Smart watch With Unlocking Features

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Abstract- *Smart Watch that are already in this market are costly. Our system not only shows time but provides additional features like Automatic door opening and start the car engine using smart watch at a much cheaper price. This watch is programmed using Arduino's open source libraries and functions. With the development of this technology, we are providing smart watch in affordable price. In this project we are providing such a facility to unlock your car and door wirelessly through our Smart watch with the help of fingerprint sensor. Whenever user connects smart watch with car using Bluetooth, He/she scans fingerprint for first time door will be opened and when user scans second time it will start the car.*

We are also providing security for our smartwatch, for example" when someone scans wrong fingerprint three or more time, our system will send a message to the users registered number using GSM module." We are using Arduino controller to sense the environment by receiving input from various sensors. Microcontroller is programmed using Arduino programming language.

I. INTRODUCTION

Though smart watch has been commercially available since early 80's, it has not gained much publicity or interest from the consumer. However, in the past one year, it has gained significant momentum and 2013 was even said by analysts "could have been year of-the Smart Watch". That momentum was signified by the release of several smart watch products such as Pebble, Razer, LG, Motorola and even Google Android Wear. This paper is trying to explore what smart watch can or should do in order to save people time, by making some daily tasks processing easier and more efficient. One focus area is how the "human-smart watch" interaction should be designed in order to achieve that time-saving objective. The design is based on what technology is available today as well as what has been patented.

The area of work of this project is based on Electronics Communication and Computer science. This project is basically done by Arduino programming using Embedded C Programming Language. Because Arduino can sense the environment by receiving input from a variety of sensors so Arduino is the main part of this project. Arduino coding is needed for communicating wirelessly through with door and car for unlocking by using fingerprint sensor and Arduino. With this technology we are introducing Software and hardware implementation where we can unlock the door of our home and can also be used to unlock the door of car and start the car wirelessly through this watch.

II. OBJECTIVES

Objectives of this system are:

- Wirelessly unlock the door (Security gate).
- Unlock the door of car through fingerprint.
- Start car wirelessly with the help of Bluetooth module.
- To identify unauthorized access to car and door and to inform the owner through Sms.

III.REQUIREMENTS

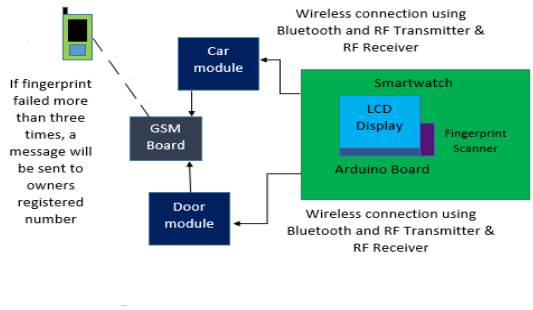
Software requirements:

- Arduino IDE.
- Embedded C programming language.

Hardware requirements:

- Arduino Board.
- GSM Module.
- Fingerprint sensor.
- Led display.
- RF Transmitter and RF Receiver
- Bluetooth Module.

IV.SYSTEM ARCHITECTURE

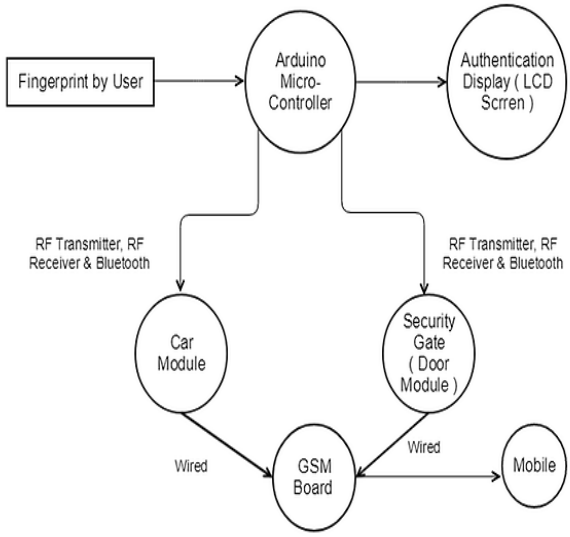


V. MODULES

Modules of this system are:

- **Car Authentication:** Here we are using fingerprint scanner on our watch to authenticate the person and if authentication was successful then user is able to start the vehicle wirelessly through our watch using Bluetooth and RF Transmitter & RF Receiver.
- **Door Authentication:** Similarly, in Car Authentication we are using fingerprint scanner on our watch to authenticate the person and if authentication was successful then user is able to open door wirelessly thorough our watch using Bluetooth and RF Transmitter & RF Receiver.
- **Security:** Whenever user scans wrong fingerprint, system will automatically lock the door and sends a message to owner's number so that he can take appropriate action.

VI. WORKING OF THE WATCH



VII. TECHNOLOGY USED

Arduino Controller: -Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.

How It Works

Arduino is advance microcontroller; it is the core part of our project. The Arduino is programmed using the Arduino Software (IDE), Where Arduino is connected with all sensors like fingerprint sensor, Bluetooth module and GSM module. It is programmed to read the data from those sensors and to perform appropriate actions. For example: Like whenever user scans his fingerprint Arduino matches it with stored fingerprint and takes appropriate action.

Fingerprint Scanner: -Fingerprint scanners are security systems of biometrics. They are now used in police stations, security industries and most recently, on computers. Everyone has marks on their fingers. They cannot be removed or changed. These marks have a pattern and this pattern is called the fingerprint. Here we are using fingerprint scanner for unique identification.

User Identification using Fingerprint Sensor

When user scans his finger by placing on fingerprint sensor it Sends this data to the Arduino, then Arduino compares this fingerprint with stored fingerprint if matches then it indicates it as authorized user else indicates as unauthorized user.

VIII. CONCLUSION

With the help of this project we can unlock the door wirelessly. By using the fingerprint authentication, we can open the door of the vehicle and start its engine using our smart watch and also provides the security to the users. For example: if any unauthorized person scans their finger three or more times it will automatically lock the door and also it will inform the owner of car that an unauthorized person is trying to gain access to our car.

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