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IGNITION OF ENGINE BY USING FINGERPRINT

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Abstract

Fingerprint for the bike starter is introduced for the two wheeler security. Now a days the bike theft is happening everywhere. So, this technology has been introduced where each person will be having the separate fingerprint authentication. By adding this technology easily reduce the theft cases. The main use of the fingerprint is to be free from keys for the bikes and can avoid the duplication of keys. If any intruder try to access the bike the respective owner will be alarmed fixed to the biometric device. The fingerprint system provides more security than the usage of keys.

Keyword: Fingerprints, security, Biometric, Ignition system, Vehical anti-theft.

Introduction: First process includes the checking of fingerprint in biometric scanner. Next process includes authentication and it will check the database for the access. If it is authenticated it will start the ignition or alarm is triggered which is fixed to biometric device. The main use of use of biometrics are to providing the security for the two wheelers.

Biometrics can include face recognition, voice recognition, fingerprint recognition, eye (iris) recognition. Compare to the all recognition, fingerprint recognition is the low cost. Now a days, for all the security purpose in offices, atm, banks and etc using fingerprint authentication. Fingerprint scanner is connected to the module which is fixed in the biometrics and it is connected to the ignition system. While we touches the biometric scanner it scans with existing one and if it is accessed, the engine will start.

The main focus of this paper is to develop anti-theft system in two wheeler. Thus we have developed fingerprint authentication for the two wheeler starter. The Fingerprint of the owner and other authorized persons are stored into the database and at the time of starting engine of the vehicle, scanned fingerprints are being crosschecked with database.

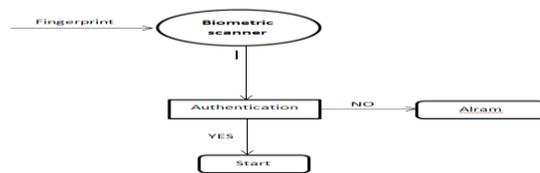


Fig 1: Authentication flow chat.

Literature Review:

Ignition Based on Fingerprint Recognition:

Fingerprint Identification enhances the security of a vehical and makes it possible only for some selected people to start the vehical. Not every person with the key will be able to start the bike. There will be matching of the person’s data with the stored one and only in the case of match the bike will start otherwise not. Thus by implementing this relatively cheap and easily available system on a vehicle one can ensure much greater security and exclusivity than that offered by a conventional lock and key. The thief would have to do a great deal of homework to steal the bike, and it is unlikely that they have the fingerprint technology needed to fake your fingerprint.

Development of Fingerprint Engine Starter

The researchers have several conclusions and observations during the development of the Fingerprint Engine Starter among which are the following The existing Electric Engine Starter still has more rooms for improvement.The developed Fingerprint Engine Starter is a better alternative to the existing Electric Engine Starter. There is significant difference in the over-all acceptance of the respondents of the existing starter system and the developed starter system.

Start-Up the Engine Using Fingerprint

Fingerprint Recognition was the first biometric approach to verify the person by downloading the images of sample in the database. The image is first analyzed and then identified, extracted and stored the images in the file of database. For the identification process, first it compare the query image against with the image stored in the database and then it verified. From the above result, it has been cleared that the use of the biometric system offers the better and more reliable resultant. Moreover, it is restricting the starting of the vehicles by unauthorized user. Only the fingerprint image verified has this ability to access the engine of the vehicle.

A Prototype of Fingerprint Based Ignition in Vehicles

The prototype of a fingerprint based ignition system developed has a specific sequence that must be followed before it can be used to ignite a vehicle. Basically, the fingerprint recognition software must be first initialized before

fingerprint images can be loaded from a file of sample images. The last acquired fingerprint image is then analyzed and its minutiae identified, extracted and stored as a template. The next step involves either enrolling the template or matching the template with other templates. The enrollment process button saves the last extracted template into the database. The identity number of the enrolled template is displayed in the log window. The identification process compares the query template against reference templates in a database. For verification, the identity number of the reference template to be matched with the query template must be supplied.

Fingerprint Base Ignition System

Thus fingerprint identification enhances the security of a vehicle and makes it possible only for some selected people to start the car. Thus by implementing this relatively cheap and easily available system on a car one can ensure much greater security and exclusivity than that offered by a conventional lock and key. In actual case a success would initiate a trigger in the spark plug. But due to limitation in initiating a spark plug and due to safety reason a prototype has been developed here. The output can be seen using an LED.

Description

Finger print based security system can be used at many places like Industries, Offices, and Colleges or even at our home. This project is a fine combination of Biometrics technology and Embedded system technology. Fingerprint sensor is the main part of this system. It makes use of Biometric sensor to detect fingerprint. It is also called as Biometric sensor. Fingerprint sensor uses various types of techniques like ultrasonic method, optical method or thermal technique. In this project we have used optical fingerprint sensor. Main blocks of this project are Microcontroller, Fingerprint module, Buzzer, Relay, Keypad, LCD display and Motor. User has to place his/her finger on the optical sensor part of fingerprint module. We have seen Password based security system RFID based security system. The main feature or speciality of fingerprint is that it is unique. It gives this project the high level security than other security systems. Person recognition using the Fingerprint identification is used since a long time. Most common example is use in the criminal cases.

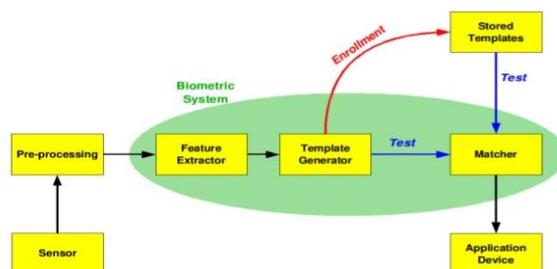


Fig 2: Fingerprint Module.

To operate this project first we have to operate this project in setting mode or admin mode. In this mode we have to enter data into the database of finger print sensor, for this we have to take impressions of fingerprints of that person whom we want to give access to our security system. This can be done once or whenever a new entry has to be added in the system. In this mode the system compares the fingerprint input received at its optical plate with the previously stored fingerprint from its flash memory. If the entry matches with the memory then it gives out ok signal along with the identity number of that person. But if the entry does not match with the memory then it gives out error signal. The output received from fingerprint sensor is given to the microcontroller. Microcontroller then compares these output data. Function of microcontroller is to turn on the respective device depending upon the input received. In case of OK signal from fingerprint module, microcontroller turns on Relay and a Motor. However if the error output is received then it turns on the Buzzer.

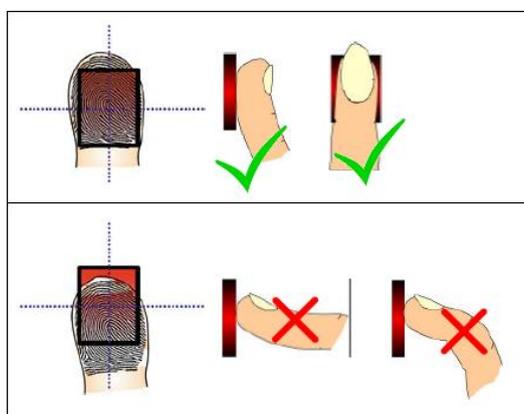


Fig 3: Correct Way to Keep Finger.

How Does Fingerprint Works

Fingerprint is a pattern made up of ridges and valleys on our fingertip skin. While storing the entry in database, scanner takes an image of these patterns and stores in its own memory. Then while performing search operation, it again takes pattern of fingerprint of that user who needs to gain access. This pattern is compared with all patterns previously stored in memory. In short it performs a task which is related to Digital image processing. It performs various iterations and executes matching algorithms and if it finds exact match then it gives out fingerprint ID number. Otherwise it gives out error

Applications:

1. Industrial application: *Fingerprint based security system* project can be used by the employees, staff or workers in various industries like Automobile industries, manufacturing industries, Software development companies.

2. Home or domestic application: This project can be used to automate the door locking process at our home, so the user need not to carry the door lock keys along with him, he can just use his/her finger to open the door
3. Bank Lockers or security safes: Many of the banks use key based or password based locks for their lockers or safes. We can implement Fingerprint based bank locker system using this project.

Advantages

1. Fingerprint based security system is most secured system as compared to other systems. Reason is that RFID card or Keys of lock can be stolen, password may be leaked. However thumbnail of every human being is unique, so lock will not open unless the same person is present to give the impression of fingerprint.
2. No need to carry the keys to open the lock. Or even there is no need to remember the password or any Pin number.
3. One of the main advantages is that this system remembers the stored password even if the power supply is turned off.
4. Scientific research and studies have proved that fingerprints do not change as you grow up.
5. Using Fingerprint saves time to gain access as compared to other methods like RFID card, Password or Key.

Conclusion:

The main motive of implementing the fingerprint sensor for the two wheelers is to provide the security for vehicles. It enhances the level of security for vehicles. As the unique finger impression is a promising biometric design for recognizing it is used in case of both security and usability. This technology easily reduces the theft cases.

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