



Secure Authentication System for Bike through Integrated Bluetooth Module

Asst.Prof. Umesh A. Patil, Pavan D. Gosavi, Sumit S. Chavan, Shubham R. Jadhav, Nilam M. Pawar

Asst. Professor, Dept. of CSE, D. Y. Patil Technical Campus, Talsande, Kolhapur, India

BE Student, Dept. of CSE D. Y. Patil Technical Campus, Talsande, Kolhapur, India

BE Student, Dept. of CSE, D. Y. Patil Technical Campus, Talsande, Kolhapur, India

BE Student, Dept. of CSE, D. Y. Patil Technical Campus, Talsande, Kolhapur, India

BE Student, Dept. of CSE, D. Y. Patil Technical Campus, Talsande, Kolhapur, India

ABSTRACT: This system is designed for providing dual authentication to the bike by means of obviate theft. This system provides control of bike using embedded system. The embedded system communicates with cell or smart phone for authentication process to control bike systems. Like start bike, temporary authentication to other person, controlling traffic signal facility etc. The Bluetooth technology is used for communication. It is most common technology & provides a Point to Point connection within a short range. So for authentication purpose user must be in the discoverable area from the bike.

KEYWORDS: Authentication, Dual, Bike, Security, Bluetooth, Protection.

I. INTRODUCTION

While parking vehicle, motorist worried about the vehicles safety, that somebody else can ride his bike without knowing him. So, a security system is essential for motorist as the number of vehicle theft increases every year. Various security systems are available in market with variety of function, operating modes and features. Most of the systems are expensive which make security system that offers excellent protection to the vehicle using GSM and GPS is effective one. The main aim of the system is to design and develop an advanced vehicle locking system in the real time environment which uses Bluetooth authentication. It actually uses dual authentication by means of key and Bluetooth device. This device authenticates the motorist mobiles "Device name" and then starts the vehicle. So without that registered mobile anyone can't start the vehicle.

There are numerous types of lockers used to lock the bike. But some limitations are there in these systems, they are as follows:

- 1) The previous system for authenticating bike by using radio frequency identification method is not user friendly and also costly too. [1]
- 2) The another method is by using GSM module, in which mobile phone are used intermediate authenticating device between user and bike authenticating system. The whole system is based on Global System for Mobile (GSM). The problem with this system is mobile's network problem. It does not restrict the theft of bike, it only trace the location of bike. It also require internet hence it was costly. [2]
- 3) The bit lock requires manual locking of bike and also it requires an unlocking system [7].
- 4) The major drawback of U-Lock is, it is not permanently attached to the bike and also any user who has authority to open it can also remove the lock from bike.[7]
- 5) Sky lock requires extra USB charger, if it is stored into the dark for a long time. [7]

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016

II. RELATED WORK

A security system is essential for motorist now day as the number of vehicle theft increases every year. Various security systems are available in the market with Variety of functions, operating modes & features. Most are the systems are expensive which make vehicles could not afford to have a security system that is efficient. Then to avoid this we found a superior idea that to give a dual authentication to the vehicle by using Bluetooth. The aim is to design & develop an advanced locking system in the real time environment. Generally, when we insert key in the socket and turn it on, the authentication circuit get completed. After that the engine gets power and it starts. In this key-authentication circuit we place a Bluetooth based device. When we insert key into socket and turn on it. Half circuit gets completed and the Bluetooth device starts. It searches for a registered device, if he detects that device then remaining half circuit get completed and the engine gets power.

III. PROPOSED SYSTEM

User can interact with Bluetooth module by using android application. This application uses Mobile Bluetooth for connection. User first inserts the key into socket and turns it on. The Bluetooth module gets power. Here half circuit gets completed. Microcontroller does processing. The registered addresses are stored into memory. Microcontrollers take the registered address from memory and compare them with the addresses which are discoverable by Bluetooth. If the registered device is found in discoverable coverage area then the authentication is done. After that the relay allows power supply to the bike engine. The RTC clock provides a timer which is used in traffic. It requires external power supply which can be provided by using CMOS.

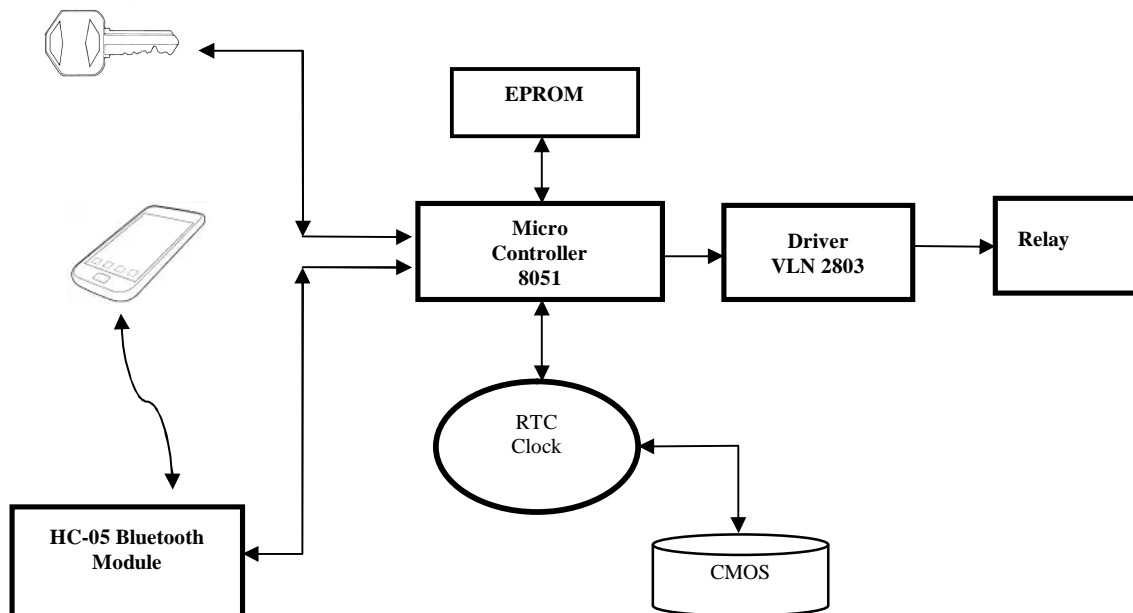


Fig.1: System Architecture.

IV. ALGORITHM

- Step 1: Start
- Step 2: Connection establish to device and smart phone
- Step 3: Check authentication
 - If (authentication= =true) then

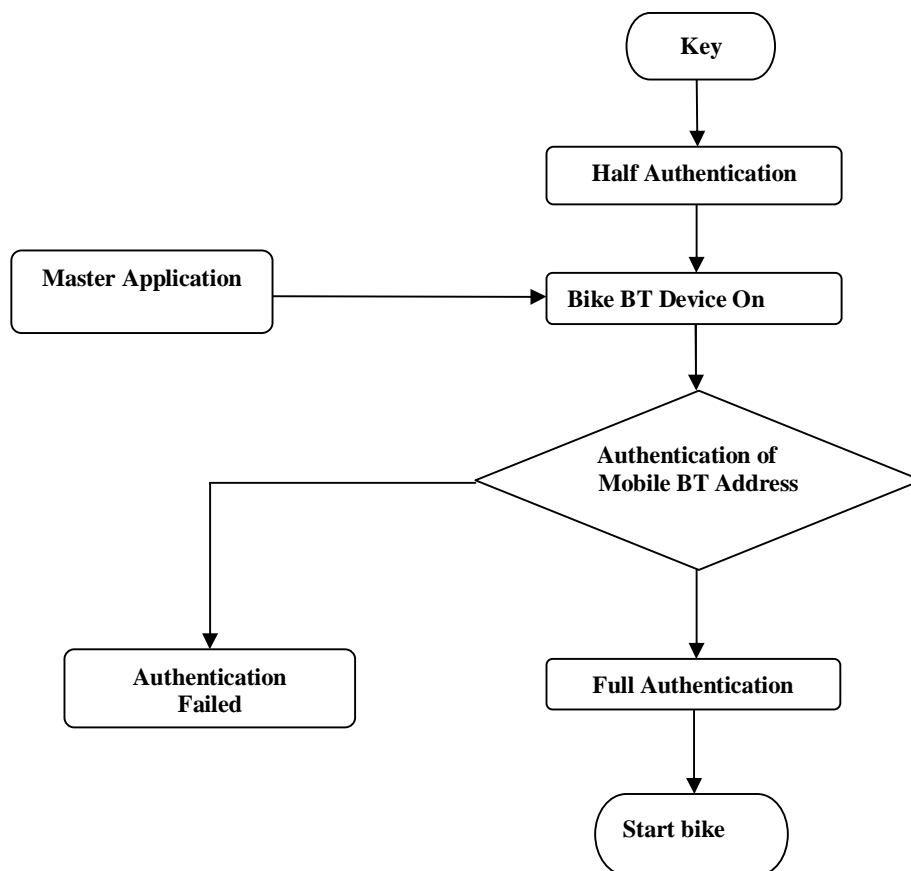
International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016

Start power supply to Bluetooth device
Else
Recheck
Step 4: If (traffic signal =ON) then
Set counter
Counter < 0 then step 1
Counter —
Step 5: End

V. SYSTEM STRUCTURE



VI. METHODOLOGY

These secure authentication method uses an android application which provides connection and communication facility to the Bluetooth Module. Status related to bike Bluetooth module is displayed on the mobile phone by using application. Secure authentication to bike via Bluetooth integrated device does following steps to connect and authenticate device. User only requires their registered mobile which contains an android application which is specially designed for this module. First user starts its android application. He must be in the discoverable area of bikes Bluetooth device and the key switch is in on condition. If the mobile is registered then he can start the bike and also he can do further processing. Authorized user can also do modification into the data stored into memory. He can insert new addresses, delete old address and also do updating into them. Unauthorized use will not start the bike and also can't take the access of data.

Here, a Traffic mode is also provides when motorist process the Traffic button the module goes into the Traffic mode for a specific time quantum .In that time quantum there is no need of Bluetooth device authentication. User can start the bike by using key only (as he normally does).



International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016

VII. ADVANTAGES

1. In this system user don't need to enter any password for authentication. The only need is his register mobile phone & bike key.
2. Because of point to point connection of a Bluetooth device, only one device can access the device. This avoids the conflicts between connections of devices.
3. This system is economically less expensive. Therefore can be used with less expensive bikes also.
A secure bike sharing can be done by using this system

VIII. CONCLUSION AND FUTURE WORK

We design a project to control the vehicles theft which is based on android application that uses mobile Bluetooth. This system is designed at low cost and provides theft control system for the vehicles. By using this system it is difficult to access the vehicle by any unknown person which is not owner of that vehicle. Our system is very flexible to handle and hard to break the kit or system. This system gives protection to our vehicles by using Bluetooth module.

ACKNOWLEDGMENT

The authors would like to unanimous reviewers for their support and suggestions to improve the quality of the manuscript.

REFERENCES

- [1] N.Jinaporn, S. Wisadsud, P.Nakonrat and A.Suriya "Security System against Asset Theft by using Radio Frequency Identification technology", Proceeding of ECTI-CON, 2008, pp.761-764.
- [2] B.G.Nagraja, R.Rayappa, M. Mahaesh, M.Patil and T.C Manjunath, "Design and development of a GSM Based Vehicle Theft Control System", Proceeding of IEEE on Advanced Computer Control, 2009, pp.148-152.
- [3] Argade Geetanjali Arjun, Moreshe Mukhedkar, "Advance Bike Security System" International Journal Of Science & Research, Vol. 3, Issue 12, Dec 2014.
- [4] Pritpal Singh, Tanjot Sethi, Bibhuti Bhusan Biswal & Sujit kumar Pattanayak,"A Smart Anti-Theft System For Vehicle Security ", International Journal Of Materials , Mechanics & Manufacturing, Vol. 3 No. 4, Nov 2015
- [5] Nikita Saple, Dhanraj Poojari, Ankita Kesarkar , Alka Srivastava "Securing Computer Folder using Bluetooth and Rijndel Encryption", International Journal Of Current Engineering and Technology, Vol. 5, No.1, Feb 2015
- [6] D.Naresh , B.Chakradhar , S.Krishnaveni , "Bluetooth Based Home Automation & Security System Using ARM 9 ", International Journal Of Engineering Trends & Technology , Vol. 4, Issue 9, Sep 2013
- [7] Gaja Kochaniewicz "Smart lock for bike sharing in corporate Environments"
- [8] Menugonda Kiran Kumar, B.Santosh Kumar , "Vehicle Tracking & Identifying Based On Android ", International Journal Of Engineering Trends & Technology , Vol.16, No.4, Oct 2014
- [9] Mr. Hariprasad , Ms. Venkateswari, " GPS and GSM/GPRS Based Futuristic Automobile Live Detection and Protectio Technology", ", International Journal Of Engineering Trends & Technology , Vol. 9, No. 9, Mar 2014.