

# e-SAFETY SYSTEM FOR TWO WHEELERS

Dr.M.Shanmugaraja<sup>1</sup>, S.N.Aravind<sup>2</sup>, R.Gokul<sup>3</sup>, S.Krishna Kesav<sup>4</sup>

<sup>1</sup>Assistant Professor, Dept. Of Automobile Engineering, SNS College of Technology, Coimbatore, Tamil Nadu, India.

<sup>2,3,4</sup>UG Scholars, Dept. Of Automobile Engineering, SNS College of Technology, Coimbatore, Tamil Nadu, India.

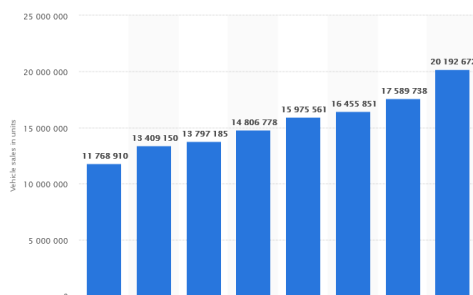
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**Abstract** - The objective of this project is immobilizer in two wheeler. Now-a-days a number of car anti-theft security options are available. But these antitheft devices are very expensive. An anti-theft system is any device or method used to prevent or deter the unauthorized appropriation of items considered valuable. Theft is one of the most common and oldest criminal behaviors. The fitting of transmitter devices to motor vehicles has become an important approach to the prevention of motor vehicle crime. The fuel flow lock is an important example of this approach, being the outcome of the first and only regulations requiring vehicles to be fitted with anti-theft devices.

**Key Words:** Immobilizer, anti-theft, transmitter, motor vehicle, fuel flow lock, etc

## 1.INTRODUCTION

Many people make the assumption that bike theft only occurs in seedy areas of town, but bike theft can occur anywhere in any area of town. People need to be careful not to entice thieves by making common mistakes. Theft is one of the most common behaviors. Where the ownership of a physical possession can be altered without the rightful owner's consent, theft prevention has been introduced to assert the ownership whenever the rightful owner is physically absent. An anti-theft system is any device or method used to prevent or deter the unauthorized appropriation of items considered valuable. In addition it can also perform accident detection in order to provide the security to the users. In that case message will be sent to nearest police station or hospital. Now-a-days a number of car anti-theft security options are available. But these antitheft devices are very expensive. So there is a need of an excellent protection of vehicle with the reliable anti-theft device. Bike central locking system gives the best protection. Again this system could not prove to provide complete security of the vehicle in case of theft.



## 1.1 PROBLEM IDENTIFICATION

As we know the major problem in automobile is theft of vehicle in order to overcome this disadvantage the antitheft system is used in two wheelers. **Even though there are many antitheft system are available which does not provide a complete security for two wheelers.** Here we will focus on developing the security of two wheeler using immobilizer.

## 1.2 LITERATURE COLLECTION

**Jayesh D. Patil, et al. (2017)** Security is primary concern everywhere and for everyone. Every person wants his home, industry, valuable belongings such as bikes, cars etc. to be secured. Would you ever consider leaving thousands of rupees worth of your personal belongings in the street without protection? Well, that is what you do every time you park your car at the side of the road or anywhere else if you do not have a bike/car security alarm fitted to it. Most bikes/cars do not come with an effective protection system, and a determined thief is generally able to steal a car in a matter of seconds. **Proposed project act as an electronic protector + wireless reporter to owner if someone else tries to start the bike without a proper password.** Also give siren for attention.

**Shweta K. Narkhede, et al. (2017)** In this paper, a new device is proposed for a security of a two-wheeler from theft. This device works on the Wi-Fi module, which can be accessible through a web page or Android app. There are lots of security systems available in the market which are easily detectable & hack able by the thieves, these systems work on the remote control or GPS or GSM. Through this device, we are providing efficient security to two-wheeler; this device also has a feature of finding the two-wheeler in the dense parking area. For sensing the position of the vehicle, we are using tilt sensor, which shows that two-wheeler has been moving from their still or bending position.

**Geeth Javendra, et al. (2007)** This paper presents a novel radio frequency identification (RFID) based vehicle immobilizer system, which features low hacking probability while preserving the safety of the passengers of the hijacked vehicle. The immobilizer uses the active RFID technology where the tag is generated with comparatively large character sets. The receiving unit is intelligently integrated

into three control circuits in the vehicle, namely, ignition circuit, power control unit, and automatic gear changing system, enabling it to bring the vehicle speed down to zero in a safe step by step manner. The anti-theft auto security system proposed here was tested under different weather conditions and possible signal distortion situations to verify its reliability

**Krutika, et al. (2015)** In this paper, a new device is proposed for a security of a two-wheeler from theft. This device works on the Wi-Fi module, which can be accessible through a web page or Android app. There are lots of security systems available in the market which are easily detectable & hack able by the thieves, these systems work on the remote control or GPS or GSM. Through this device, we are providing efficient security to two-wheeler; this device also has a feature of finding the two-wheeler in the dense parking area. For sensing the position of the vehicle, we are using tilt sensor, which shows that two-wheeler has been moving from their still or bending position.

### 1.3 LITERATURE SUMMARY

- TWVSS – Two Wheeler Vehicle Security System. Uses immobilizer and alarm to enhance the security of the vehicle.
- Electronic protector + wireless reporter will alert the owner if someone else tries to start the bike without a proper password.
- RFID – Radio Frequency Identification based vehicle immobilizer is used which features low hacking probability.
- This device works on the Wi-Fi module, which can be accessible through a web page or Android app

## 2. COMPONENTS

### 2.1 ARDUINO BOARD

The Arduino Uno is a microcontroller board based on the ATmega328. It has 20 digital input/output pins (of which 6 can be used as PWM outputs and 6 can be used as Analog inputs), a 16 MHz resonator, a USB connection, a power jack, an in-circuit system programming (ICSP) header, and a reset button.

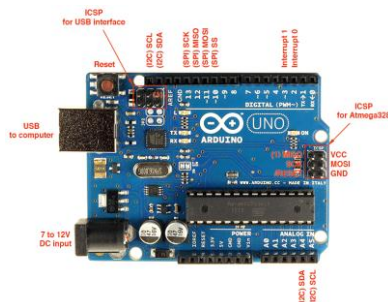


Fig-1 Arduino board

### 2.2 ELECTRICAL FLOW CONTROL VALVE

A flow control valve regulates the flow or pressure of a fluid. Control valves normally respond to signals generated by independent devices such as flow meters or temperature gauges.



Fig-2 Flow Control Valve

### 2.3 KEY BARREL

A **tubular key** (sometimes referred to as an ace, radial or **barrel key**) is one that is designed to open a **tubular** pin tumbler lock. It has a hollow, cylindrical shaft that is usually much shorter and has a larger diameter than most conventional **keys**. These **keys** typically come in four and eight-pin models.



Fig-3 Key Barrel

### 2.4 CIRCUIT BOARD

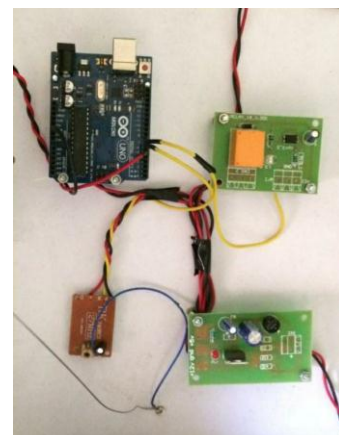


Fig-4 Circuit board with arduino, receiver, relay

### 3.METHODOLOGY

Figure depicts the proposed methodology for incorporating e-Safety system setup in a conventional two wheeler. The proposed key immobilizer will act as an antitheft system as it is built in the engine ECU. It will prevent the engine from starting without using vehicles authorized key. This system uses a special digitally coded key or a smart key job. This key contains a transponder chip. It stores the electronic security code on the ignition key and immobilizer kit. The immobilizer is controlled by Aurdriano board. The ECU does not activate the fuel system and the ignition circuit if the code in the key and that store in the immobilizer do not match. When the driver inserts this digital key into the key barrel, the engine can start only if the code in the immobilizer key matches with the code in the engine immobilizer.

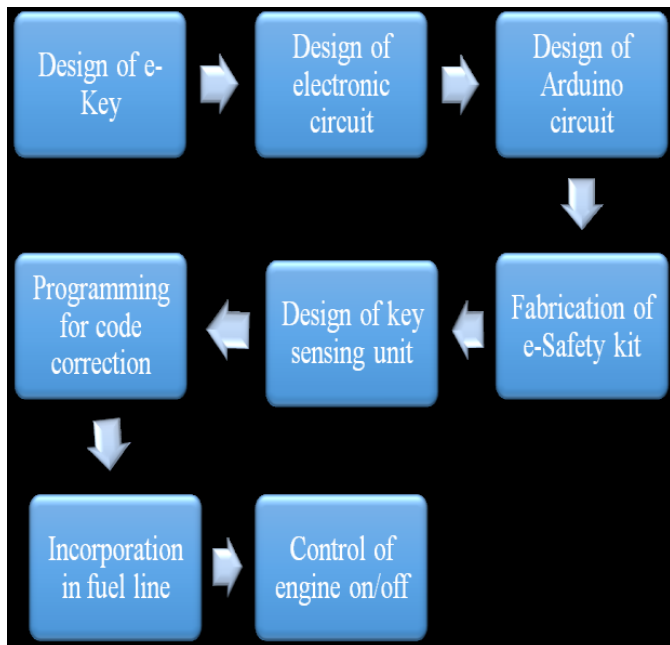


Fig-5 Methodology

### 3.1 PRESENT METHOD

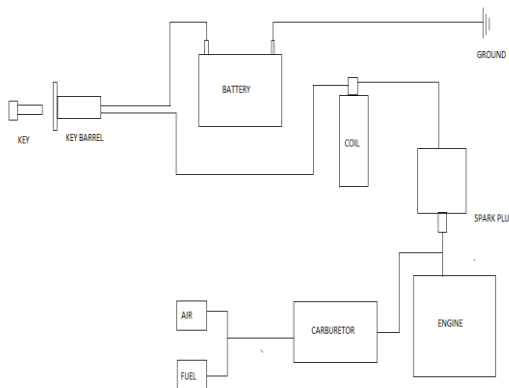


Fig-6 Present method

### 3.2 PROPOSED METHODOLOGY WITH NORMAL KEY

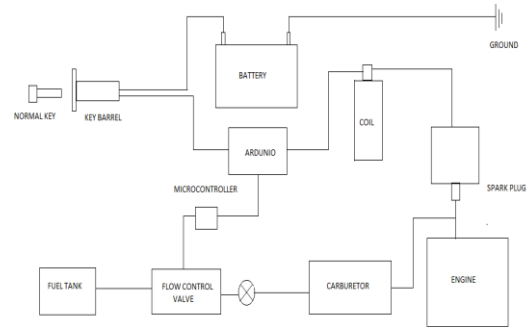


Fig-7 proposed methodology with normal key

### 3.3 PROPOSED METHODOLOGY WITH IMMOBILIZER KEY

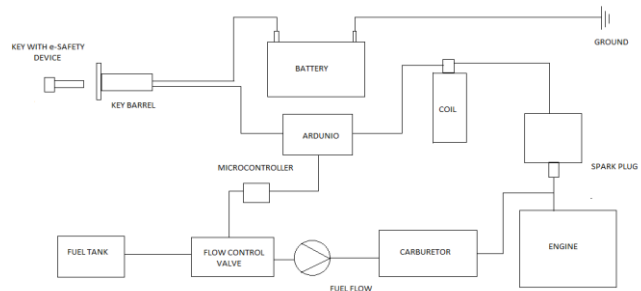


Fig-8 proposed methodology with immobilizer key

### 4 WORKING

The fuel will flow from the fuel tank through the control valve. The control valve is connected with the circuit board. The circuit board consists of arduino board with specified program, receiver, relay and battery connection. When the key is put in the key barrel on the vehicle and ignited. The vehicle will not start because the fuel will not flow through the valve. Hence the control valve is closed. There is a transmitter along with the key. The transmitter ship is also connected with small battery. When key is ON the transmitter should ON. Thus the transmitter will transmit the signal which will receive by the receiver in the circuit board. Once the signal received and verified. The arduino will start to work which will helps in the control of fuel flowing valve. This will helps in anti-thefting of the wo wheeler. Without the transmitter the fuel will not flow eventhough we have athe right key. Fuel tank with control valve Circuit board with arduino, receiver, relay

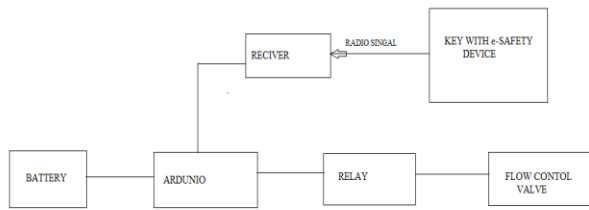


Figure-9 layout of circuit



Figure-10 Prototype of e-Safety system for two wheelers

## 5 OUTCOME

This proposal will lead to quantitative and qualitative benefits to the community as listed below;

- Enhanced safety feature to two wheelers*
- Safety in society*

### 5.1 CONTRIBUTION TO THE SOCIETY

The key immobilizer is a state-of-the-art anti-theft system. This e-safety system is a simple and low-cost antitheft device that makes it very difficult to steal a two wheeler when the key is not in the ignition. Because of the EU regulation, the

share of two wheeler on the road with the device will grow further rapidly in the near future.

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## Authors



Dr.M.Shanmugaraja,HOD,  
Dept of Automobile Engineering,  
SNS College of Technology.



S.N.Aravind pursuing B.E  
Automobile Engineering at SNS  
College of Technology.



R.Gokul pursuing B.E  
Automobile Engineering at SNS  
College of Technology.



S.Krishna Kesav pursuing B.E  
Automobile Engineering at SNS  
College of Technology.