

Android Application for Vehicle Security System

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Introduction

Current vehicle security systems available in the market are based on Infrared or Radio Frequency technology using a circuit which is attached to the key. This Security system is controlled by a small gadget that is always attached to the key of the vehicle. One of the weaknesses in the current system is that anyone who has the key can unlock the functions of the vehicle and it is one of the major security threats. Proposed system can eradicate this threat by using the password base control system with Bluetooth technology which applicable to any Android Mobile phone (G. Held).

This research is based on designing and developing an Android application for vehicle security system [2] which will facilitate the door locking/opening, parking light on/off, air conditioning system on/off and engine off. This application supplies a convenient, efficient and reliable security service to the vehicle owners.

Materials and Methodology

The entire project was divided in to five main sub modules for the convenience of proper development. There are, User Authentication System, User Authentication change System, Connect with Bluetooth device, Bluetooth device connects with microcontroller, and Assign several vehicle activities to the microcontroller (P. Kachroo).

01. User Authentication System:

Android interface was designed to authenticate users and allow using other function of the system that authenticated successfully.

02. User Authentication change System:

User Authentication change System was developed which allow them to use other functions after a successful authentication.

03. Connect with Bluetooth device:

The Bluetooth Communication was used to communicate between android phone and XBee device.

04. Bluetooth device connects with microcontroller:

The circuit was designed to connect XBee device with micro controller. The serial communication was used to pass the data between XBee device and micro controller.

05 Assign several vehicle activities to the microcontroller:

The program was developed to activate the functions which were related to the data received by micro controller.

Results and Discussion

Android application was developed by providing the security functions of car such as door locking/opening, parking light on/off, air conditioning system on/off, engine off and mirror up/down. Android application was displayed in Figure 1. When clicking on the button, then function transmitted the signal to the vehicle. The signal was received by the hardware part which was displayed in Figure 2.

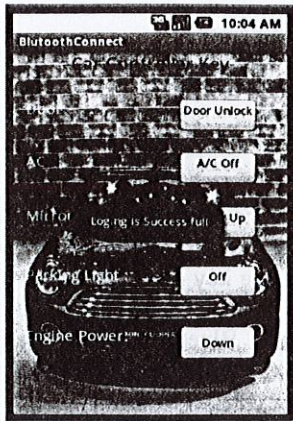


Figure 1: Access Function

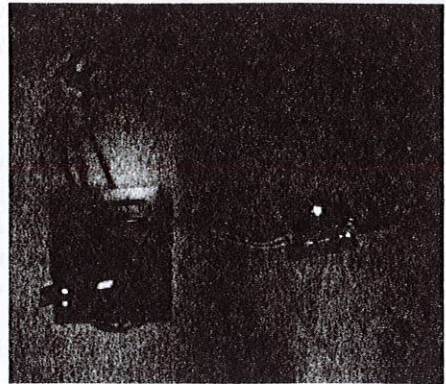


Figure 2: connect Xbee to Microcontroller

In Sri Lanka, vehicle security system is still not consisted of password and mobile phone based system. This system would help to overcome the current limitations and improve security issues (D. Utter). Also this system helps customers to easily access the functions such as door locking/opening, parking light on/off, air conditioning system on/off, engine off and mirror up/down in the vehicle using their Android phones.

Conclusion

In this system, password will be used to consolidate the security of the vehicle. The password which will be entered through Android phone application will be facilitated to logging the control panel. According to the functions such as the door locking and opening, the parking light on/off, air conditioning system on/off and engine off, the unique signals will be transferred via Bluetooth technology. Range of Bluetooth system is higher than present Infrared system. So the owner will be able to access the functions easily than older system.

References

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