

EMBEDDED BASED REMOTE KEY WITH GUI CONCEPT FOR VEHICLE SECURITY

Dr.B.Suresh¹, Dr.K.Vasudevan², Mr.V.Murugesan³, Visakha V Nair⁴, G.Dinesh kumar⁵

¹Assistant Professor

^{2,3}Associate Professor

^{4,5} M.Sc. ECS – Final Year

^{1,2,4,5} Department of Electronics and Communication Systems,

³Department of Computer Science,

VLB Janakiammal College of Arts and Science, Coimbatore, Tamil Nadu

Abstract - The aim of proposed work is to provide a tightened security among the vehicles. The wireless based remote key acts as a master key to ensure the vehicle security from hacking and thefting. The Arduino based wireless smart vehicle key plays a vital role in order to solve the problems related to various security purpose of the vehicle. A powerful security system could be implemented to avoid the hacker's issues, since the vehicle can be theft anywhere. The RF keys communication problems between user and the vehicle will be eliminated by this system with the help of OTP. This system is to safe guard the cars from hackers and also to monitor the cars data like engine status and etc. with the help of GUI.

Key Words: GUI, Arduino, Safety, Remote key

1. INTRODUCTION

In modern days, cost and time is the most common factors and affecting any human being whether it is for individual or for a management. As most people migrate from small town to big town, from village to the cities, most people wants to increase their quality of life by getting more wealth and health at the same time. A smart key takes the keyless entry technology one step further. In addition to being able to lock and unlock your vehicle without a key, a smart key also allows you to start your vehicle without a traditional key. Smart keys have a special chip inside of them that is recognized by your vehicle.[1-3].

The purpose of this system is to find the vehicle where it is and locate the vehicle by means of GUI using a monitor which is placed in car's key. In today's world safety and security plays an important role, hence we tend to provide a good safety and security system while travelling. Hence, acquiring a vehicle nowadays is considered a necessity, compared to the past where it was considered a luxury. In this thriving society, more and more vehicles are produced to meet the increasing demands of people and businesses from all corners of the world. Here comes the necessity to provide more and more safety and security features to them. [4-5]

Now a Days, theft has become a big problem. The RF keys can be easily hacked by the hackers. But, this project system could find a solution for this problem. The OTP (One Time Password) system to lock and unlock the car. If the OTP matches then only the car gets started. Here the remote key acts as a master key[6].

2. System Implementation

The Fig -1 shows a block diagram of the proposed system. Transmitter(TX) is the section which works as smart key this key comes with a touch screen GUI which is AI based system automatically resets the key every time after unlocking which prevents hackers and thieves from stealing the vehicle. This TX [as Sown in Fig-2] system has to be handy because of its application so for the compact operation this system is based on battery technology, this system needs of 5v power supply for this requirement a 9v BT will be directly used as the power supply. This battery will be connected to micro controller board and micro controller board has inbuilt voltage regulator of 5v which can be used to power up all the elements.

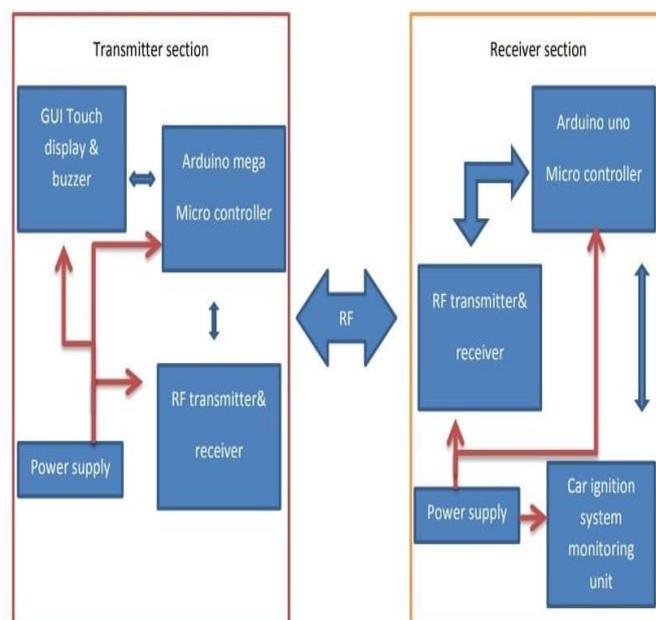


Fig -1: Block diagram of the proposed system

Arduino mega is the microcontroller which is going to process and carry over all security operations this will get information from the touch display and act according to the need of user and also it will communicate with the receiver through the RF communication module.

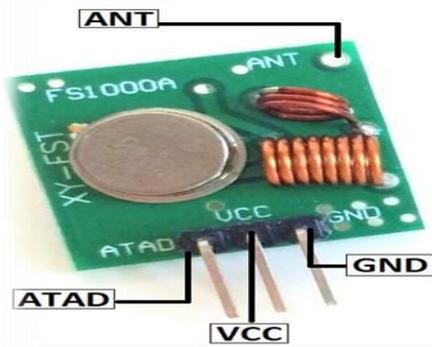


Fig -2: RF Transmitter Pin out

In this system RF433 module plays major and a vital which is the communication medium between the key and the vehicle prototype it has good range of coverage it helps both devices to communicate smoothly. The TFT display which is a capacitive display will show the user interface and also helps the user to turn on and off the and etc through the micro controller. In this proposed system with the help of this touch screen is used to operate the device which is in the car that can also turn off the device when not in use.

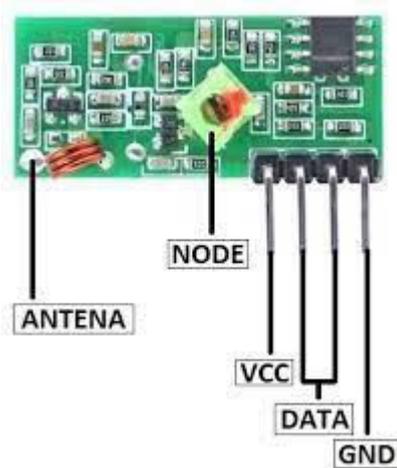


Fig -3: RF Receiver Pin out

An adapter of 12v dc supply is used to power up this system, the operating volt of this system 12v due to presence of ignition system, the 12v will be given to micro controller and the micro controllers power section will satisfy the RF receiver and the 12 v will be used for the motor and ignition unit Arduino Uno micro controller is used here to control the ignition system due to less pin configuration in RX [as shown in Fig-3]side Uno is abundantly enough to handle operations and control the output Operations.

The one touch button start is the premium feature of the modern cars which come with RF keys, for same user interaction and to trigger the process of engine start and stop this function is been used. Internal combustion engines produce more pollution as a concept of e-vehicle this system will e-vehicle concept so a dc motor is used to power the vehicle and control the vehicle. L293D motor driver module is used to power the vehicle. In this system the dc motor act as

an engine it s driven by the L293D motor driver when the security measure is ok according to the signal.

3. CONCLUSIONS

The goal of proposed system is to provide a better security from vehicle thefting and hacking. The GUI based remote key is used to monitor and control of the vehicles in real time and to avoid the prevention of theft and hacking in efficient manner. Further, this proposed system can be added with the better RF communication and IoT techniques in order to improve the security among the automobile sectors.

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