

## 1.Introduction

IOT is the network of physical object or things and has vast applications in all domains. Vehicle security is a most sensitive problem faced by people. The safety of vehicle is extremely essential for public vehicles. Most of the population in India buy the new vehicle but they fail to secure their vehicle. So, we are designing the device that help to secure your vehicle from vehicle theft, vehicle part theft, vehicle fire and other action. This device gives the protection to vehicle, user don't need to worry about vehicle. Vehicle tracking and security system can be installed in vehicle to track place of vehicle.

Just using mobile you can find the location of your vehicle. It give the ring/message on your mobile when your vehicle's surrounded area will overheated. Our device give the alert message, when risk to your vehicle [1].

## 2.Objectives

- ✓ To detect fire early so as to initiate prevention
- ✓ To send alert notification to the vehicle owner
- ✓ Provide protection from removal of accessories

## 3.Literature Survey

The existing vehicle security system is for preventing vehicle from theft, vehicle fire. We can secure our vehicle from thief and from vehicle fire. But there are still some security gaps where these technology don't prevent vehicle from theft, don't assist to recover it and don't allow user to know status of their vehicle. Thief can't permit owner to communicate with vehicle online, even if owner is certain that his vehicle is stolen.

If someone trying to ignite the vehicle, it alerts the vehicle owner when owner is at nearest distance as well as owner is far from vehicle. But with alarm it is not possible to alert the vehicle owner who is unable to hear that alarm. So in this case we can use GPS network to send the text message to owner on his phone. Protect to the vehicle with affordable cost [2].

## 4.Problem Statement

Vehicle security system using IOT.

## 5.Problem Description

There are vehicle thefts, vehicle fire, which results in loss of private property. Vehicle fire occurs due to ignition of the vehicle by people, overheating engine, fuel leakage, etc. This loss can be minimized by applying vehicle security system, which when vehicle in danger sends alert message to owner. This IOT based project aims to prevent vehicle from fire or from theft. Project requires Arduino, which can be connected to any moving vehicle. The system consist of Arduino, GPS, GSM, Sensors and Android phone. GPS is used for vehicle tracking. Fire detector sensor and smoke detector used to detect and respond to the presence of a flame or fire, allowing flame detection. An alert message will be received to the owner, when vehicle is at risk.

## 6.Architecture:

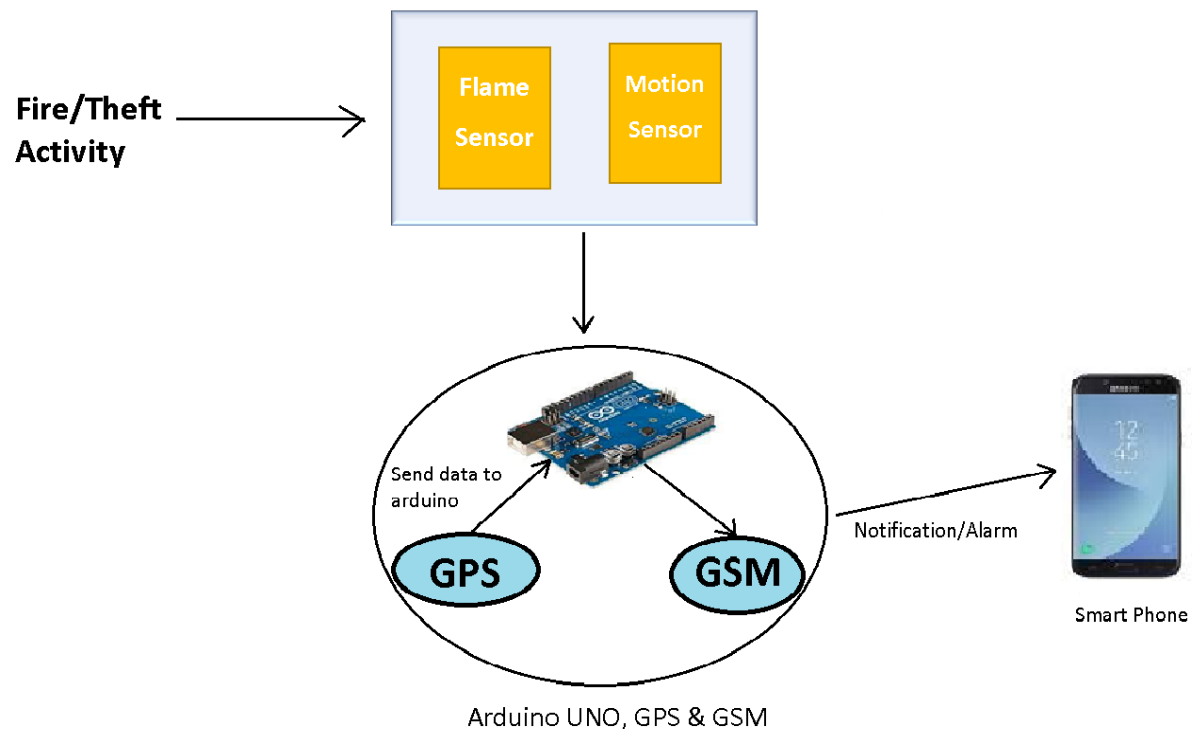


Fig 1. Architecture of Vehicle Security System

## 7.Modules:

- Sensing Module
- Processing with Arduino

- Location tracking and connectivity
- Notification and sending Alert

## 8. Application:

- GPS Vehicle fire detection can be used in Companies, schools, colleges and industries.
- This project can be used in 2-wheelers.
- VIP vehicle security.
- Can also be used for public places to improve security.
- In future, this security system improved an integrated-data-security system for vehicle communication systems.
- It would ensure that all the data exchanged within the vehicle and outside the vehicle is protected [2].

## 9. System requirements with justification

### 9.1 Hardware Requirement:

- **Arduino UNO:**

The Arduino Uno board is a microcontroller based on the ATmega328. It has 14 digital input/output pins in which 6 can be used as PWM outputs, an ICSP header, a USB connection, 6 analog inputs, a power jack and a reset button [3].

- **Flame Sensor(Fire Sensor):**

A flame sensor senses a weak DC signal from the AC power sent to the igniters which via the phenomenon of flame rectification in which the polarity of power sent through a flame is rectified to DC, flame is a poor conductor so the signal is more micro amps .3 to .5 usually [4].

- **Jumper Wires(Assorted):**

The term jumper wire simply refers to a conducting wire that establishes an electrical connection between two points in a circuit[8]. You can use jumper wires to modify a circuit or to diagnose problems in a circuit [7].

- **Android phone:**

We get notification of fire on android phone so we use android phone in this project. We make an android application to get notification of fire.

- **GPS:**

GPS uses satellites to track the position of any object with a GPS tracking chip, including vehicles, people, and pets. It works regardless of weather conditions and provides real-time positional data [5].

- **GSM:**

GSM is a globally accepted standard for digital cellular communications. GSM uses narrowband Time Division Multiple Access (TDMA) for providing voice and text based services over mobile phone networks [6].

- **Motion sensor:**

Motion sensor is the device that detect the moving objects, particularly people.

## 9.2 Software Requirement:

- Arduino IDE 1.8.6
- Android Studio 3.3.1
- JDK 1.10
- Android SDK 28

## 10. References:

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[3]. [https://en.wikipedia.org/wiki/Arduino\\_Uno](https://en.wikipedia.org/wiki/Arduino_Uno)

[4]. [https://en.wikipedia.org/wiki/Flame\\_detector](https://en.wikipedia.org/wiki/Flame_detector)

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[6] . <https://en.wikipedia.org/wiki/GSM>

[7]. [https://en.wikipedia.org/wiki/Jump\\_wire](https://en.wikipedia.org/wiki/Jump_wire)

[8]. <https://www.hunker.com/13414381/how-to-use-electrical-jumper-wires>

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