



FUEL THEFT DETECTION IN A TWO-WHEELER VEHICLE WHEEL LOCKING SYSTEM

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ABSTRACT

Now a day's automobile fuel thefts are increasing at an alarming rate all over the world. So it is important for the vehicle users to monitor their vehicle in order to escape from fuel theft of the vehicle. With the advancement of technology, vehicle user can safeguard and monitor their vehicle by using their mobile phone.

KEY WORDS-Fuel theft, Vechicle Wheel locking

I.INTRODUCTION

Remarkable progress in automobile industry has seen a rapid rise in the number of vehicles. With this tremendous increase in number of vehicles, there has been increase in number of crimes involving vehicle fuel theft. Many security systems are developed related to vehicle theft detection and fuel theft detection, and most of them used techniques like finger print detection, the RFID technique and face recognition technique

Another problem faced by the two-wheeler user's is fuel theft. When the vehicles are parked fuel thefts take place. In order to overcome these security problems, in our project we aim at providing a security system to vehicle by locking the front wheel of the vehicle Every motor vehicle comes with the simple tap with main or reserve option for the fuel delivery mechanism. In the existing system anyone can remove the petrol from the fuel tank without any trouble as capacity of petrol tank is at least 10 litres. So in order to overcome this problem a mechanism has been developed to prevent the fuel theft from the vehicle.

Here we make use of solenoid to detect the fuel theft and also to avoid the stolen of the fuel from the vehicles.

II. LITERATURE REVIEW

Many systems were proposed for vehicle security. [1][9] Working of this system is simple where vehicle parameters like speed, fuel level and location are fed to microcontroller which is transferred to server using SIM808 GSM module

In paper[2][8] security system works on identifying user fingerprint. Fingerprint must be recognized by the system otherwise the vehicle ignition will not occur, and then an alert message is sent to owner mobile after this for every ten seconds SMS will be sent with updating of location of vehicle till proper fingerprint is given. [5] In this system they have provided

password based protection as a backup for fingerprint protection system.

Many of them have used RIFD technology which is very similar to fingerprint technology the difference is instead of giving fingerprint a unique RFID tag will be there with the user which has to be read by RFID reader in security system in order to start the ignition They have used two types of sensors like ultrasonic sensor and flow rate sensor.Ultrasonic sensor produces sound wave which when incident on obstacle produces an echo.This range will be converted into litres by writing code.

III. PROBLEM STATEMENT

The project improves the function of locking system only for disc break bike and to prevent the fuel theft from the two-wheeler vehicle. The main theme of this project is to control the vehicle ignition key in LOCK state and release the movement of vehicle when the ignition key is in ON status.

IV. PROPOSED SYSTEM

The block diagram in fig.1 shows the block diagram for wheel locking system with fuel theft prevention.

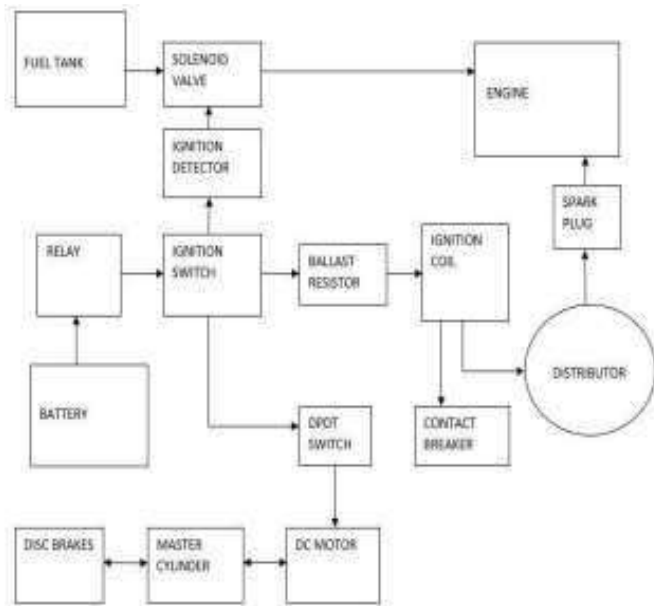


Fig.1. Block Diagram

It consists of fuel tank, solenoid valve, ignition detector, relay, ignition switch, ignition coil, battery, DPDT switch, Dc motor, master cylinder, disc brakes. As specified in above block diagram, there are two sub systems being integrated into a single system as two wheeler vehicle locking system with fuel theft prevention. The solenoid valve here is placed where the fuel exits the fuel tank. This sub system designed for prevention of fuel theft. The other sub system being integrated is the vehicle locking system for two wheelers. Here as shown in the diagram, the DC motor is connected to the master cylinder which controls the shaft movement in the master cylinder

Then to unlock the vehicle, the DPDT switch allows the opposite direction rotation of DC motor hereby releasing the disc brakes. Here both the subsystems get power from the battery through relay as the relay prevents direct connection which can start both the systems. Hence the ignition switch acts as switching for the relay for completing the circuit.

Fig.2., shows flow chart of the proposed system.

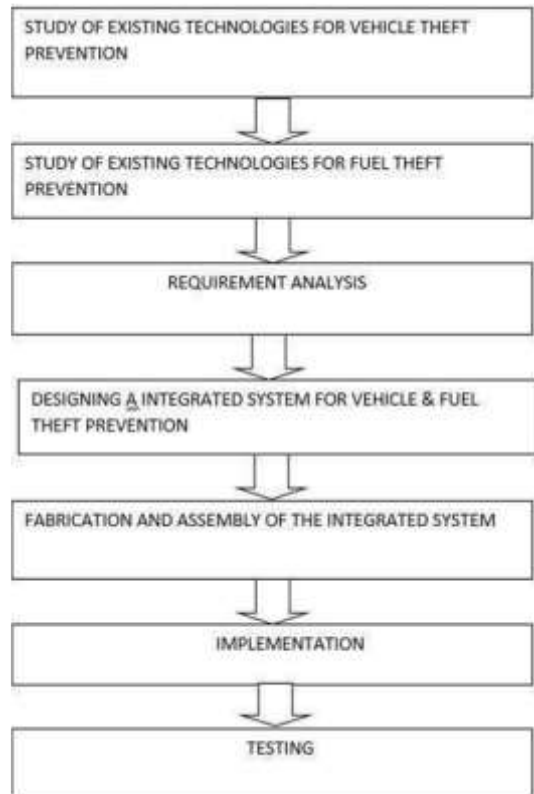


Fig.2. Flow chart of Proposed system.

When key is going to lock state, the DC motor runs, so that the brake fluid is passing from the reservoir to the calliper.

- Then the brake piston presses the brake pads against the disc.
- Due to this, friction will be generated and brake is applied.

When the ignition key is going to ON state:

- When key is going to ON state, the DC motor runs in opposite direction, so that the pinion will rotate and this causes the bar will release the brake piston. This helps the piston to retract.
- The brake fluid is passing from the calliper to the reservoir.
- So the brake piston releases the brake pads against the disc.
- Due to this brake is released.

Fig.3. Shows the working Model of the system



Fig.3., Prototype of the proposed system



This prototype is used in two-wheeler vehicles to increase the security system.

- It prevents the theft of fuel from fuel tank in the vehicle.
- It can also be implemented in four-wheeler vehicles also

V.CONCLUSION

At a very minimal cost we can reduce the crime of fuel theft by proposing this model by combining two subsystems such as Two-wheeler vehicle locking system and fuel theft detection to a single prototype

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