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REAL TIME VEHICLE PROTECTION SYSTEM USING RASPBERRY-PI

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ABSTRACT

This is an advanced system which can be utilized in many cars. Today, it is not difficult to make duplicates of vehicle keys and using such keys increases the risk of robbery. For such problems, we hereby propose an efficient and reliable solution. Our system uses face recognition system to identify the authorized users of the vehicles and only the authorized users are allowed to use the vehicle. This allows for a fast easy to use authentication system. System uses raspberry pi circuit, it consists of an LCD display, a motor, and a buzzer alarm, it also consists of a camera. When we turn on the system authority provided by 3 options that is Registration, start and clear data, while registering, it first scans the owner's Face. After successful registration, the owner can start the vehicle. To stop the vehicle, the owner needs to press the back command. If an unauthorized user tries to use the car, the system scans the person's face, and checks whether face matches with the authorized face, if it does not match the system denies and the buzzer starts. In this way system helps to secure such intelligent vehicles.

Keywords: LCD display, Motor, Buzzer, Raspberry pi and Camera.

I. INTRODUCTION

With the new modern era development of new technologies is a must be it in the management sector or in the technical sector. Improvements are necessary for every field. Regarding the project chosen in the field of vehicle security. Various techniques have been improved such as biometrics, retinal scanning, image processing. Apart from all the improvised techniques the theft of vehicle remains high to maintain the car security the system needs to be efficient, robust, and highly reliable so in this paper, the security system involving face detection using Raspberry Pi, FRS algorithm along with database which consist of images uploaded by the owner of vehicle. If the newly scanned image does not match with the image uploaded earlier to the database, the system will stop immediately. All the process here is controlled by programmed Raspberry Pi.

II. METHODOLOGY

The extendable real-time car security system comprises the protection of vehicles parked in parking with the help of an integrated unit of computer vision with a high-end Microprocessor. Face detection and recognition system use enhanced algorithms for authentication. Here we are using the latest raspberry pi3 Model B+ with a 64-bit 1.4GHz Quad-core Processor, with 1GB RAM. We have deployed a Pi camera with the proper interfacing of RPI Camera Raspberry pi. When any person will enter in a car the system will passively be active by the action of the opening door. And the camera will be activated. The camera deployed in the car in front of the appropriate driver seat will acquire the image of a person's face seating on the driver seat. Once the image of the person is acquired, the system now tries to detect the face.

III. MODELING AND ANALYSIS

A. Components Required

- Raspberry Pi
- Buzzer
- LCD Display
- DC Motor
- Camera
- PC

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- Rectifier

B. Procedure

1. Connect the Buzzer, Motor to the output pins of the Raspberry Pi.
2. Interface the camera to the input port of the Raspberry Pi.
3. Insert a Micro SD card into the raspberry pi slot to import the os and to run the programs.
4. LCD display is to be interfaced to the digital pins of the Raspberry Pi.
5. To provide the power supply connect the Raspberry Pi to the PC/Modem.

C. Circuit Diagram

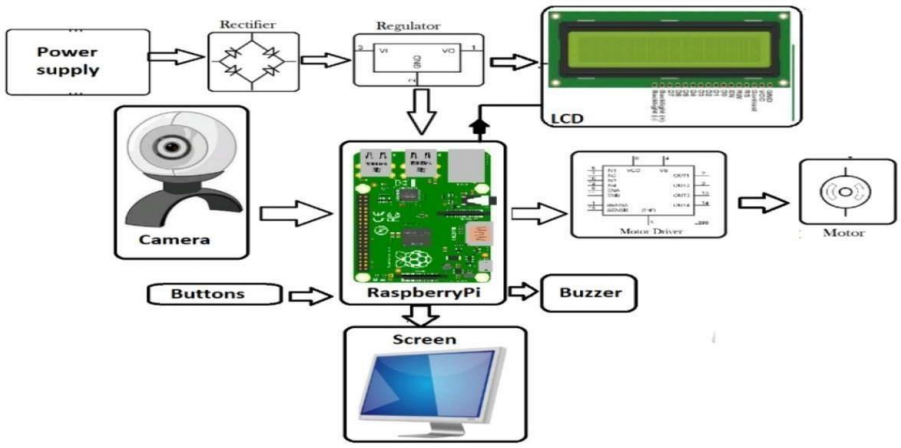

Figure 1: Circuit Diagram

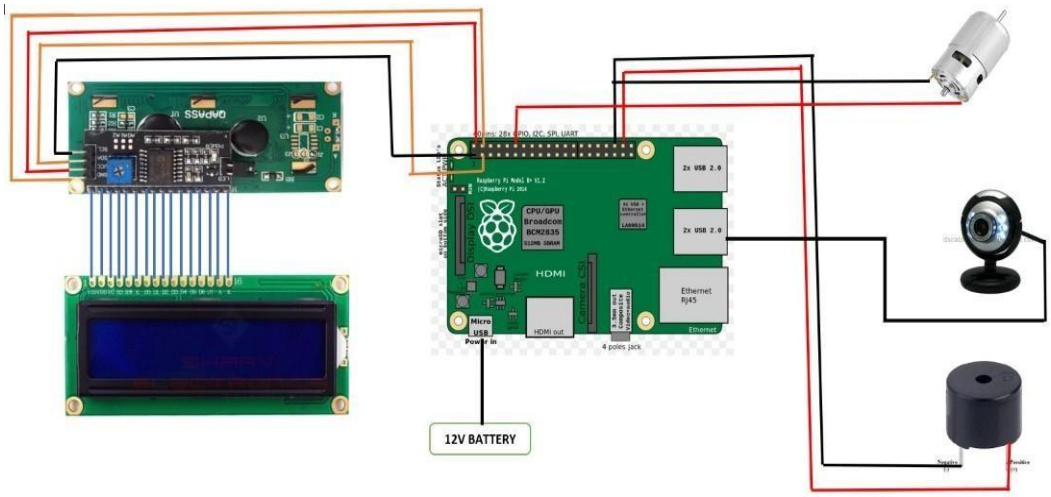

Figure 2: Schematic Diagram

D. Working

1. Our system uses face recognition system to identify the authorized users of the vehicles and only the authorized users are allowed to use the vehicle.
2. System uses raspberry pi circuit, it connects of 16*2 LCD display, a motor and buzzer, it also consists of a camera.
3. When we turn on the system authority provided by 3 options that is registration, start and clear data, while registering it first scans the owner's face.
4. After successful registration, the owner can start the vehicle. To stop the vehicle the owner needs to press the back command. In this way system helps to secure such vehicles.
5. If an unauthorized user tries to use the car, the system scans the person's face and checks whether

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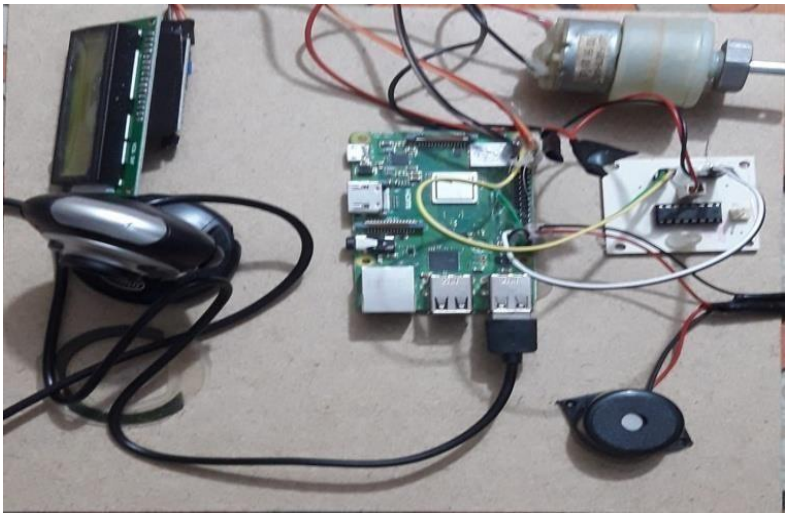

Figure 3: Working Model

IV. CONCLUSION

A Real Time Vehicle Protection System Using Raspberry-Pi is the best solution to protect the vehicles in busy era. It is just an approach of taking advantages of modern technology which has no effect on daily activities of peoples. Since technology has been developed greatly, it can contribute to the society in various ways. Real Time Vehicle Protection System Using Raspberry-Pi is the best example where working people have a lot of workloads already and they must take care of their vehicles as well. Real Time Vehicle Protection System Using Raspberry-Pi assures them that their vehicle is safe and secure.

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