

## Device Verification and Safety using RFID Tag

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### Abstract:

Most of the families in today's world, own a car. As the number of cars purchased increases, the theft rate also increases. Thus, the demand for an auto guard system is augmented. This system makes use of a Radio Frequency Identification (RFID) tag to identify unauthorized access. The microcontroller uses Id Password to the person in the car and Password to control the engine. The SMS gateway hub is used by the system to transmit intruder data and send messages to the owners. The Global Positioning System (GPS) helps the owner to know the location of the car where it is lost and we track the vehicle through a GPS. This system is built with the ATmega16 controller which controls and coordinates all the processes. Traditional anti-theft systems depend on various sensors which do not provide reliability. Thus, this system will merge safeguard, tracking and remote control of the car.

**Keywords —RFID reader, RFID Tag, Mircocontroller, Arduino UNO, Switches, GPS, Servo motor, DC Motor, E-drivers License.**

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### I. INTRODUCTION

Automobiles have become an inevitable part of one's life. With the increase in the standard of living and the purchasing capacity of the people, the number of cars bought has rapidly increased in the past decade. In that system we also set the arduinouno in that set the three switches – Lock unlock and emergency, when we press any one to get the msg to the police department and showroom with the current location. In that system when we enter the password to start the engine or stop the engine. we can also change the password. This increase in car purchasing has brought about an increase in the theft of cars. The smarter the technologies become, the smarter the thefts are. There are lots of techniques introduced to avoid the thefts but still the solution for providing the security of a vehicle is not achieved. It should be able to prevent theft as well as intimate the present location of the car to the owner. And police department also view all cars live location through the link. Major technologies such as RFID, GPS and the RFID reader. Each owner is given a unique RFID tag and we set the ID password of the owner. The system uses the Sms gateway to communicate with the user and send to the msg of the intruder. In spite of these prevention measures, the car is stolen it can be traced using the GPS module.

RFID is one of the promising technologies employed as an alternative for overcoming some issues associated with current technology used for identifications, such as RFID tag and RFID Reader systems. Many research has been done in the RFID fields that are discussed about object tagging and identification, as reported in a new design of tag antenna, tagging method, using different material and so on. This project goes one step ahead by using this identification technology to track vehicles in cases of

motor vehicle. By using an RFID Reader, an ID and password system has been designed that is activated only during a start or stop the engine.

In that system, we use GPS, RFID reader, Arduinouno, Sensor motor, DC motor, Switches. GPS so the current location of the vehicle to the police and User. It should be able to prevent theft as well as intimate the present location of the car to the police. The sensors, the RFID and the password need to be correct to ignite the engine which will be sufficient to prevent the theft of the car in most cases. The system may be further upgraded by adding a module that authenticates the owner using his/her ID Password. The RFID reader is available in handheld, mobile or fixed forms either of which may be used based on the application.

## **II. RELATED WORK**

### **Problem Statement:**

As theft of the vehicles are increasing we need something to protect the vehicles. This project eliminates the theft of vehicles. RFID (Radio frequency Identification) tag, when the car recognises RFID Drivers E-license, the radio waves of the RFID tag will make the car door open automatically and if the RFID reader will be placed on the door of the car. The password for starting the engine will store a unique code with a special encryption that is used to access the user data stored on the database and it will check for the authentication of the user and if the user is authenticated then only the car will start. This will make it easier to trace back and know who was using the vehicle at a specific time. Even if someone damages/destroys the car through violence, the engine will still not start because the power will not be connected.

### **Literature Survey:**

RFID following system is additionally known as a Vehicle following application. There is a relative lack of analysis regarding the following and observation of auto movement. This study aims at assessing the practicality of applying RFID for vehicle following functions. There are various types of following devices accessible in the market these days. Radio Frequency Identification (RFID) is an emerging technology that uses wireless radio waves to identify objects from a distance. RFID allows the user to capture period data in fast-paced and ponderous product flows intending to achieve a high degree of potency and reassuring top quality. Typically RFID system contains RFID reader, RFID Tag, middleware, and backend system. The RFID tag is the identification device hooked up to the item to be tracked. The RFID reader and antenna are unit devices which will acknowledge the presence of RFID tags and browse the knowledge held on them. RFID is an intermediate layer to process the transmission of information between the reader and different applications when receiving the data. Middleware is a package that facilitates communication between the system and also the RFID devices. The lower prices and also the increasing capabilities of the RFID technique attract attention to keep track of and observe the vehicles on the road.

### **Objectives:**

1. To prevent the vehicle from burglaries and ignition of the engine by using RFID Tag.
2. To trace the stolen vehicle using GPS.
3. To analyse and verify the benefits of e-drivers license.

### III. METHODOLOGY

- **Radio Frequency Identification:**

Radio Frequency identification (RFID) is a technology which target to machines or the computers to identify objects, record data or control individual through radio waves To keep the driver's data in a RFID card and set a sensor on the car door, let the card send data through radio waves to compare with the database. It will also have a usage record of driver's name on the database and notify the owner who is using the car. To keep the driver's data in a RFID card and set a sensor on the Such as EasyCard name-registered to let the user avoid losing their e-money, Electronic Toll Collection (ETC) aims to eliminate the delay on toll roads, toll bridges, and toll tunnels by collecting tolls no cash and while not requiring cars to stop , Warehouse Management let the users host to check information or command the tool to do the work when the house owner is in distant. These are using RFID to record the course, related to their serial number and do anything through the website. Management let the host to track the position of the car or command the tool to do the work when the house owner is in distant or is giving vehicle to any relative.

- **Website and database:**

A website can be authenticated by a third party website authentication service. An user designates an authentication device that is a shared secret between the user and the authentication service i.e the company. A website page includes a URL that points to the authentication service. Use the website and have the authentication can provide each platform to use. It will avoid unnecessary trouble about the different type platform to update. To receive a signal from a user to view the information, it has the graphic user interface to be used. There are too many things could be done through the website, such as authentication, store the value, matching identity etc. In this generation, the smartphone also can accomplish a lot of missions. To combine these two parts to reach the goal of staying a record, just need to build website, database on the cloud and the board computer to set on the car. Because of the car doesn't have the conscious to know this person who is, and does this person is allowed to drive the car. So this research means to let the car know who is going to use itself.

- **IOT and IOV(Internet of vehicle):**

The IoV comes from the IoT concept which allows devices to connect to a network and helps the owner know the device's information instantly. IOV enables a car to be intelligent such that it can avoid an accident, gather information from surroundings, be monitored and controlled in real time. Including other nearby vehicles, handheld devices carried by pedestrians, roadside units (RSUs), and remote vehicle to everything application servers. But besides these preventions, the other ways of anti-stolen are only on the recognition smart key or keyless entry. Not mentioned too much about the driver's identity. For promoting the anti-stolen , this research includes the tool related to the website to make the user have the first step of using registration on the database with all the details of the owner's and the car's details.

- **Anti-stolen:**

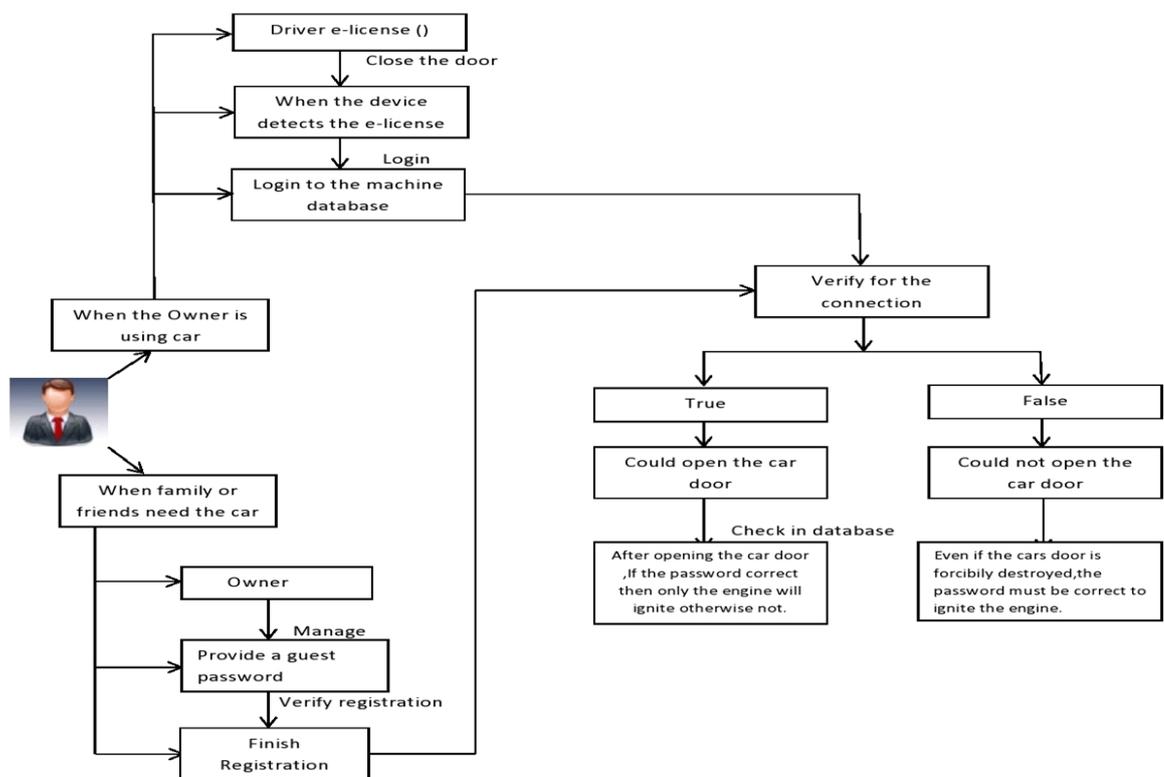
There are lots of ways to prevent burglaries, such as the siren, monitor, code lock and magnetic lock. But besides the entity lock, there are more technology methods can reach the goal in this era. We can use the

GPS to know where I am, to send the signal to know where the thing is. Besides, there is another way to solve this problem about anti-stolen which is tracking the usage record to know who used this before.

- **Serial Number:**

A number of methods have been developed to protect against such unauthorized use of the software. This method is inflexible and inconvenient for customers as an authorized technician must be scheduled to enable the features, can be circumvented by a person misappropriating or misusing the password, and does not give for periodic license verification throughout system operation.

### SYSTEM ARCHITECTURE



**Figure1:-New Process of starting the car.**

#### **IV.CONCLUSION**

Hence this system efficiently prevents car theft using RFID and SMS gateway technology. And even if the thief manages to steal the car, the owner or police can easily track the vehicle and can also identify the thief by using SMS gateway. This device will relieve the police pressure of searching the stolen vehicle to reduce the rate of car theft. The sensors, the RFID and the password need to be correct to ignite the engine which will be sufficient to prevent the theft of the car in most cases. The system may be further upgraded by adding a module that authenticates the owner using his/her ID Password.

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