theft lock mechanism which locks out unauthorized users and another one is drunk detection circuit which detects if the user is drunk or not. The simulation is made with the help of using various Proteus libraries gathered from various sources on the Internet . Some libraries include Arduino libraries , Electrical component libraries etc. Various features of Proteus software were also used to achieve the possible output.

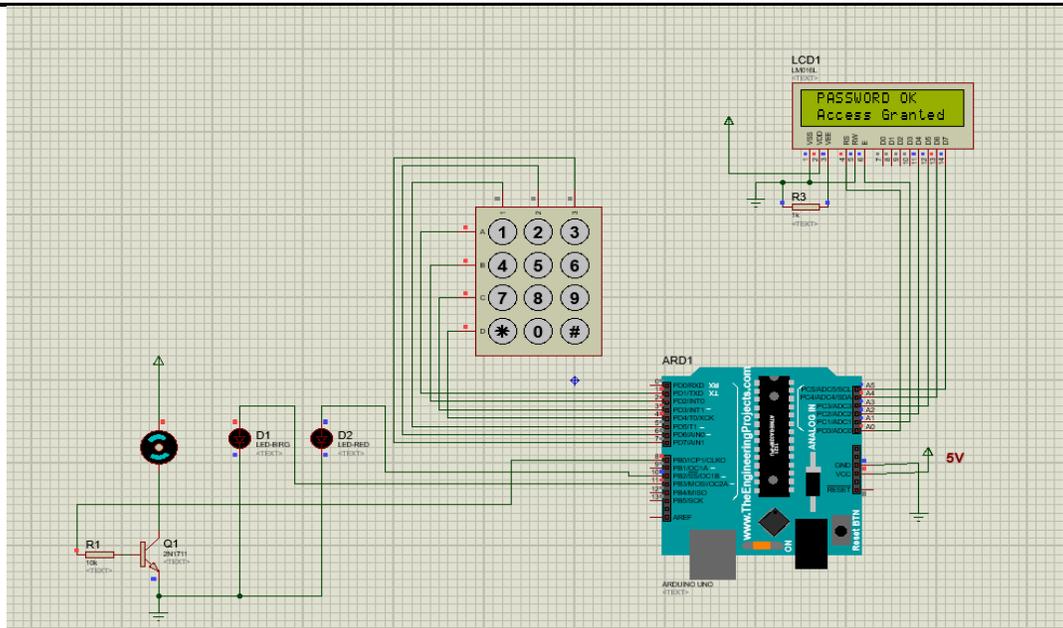


Fig 2. Keypad lock simulation when password is entered correctly

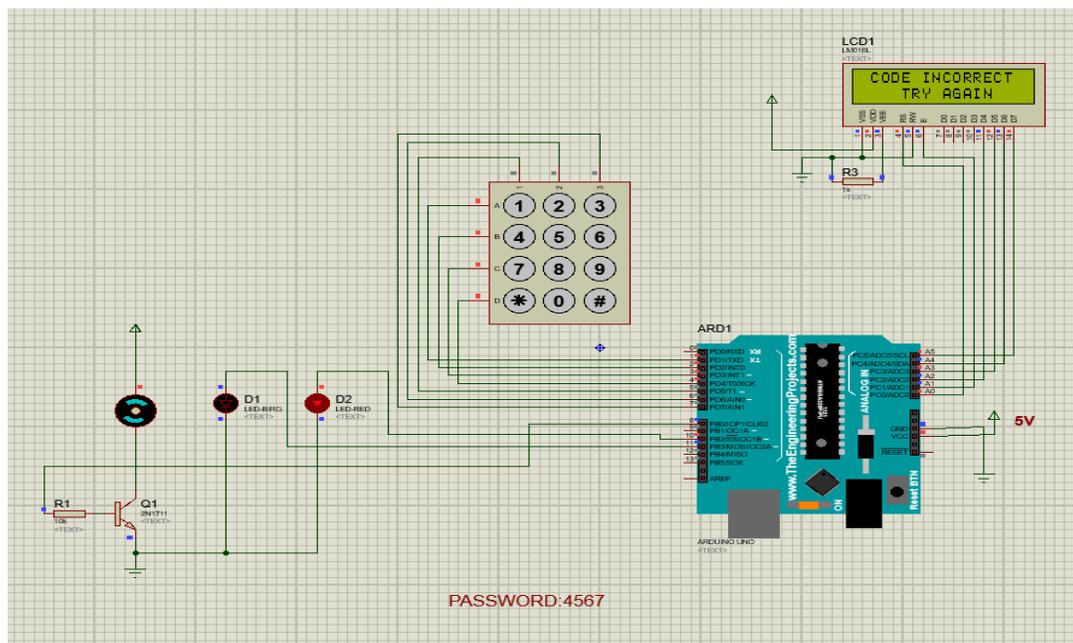


Fig 3. Keypad lock simulation when password is entered incorrectly , thus rejecting user access

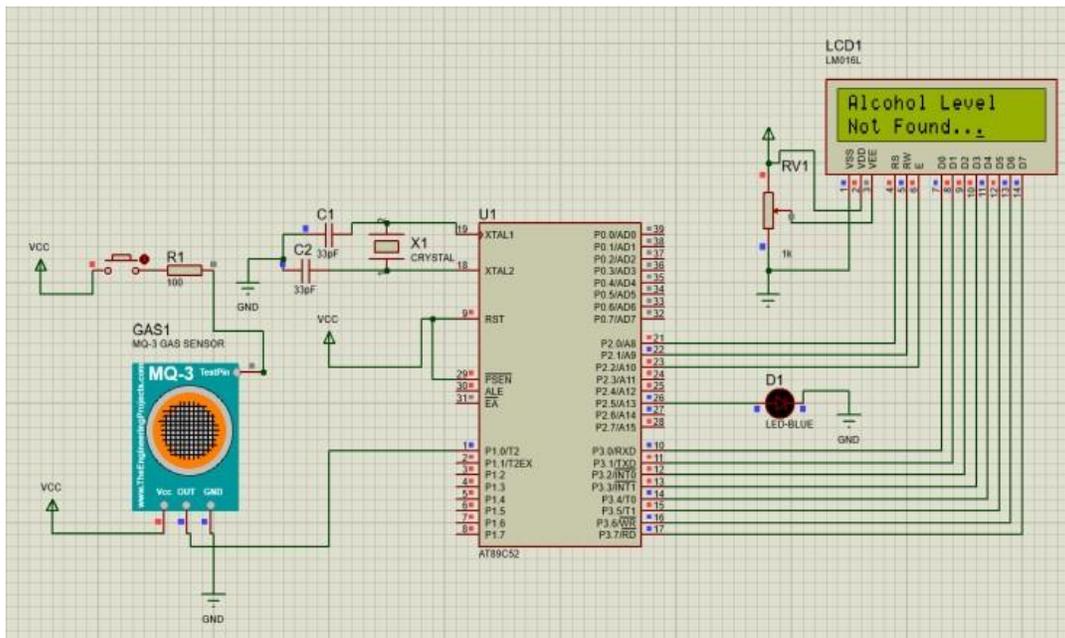


Fig 4. Drunk detection simulation when Alcohol is not detected

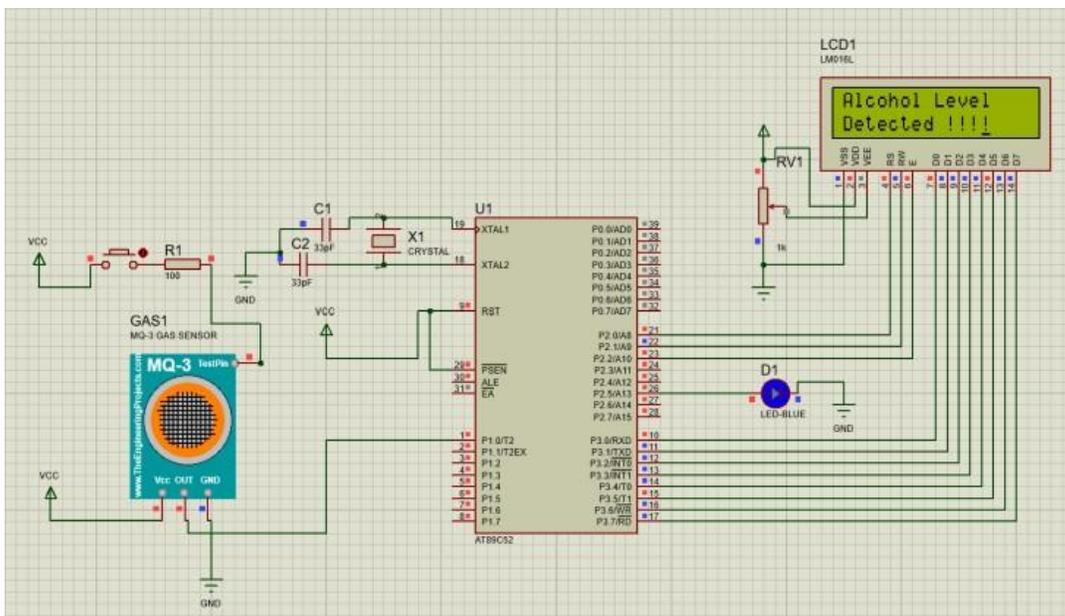


Fig 5. Drunk detection simulation when Alcohol is detected

#### IV.CONCLUSION

In this project , we have proposed the idea of the Anti - Theft System utilizing Face Recognition and Commands. The framework capable can precisely identify and perceive the face ,and illuminating the proprietor/administrator about the client name and taking the order from the proprietor. The proprietor can remotely get to the entryway from some other area. The carried framework is moderate expense, with the goal that it is a reasonable for a middle salaried individual.

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