CAR IGNITION SYSTEM WITH FINGER PRINT AND ALCOHOL DETECTOR

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Abstract

The model type is designed in a way that makes driving the car safer than before. The main function of the device is to prevent illegal drivers and reduce vehicle theft. The system is designed to recognize the biometrics of the approved user with the help of biometric recognition and interfaces with the Printed Circuit Board (PCB). If detected by an unauthorized person, the vehicle's ignition system will be turned off. The system will help increase passenger safety. The sensor will help increase or decrease the number of users driving by obtaining permission from the stored data. Fingerprint authentication application ensures the security of the driving and maintenance process. With userfriendly modifications, the concept module will be reliable and user-friendly. Can easily install some additional sensors or functions.

Keywords: Arduino uno, transportation security, fingerprint sensor

I. Introduction

Automobile use is becoming increasingly important everywhere; Vehicle safety and security is the most important thing for vehicle owners. Advances in vehicle technology are effective in preventing vehicle theft and detecting lost vehicles. They introduce some technologies from modern (nonbiometric) and modern (biometric) systems. Traditional protection methods are less reliable, less secure, and more likely to be hacked. Biometric systems are new technologies and technologies such as biometric fingerprint recognition, iris recognition and face recognition are becoming popular. Fingerprintbased vehicle drivers have great advantages for both designers and users. Understanding each step of authentication and verification is a seamless process. Human authentication is granular, critical, and changes over time. Fingerprinting is a similar method. Human fingerprints are a unique symbol for each person. Unique fingerprint humanizes the security of the planning process. The fingerprint identification process is divided into two types: identification and identification. Each person's fingerprint declares the person's identity through the above two processes (onetoone comparison). The fingerprint identification process is also divided into two types: detection and registration. It is very important to easily expand your data (from multiple to double). Recognition of the human body is done by comparing it with data stored over time. It is very easy to change the size of database management. Both types of fingerprint authentication have similar features such as more secure, efficient and userfriendly. Using the unique behavior of fingerprints to provide greater business benefits can also be used to ensure security and prevent theft in the automotive industry.

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II. Literature Review:

Omidiora E. O. and his colleagues developed a keyless car driver with the help of fingerprint recognition and replacement of keys with biometrics. Apart from all biometric-based unlocking systems, fingerprint-based vehicle unlocking systems are the most reliable and traditional. It also provides strong security mechanisms for various security embedded domains. The system has a fingerprint recognition module and a large data storage device. It will help in storing and remembering the user's fingerprint. If the fingerprint identifies the user, it automatically starts the car.Warghane et al showed that the model captures fingerprints and uses preliminary images to enhance the content. Preprocessed fingerprints were compared to archived data to create a map comparing the problem. Image enhancement is the most important thing to get more updates for better security and security lock mechanism. Their plans are time consuming and every finger long.Jaswant het others reveal that the fingerprint recognition module pays more for work and user interpretation. Fingerprint recognition is unique in that it can work in all weather conditions and even in low light conditions. A minimum number of nodes are required to be recognized, so many patterns can be stored.

Biometricsrecognition

Biometrics refers to people's personal identity and biological behavior. Unique human features such as fingers, palms, handprints, faces, retinas, irises and voice.
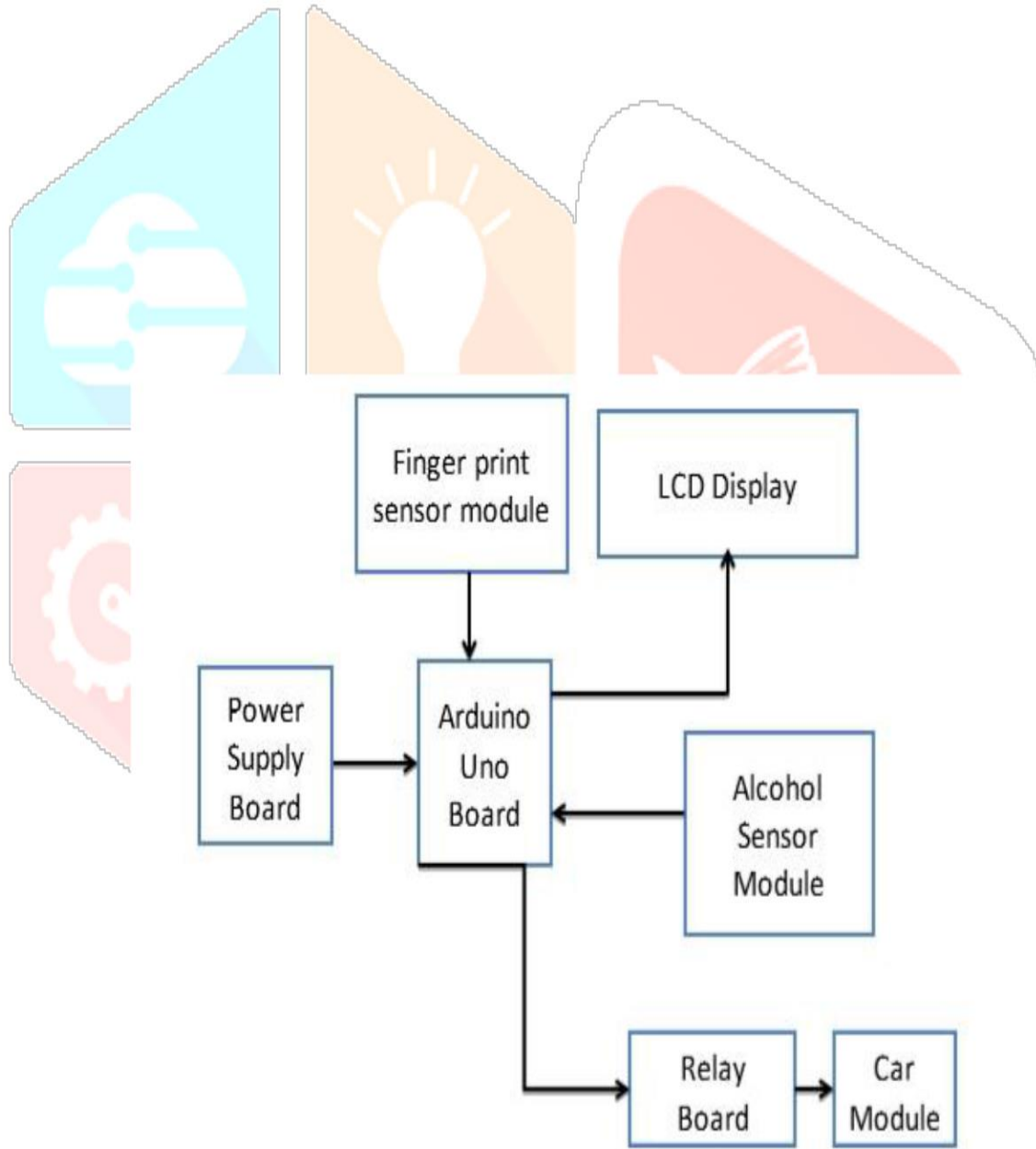
Fig 1: THE PROPOSED SYSTEM FOR BIOMETRIC RECOGNITION

Jain et al. Complete the process of recognizing each character for each person stored in the reference library
. It defines the relative and evaluates consistency each time it is calculated [5]. The block diagram above sh
ows how the fingerprint and alcohol sensors instantly receive data and give it to the vehicle module to ignit
e the vehicle, as shown in Figure 1.
< br>

Fingerprint Module:

Fingerprint acquisition module is a device connected serially to a communication port . R305 biometric fingerprint sensor connected to each Arduino microcontroller via MAX232 IC. Biometric fingerprint scanner can collect and compare fingerprints and offer products accordingly. Simple biometric fingerprint project using microcontroller is widely used in home security, forensics, crime investigation, facial recognition, time and attendance etc. can be used on topics. The entire process works within a comparison algorithm that identifies the user's fingerprints in real time from stored samples and provides similarity to the user's identity.

Registration:

Registration information is for identifying the user's fingerprint. The fingerprint sensor is required for two main functions such as fingerprint registration and fingerprint detection. Fingerprint registration means assigning an ID to each user's fingerprint. Once each fingerprint is registered you can easily "use" the sensor to find the current ID image.

Authentication:

Use the fingerprint sensor module to detect the current fingerprint and use the command to check whether the current fingerprint is present in the data [6]. It produces some conclusions after comparing and evaluating similar situations. If the vehicle needs ignition the comparison value should be better than system limited starting. If the ratio value is lower than the threshold, the cabin module should not be allowed to fire.

Identification;

Identification is the process or method of measuring the current fingerprint value and assigning this value as an identification number. Search for matching items in our database by ID number. If a match is found, it is stored for the host, otherwise the device is replaced and fails [7].

Working principle:

Provide 9V universal power supply to the system. The fingerprint sensor module, alcohol sensor and LCD screen are connected to the Arduino uno board through their configuration. Each sensor recognizes the environment and provides information to the process according to the nature of the sensor. The data received from the sensor depends on the program, what value is set as the threshold and the output of the Arduino to the vehicle module. When you put the matching finger on the finger sensor module, the car light suddenly turns on. In the following sections, we will discuss fingerprint evaluation based on the importance of some research.

IV. IMPLEMENTATION AND RESULTS

Fingerbased alcohol interface The vehicle has a complete alcohol and ignition system. The entire setup was designed to block two alcohol detectors. The car's ignition is controlled based on the results of alcohol and fingerprint sensors. The image below shows the full configuration of the hardware. At first, the user must blow near the breathalyzer; this can happen in two cases

Case 1: If alcohol is present, the user is prohibited from recording his fingerprint.

Situation 2: The user has breathless alcohol and can be fingerprinted. According to these two cases, when the user drinks alcohol, strictly speaking, the person refuses to accept fingerprint evidence. If the user does not consume alcohol, register fingerprints to prepare the system to capture fingerprints. The status of the fingerprint sensor for registering the fingerprint is indicated by the signal displayed on it, as shown in figure 3. The system will ask to register the fingerprint and display the message "Please place your finger" and welcome. When the user places his thumb on the fingerprint sensor, the sensor will attempt to authorize the person by comparing the placed fingerprint with the fingerprint stored in the database. There are two situations:

Fig 3: Case-1 Proper authentication of finger print: Fingerprint matches with the stored database and the user is allowed for accessing the vehicle. It is shown in fig 4.

Case2: In case the fingerprint placed doesnot matches the thumb print loaded in the system then the system will activatesaalarm, indicating the mismatch. It is shown in fig 4.

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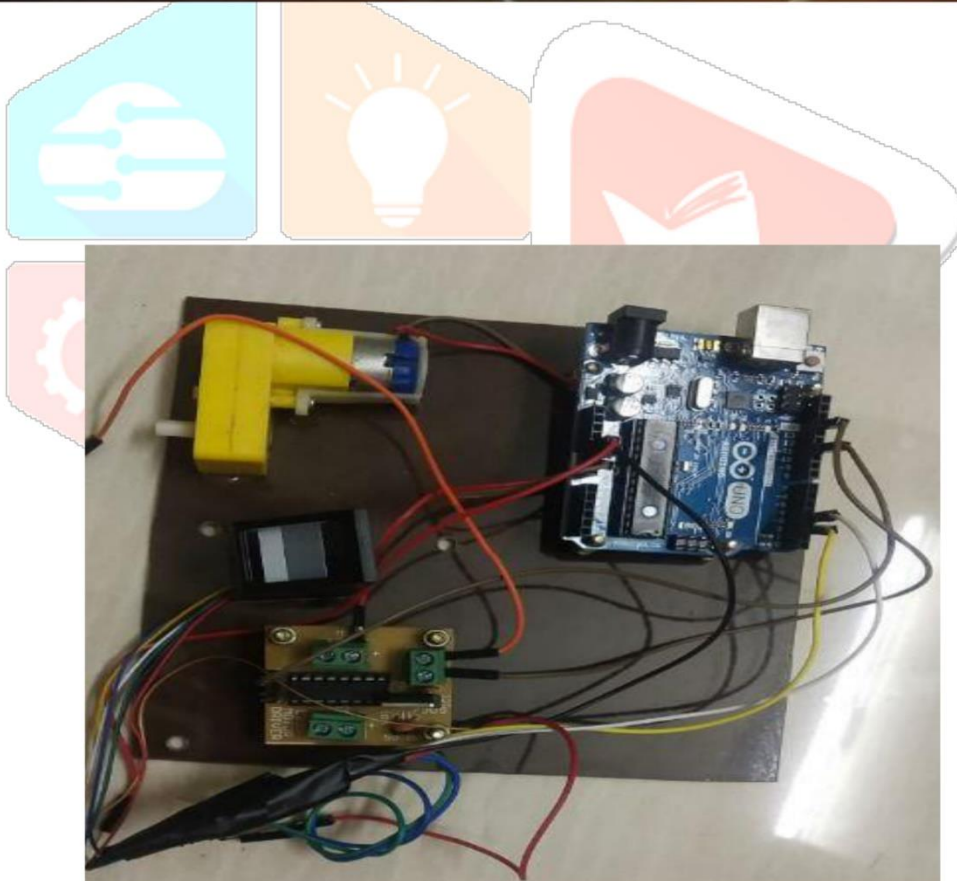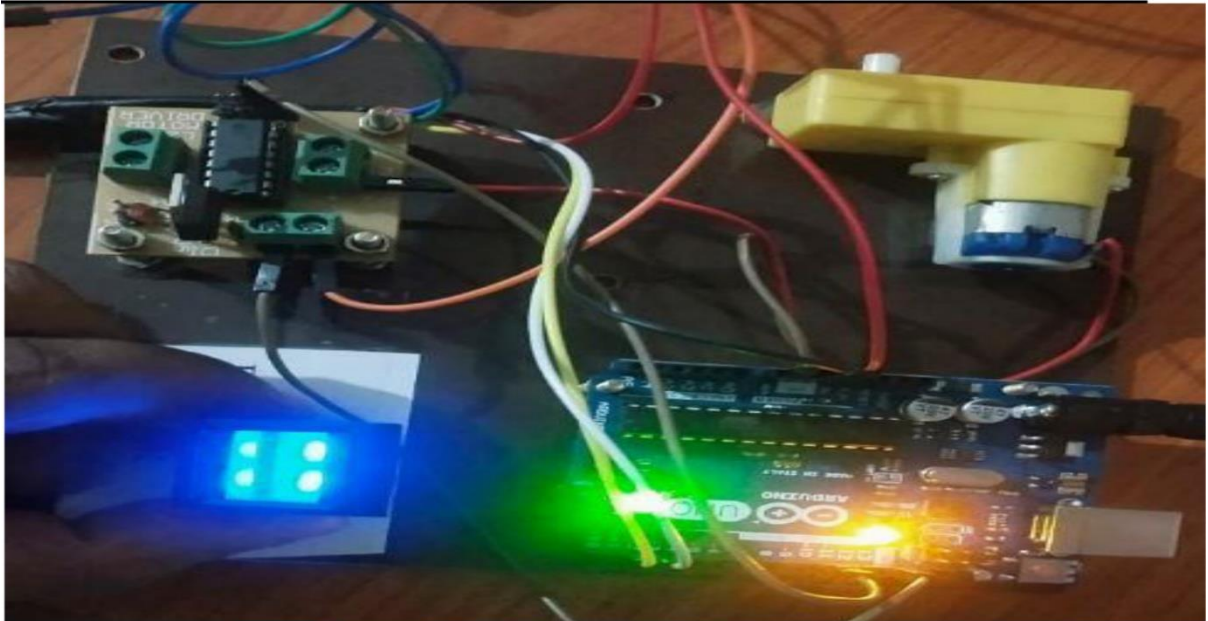
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Fig 3: Case-1 Proper authentication of finger print

Fig 4: Case-1 Proper authentication of finger print

Fig 5: Case-2: Improper authentication of finger print

S. No	List of components	Specification
1	**Power Supply Board** • Step up down Transformer • Voltage Regulator • Capacitor • Resistor	230V-9V LM7805 1000µF/25V, 100µF/25V, 0.1µF 470 ohm
2	Arduino Uno Board	ATMEGA 328P IC
3	**Relay Board** • Relay • Transistor • Diode • Resistor	5V DC 2N 2222A 4N4007 10k
4	Finger print Sensor	R307
5	Prototype Car	5V DC Motor

Therefore, an efficient system for alcohol detection and vehicle inspection can be implemented using the Arduino microcontroller embedded with alcohol sensor and fingerprint sensor. The proposed project is competitive with existing methods and standards and operates with low energy and low production costs.

V. Result

Fingerprint information and alcohol or sample measurement to ensure the safety and protection of users and the public. Perfect indicates that the user is just driving. The breathalyzer initially detected unusual odors in the car. If the smell of alcohol is detected, users will be strictly prohibited from performing fingerprint verification. It also allows users to verify fingerprints without the smell of alcohol. When the alcohol sensor problem is resolved, the user places his finger on the finger sensor. In registration mode, users can save their fingerprints and other detailed information in a file called user drive ID. The starting of the car is very sensitive, and when the user allows a bad fingerprint, poor performance or lack of color, the data will not allow the user to start the car. Therefore, the free app can also be used in cars and prove to be more effective than traditional keys. The LCD screen is used to display the current status of the system. The device concept overcomes all the limitations of the upright fixed table.There are many upgrades or features that can be added to the current version of this document. It is faster in terms of security and ease of use.

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