FINGERPRINT BASED ROBOT ACCESS TO PERSONALISED SECURED FUTURE ROBOTICS REMOTE CONTROLLING

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Abstract: The remote controlled appliances, or devices and IoT systems are majorly making their ways towards human comfort. The utilization of technologies awaking risks of misusage, theft, and misconduct. The security in transmitted data achieved using different algorithms. The current topic is robot control, might in domestic or may in military or other places. Here in this paper we designed a system that will give the response to commands only if valid finger print access granted. The system shows the future robotic system with secured control and operations.

Index Terms **- Commands, Finger print, Misusage, Remote controlled, Robot, Secured**

I. INTRODUCTION

Security is of primary concern and in this busy, competitive world, human cannot find ways to provide security to his confidential belongings manually. Instead, he finds an alternative which can provide a full-fledged security as well as atomized. In the ubiquitous network society, where individuals can easily access their information anytime and anywhere, people are also faced with the risk that others can easily access the same information anytime and anywhere. Because of this risk, personal identification technology, which can distinguish between registered legitimate users and imposters, is now generating interest. Generally passwords, identification cards and PIN verification techniques are being used but the disadvantage is that the passwords could be hacked and a card may be stolen or lost. The most secured system is fingerprint recognition because a fingerprint of one person never matches the other. Biometrics studies commonly include fingerprint, face, iris, voice, signature, and hand geometry recognition and verification. Many other modalities are in various stages of development and assessment. Among these available biometric traits fingerprint proves to be one of the best traits providing good mismatch ratio, high accurate in terms of security and also reliable.

II. PROPOSED MODEL

In this project we are using fingerprint module. It is most widely used for security purposes. This project is depend on the biometrics i.e. fingerprint. It is very easy to implement because each person has his own fingerprints with the permanent uniqueness. Compare to normal security system it is better and in this we can further to implement in every office that module contains total information of employees.

When a finger is kept at the finger print reader, it will give the information accordingly to microcontroller by sending appropriate commands to the reader. If the information matches with the one within the device then the DC motor interfaced to the microcontroller responds accordingly. And if the information provided by the user is incorrect or mismatch in finger prints is detected then access is denied. Finger print reader and the microcontroller unit are connected using serial interface.

This system is used to provide security and authentication for an organization using finger prints as forgery of that is not possible.
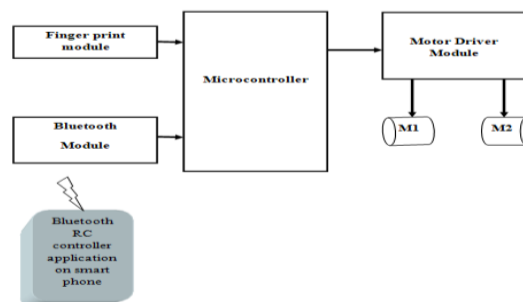

FIGURE 1 Proposed systems of robotic security.

Fingerprint module consists of f fingerprint sensor and scanning section. A fingerprint pattern is composed of a sequence of ridges and valleys. In a fingerprint image, the ridges appear as dark lines while the valleys are the light areas between the ridges. A

cut or burn to a finger does not affect the underlying ridge structure, and the original pattern will be reproduced when new skin grows. Ridges and valleys generally run parallel to each other, and their patterns can be analyzed on a global and local level. Ridges and valleys generally run parallel to each other, and their patterns can be analyzed on a global and local level.

III. FINGERPRINT SENSOR AND PROCESSING

The Fingerprint module consists of f fingerprint sensor and scanning section. A fingerprint pattern is composed of a sequence of ridges and valleys. In a fingerprint image, the ridges appear as dark lines while the valleys are the light areas between the ridges. A cut or burn to a finger does not affect the underlying ridge structure, and the original pattern will be reproduced when new skin grows. Ridges and valleys generally run parallel to each other, and their patterns can be analyzed on a global and local level. Ridges and valleys generally run parallel to each other, and their patterns can be analyzed on a global and local level.
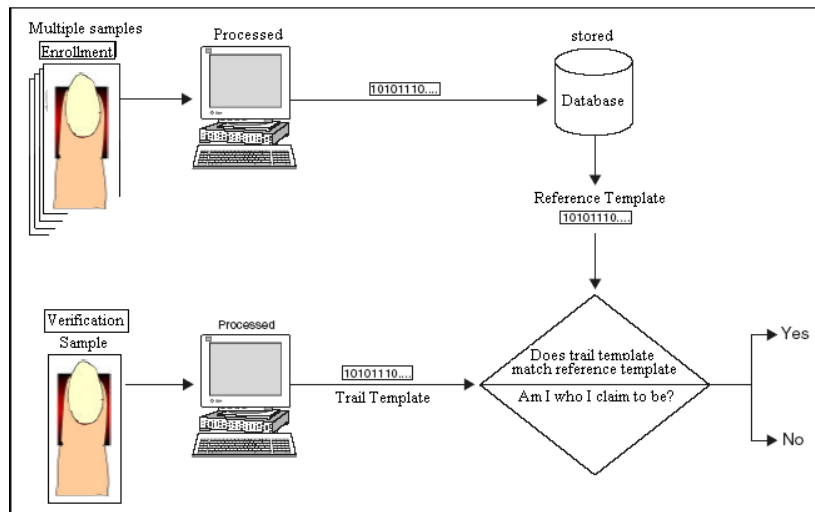

Figure 2 The Fingerprint Verification Process

IV. IMPLEMENTED SYSTEM

The microcontroller having RAM and ROM inside, all other peripherals are on chip compacts the circuit. The microcontroller processes the finger print data coming from finger print module for recognition purpose. The data is matched with the stored data and if its matches then microcontroller gives a pulse or allows to pair Bluetooth module. The data or commands coming from android app is decoded and utilized for robot movement via motor driver board connected prior to DC gear motors.

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. The HC-05 Bluetooth Module can be used in a Master or Slave configuration, making it a great solution for wireless communication. This serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Rluetooth system with CMOS technology and with AFH (Adaptive Frequency Hopping Feature).

L293D is a dual H-Bridge motor driver, so with one IC we can interface two DC motors which can be controlled in both clockwise and counter clockwise direction and if you have motor with fix direction of motion then we can make use of all the four I/Os to connect up to four DC motors. L293Dhas output current of 600mA and peak output current of 1.2A per channel. Moreover for protection of circuit from back EMF output diodes are included within the IC. The output supply (VCC2) has a wide range from 4.5V to 36V, which has made L293Da best choice for DC motor driver.

Whenever a robotics hobbyist talks about making a robot, the first thing comes to his mind is making the robot move on the ground. And there are always two options in front of the designer whether to use a DC motor or a stepper motor. When it comes to speed, weight, size, cost... DC motors are always preferred over stepper motors. There are many things which you can do with your DC motor when interfaced with a microcontroller. For example you can control the speed of motor; you can control the direction of rotation. In this part of tutorial we will learn to interface and control of a DC motor with a microcontroller. Usually H-bridge is preferred way of interfacing a DC motor. These days many IC manufacturers have H-bridge motor driver available in the market like L293D is most used H Bridge driver IC. H-bridge can also be made with the help of transistors and MOSFETs etc. rather of being cheap, they only increase the size of the design board, which is sometimes not required so using a small 16 pin IC is preferred for this purpose.
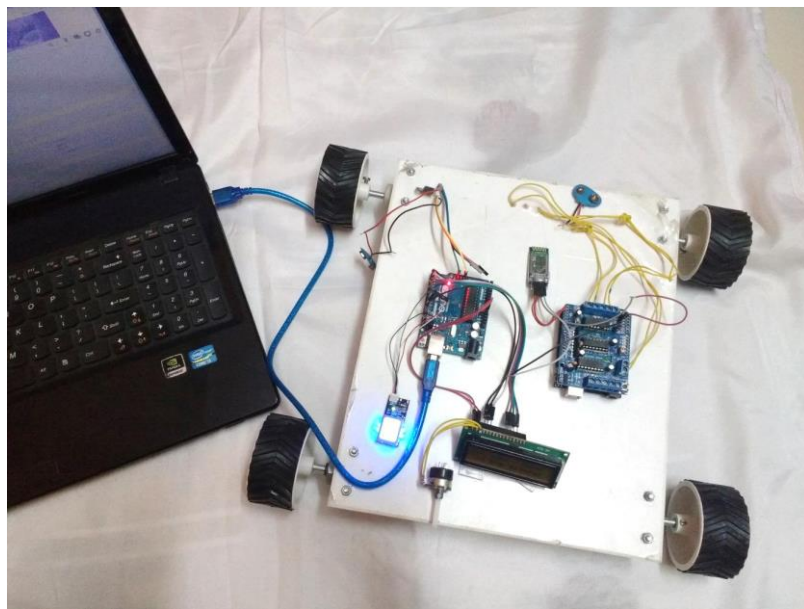
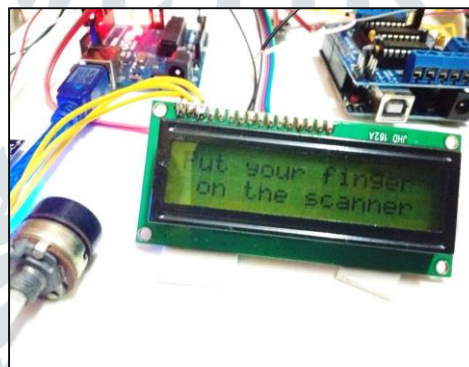**FIGURE.3** Fingerprint based robot locking system

V. RESULT

FIGURE.4 Scanning process message on display

Table 1 Result

Operation	Figure
Scanning process message on display	
Access granted	
Operate permission for robot	
Unverified finger access	

VI. CONCLUSION

The synopsis here gives an economical and reliable system for robot security access. The security can be achieved with different methods but here the importance of security in robotics system shown for future. The dual security access can also be implemented using finger print scan on android phone access to access the app for robot control. The system can perform securely and can be utilized for military applications in the domain of robotics

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