



FINGER PRINT VEHICLE STARTER

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Abstract — Vehicle Security is an important issue these days due to the rising number of vehicle thefts. Also one more issue with vehicles is handling its keys. Keys need to be carried and misplacing keys or losing them will cause a serious issue. Here we propose a solution to this problem by using a fingerprint authenticated vehicle starter system, the system provides a secure and hassle freeway to start/stop vehicle engine. User just needs to scan finger to start the car, no need to carry any key. The system only allows authorized users to start the vehicle. Users can first register into the system by scanning fingerprints. The system allows multiple users to register as authorized users. When into monitoring mode, the system checks for users to scan. On scanning, the system checks if user is authorized user and starts vehicle for authorized users only. Here we use an Atmega 328 Microcontroller.

The fingerprint sensor is connected to the Microcontroller and also we have an LCD display along with push buttons and starter motor. The motor is used to demonstrate a vehicle starter. This system automates as well as vehicle security using fingerprint based system.

Keywords - Fingerprint Sensor, LCD, microcontroller, Relay motor, scanner

I. INTRODUCTION

Vehicles have been used in one form or other since the invention of wheel. With the invention of wheel, came in the 2nd most advanced technology, The Steam Engine. With the development of steam engine vehicle took the form of what we see today. In earlier times crank shaft mechanism were used to ignite the vehicles. Leaving that conventional method behind came in the concept of igniting the vehicles using key. And now, Keys are being replaced by Push start buttons. This project was started with the sole purpose of eliminating keys as conventional method of starting the vehicle. In the 18th century it was used to verify the employees working for the British Empire. Since then Biometrics has taken its toll. Biometrics is formed from the Greek words 'Bio' and 'Metrics' where 'Bio' means 'life' and 'Metrics' means 'to measure'. The four major methods used in Biometrics are: Palm, Fingerprint, Iris, Voice, Face etc.

There are many more methods, but these four are the most important. Biometrics are used in Schools, Banks, Colleges, and Universities etc. One of the growing industries is the automotive industry. One of the first companies to introduce finger print recognition in cars was Mercedes, which was then followed by Volkswagen. But now a days almost all the car makers are implementing Biometric based security. Fingerprint sensors are quite cheap in comparison to other Biometric sensors. And they are relatively easier to maintain also. The reason for going into biometrics is that its chances of being duplicated are very less. There two main purpose for this project. First being the eliminating the use of key completely for igniting the vehicle. Furthermore even the entry into the car can be done without the use of keys by using a technology called RFID (Radio Frequency Identification). The second purpose is to cut the cost for this technology that only the premium car makers are imposing in the market. This can work can work with any four wheeler vehicle. This project has been simplified to such an extent that it can also be implemented in two wheelers as well

II. LITERATURE SURVEY

The existing systems to provide security to the vehicles consists of alarm or buzzer when any intruder is located. The existing systems just can track the vehicle or inform the owner. Our system does not allow any unauthorized person to start the vehicle. Thus, it is more reliable and more security can be provided. The paper titled "Fingerprint Recognition-Based Access Controlling System for Automobiles" proposes the system for vehicle security. The fingerprint of owner is used as key for authorization. Thus the system is proposed to overcome all the drawbacks of existing systems. In this

project the hardware and the software both play an equal and an important role rather than using the Conventional methods to start the vehicle, a new method is used to start the vehicle. Fingerprint of the owner of the vehicle can start the vehicle. Rather than using the key of the car to start the vehicle fingerprint is used to ignite, since fingers can't be duplicated. The 16 bit AVR microcontroller is used which is the center of the User Authentication and the Vehicle Ignition. The Fingerprint sensors take in the Fingerprint of the user which in turns sends the signals to the microcontroller.

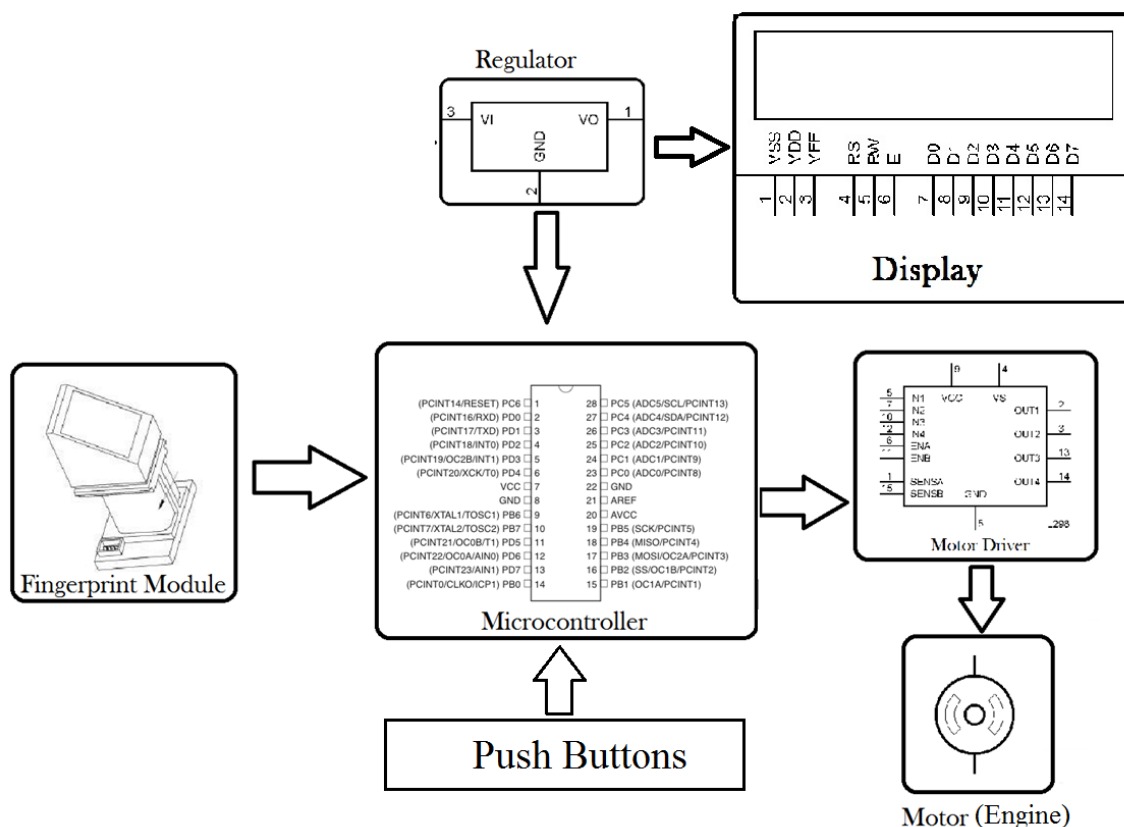
The microcontroller then matches the scanned fingerprint with the ones that are stored in its database. Once the fingerprint is matched, the microcontroller then sends the desired signal to the vehicle after which the user can start the vehicle. Fingerprints can be added or deleted as per the users' convenience. Since the microcontroller has a little bit of flash memory available, the fingerprints can be stored in it. Three buttons are present which A GSM module is also used which also plays an important role.

Whenever a non-authenticated person tries to scan his fingerprint, a message is sent to all the registered users. Since the vehicle will not start without the fingerprint. The vehicle needs to have Fingerprints saved off all the users who are going to drive the vehicle. An LCD display is also used which would display the status whether the fingerprints are being added, deleted or a successful authentication. The Figure shown below represents the circuit diagram of the system which comprises of the connectivity with the sensors, LCD and power supply, Ignition system, GSM Module. Providing Power Supply is also one of the major factor. Since, All the hardware used operate on +5V supply and the supply that we get in the car is a +12V DC. Hence, An additional IC has been used to control the flow of power supply, so that the hardware's don't burn up.

III .PROPOSED SYSTEM

- The system will be used to prevent the unauthorized person to start the vehicle.
- The persons whose fingerprints will be registered by the owner can only start the vehicle.
- The system is compact and can be fitted on the vehicle.
- The owner gets notification if someone forcefully tries to start the vehicle.
- User can register his family members so that more than one person can access the.

IV.SYSTEM DESIGN



V ADVANTAGES

- Low power consumption, low cost, small size, excellent performance
- Provides high security to the vehicle.
- No need to carry any card or password.
- User friendly and small in size.

VI CONCLUSION

This paper mainly focuses on the ignition of vehicle using sensors, which would provide ease to users in different circumstances, such as in case they forget the keys inside the vehicle or at the other current place. The use of fingerprint sensors provides the authentication to valid and registered users. There are many improvements or functionalities that could be added on to the current version of this system to make it more efficient in terms of security and portability. The vehicle ignition is highly affected in case the registered user finger is defaced or defected or colored, the system won't allow the user to ignite the vehicle. Thus the system provides a robust method to provide security to our vehicle. The system uses biometrics of the owner to provide security. Addition of more functionality would make it useful to be applied in other domains also.

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