ANTI-THEFT SYSTEM FOR VEHICLE SECURITY APPLICATION

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Abstract: With the increasing needs of improving vehicle security systems in this modern and fast changing world, the need for interfacing the vehicular security system with sensor network communication system is also increasing with a swift pace. This is nowhere far from reality. This so called Emergency Wireless Communication System mainly includes two important components. The first one is that Autonomous Vehicles act as access points that provide internet access from Internet Service Providers to travelers by creating a user profile for each one who connects to the access points (Autonomous Cars or Drones). The second one is that during accidents and other emergencies when people may not be able to communicate directly, sensor network implemented in the vehicles connect directly to the autonomous vehicles present in their range which forms a chain with other access points (Autonomous Cars or Drones) to inform the whereabouts of the person in danger to the nearest hospital, police station and possibly to the concerned person's family members & friends. The systems and methods described herein provide an improved approach for providing connectivity during emergency through sensor network communication.

Keywords: IOT, Infrared Sensors, GPS, Actuators.

1. INTRODUCTION

Widespread exposure of vehicles to accidents is increasing at an alarming rate. With this thing approaching the reality at a swift pace, there is an urgent need to club together the operations of IOT and SENSOR NETWORK COMMUNICATION to develop much more sophisticated techniques and methodologies to bring down the concerns of increasing road accidents [1]-[3]. The purpose of autonomous vehicles to act as access points is felt limited and this limitation could be reduced if sensor network communication is made an integral part of functioning of autonomous vehicles [4]-[5]. The blind spot technology implemented in this device helps in avoiding collision with other vehicles. This technology uses a laser which creates an arc around the vehicle indicating its fellow vehicles the presence of vehicle, especially at night. Infrared Sensors are also provided which warns the driver when another vehicle enters the arc of the vehicle [6]-[8].

2. ANTI-THEFT SYSTEM

Fig. 1 shows the immobilizer consists of an RF transmitter and receiver, and. If the immobilizer reads any unauthorized key, then actuators such as brake lock, steering wheel lock and tire lock get activated. Fig. 2 shows the block diagram of anti-theft system. It also sends notifications to the concerned person through cloud with the help of relay module 1. The entire system is connected to GPS to track real time location of the vehicle through cloud. Until now most of the systems were developed to send the notification to the end user but here in this system we have interfaced additional petrol tank attached with the relay when an unauthorized person tries to unlock the vehicle completely using various parameters, the additional petrol tank opens and petrol moves from one tank to other, by this the vehicle cannot move for longer distance end user can only access that

additional petrol tank here we are also monitoring the health of the driver via pulse senor which is attached to seatbelt of the car along with the temp and humidity in the car with help of DHT11.

Fig. 3 shows the flow chart of anti-theft system. We have also implemented another system which is connected to relay with additional power supply which provides additional security for the vehicle (such as back up or plan B). Here when the unauthorized person tries to cut the vehicle connections to access the car when the car at parking lot which is not under the surveillance, then this additional backup plan helps notify the end user.
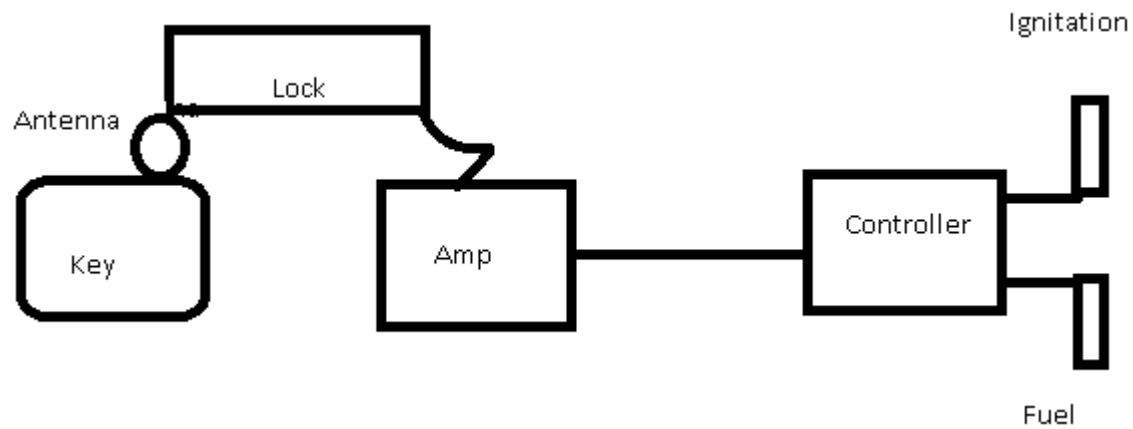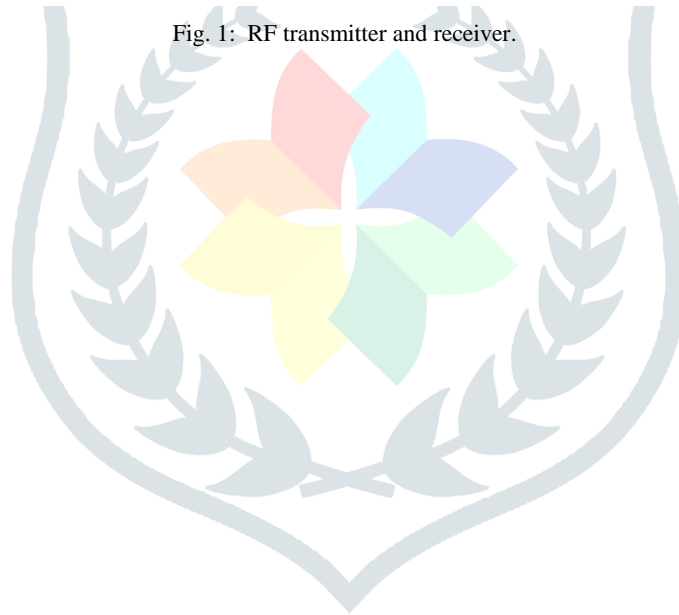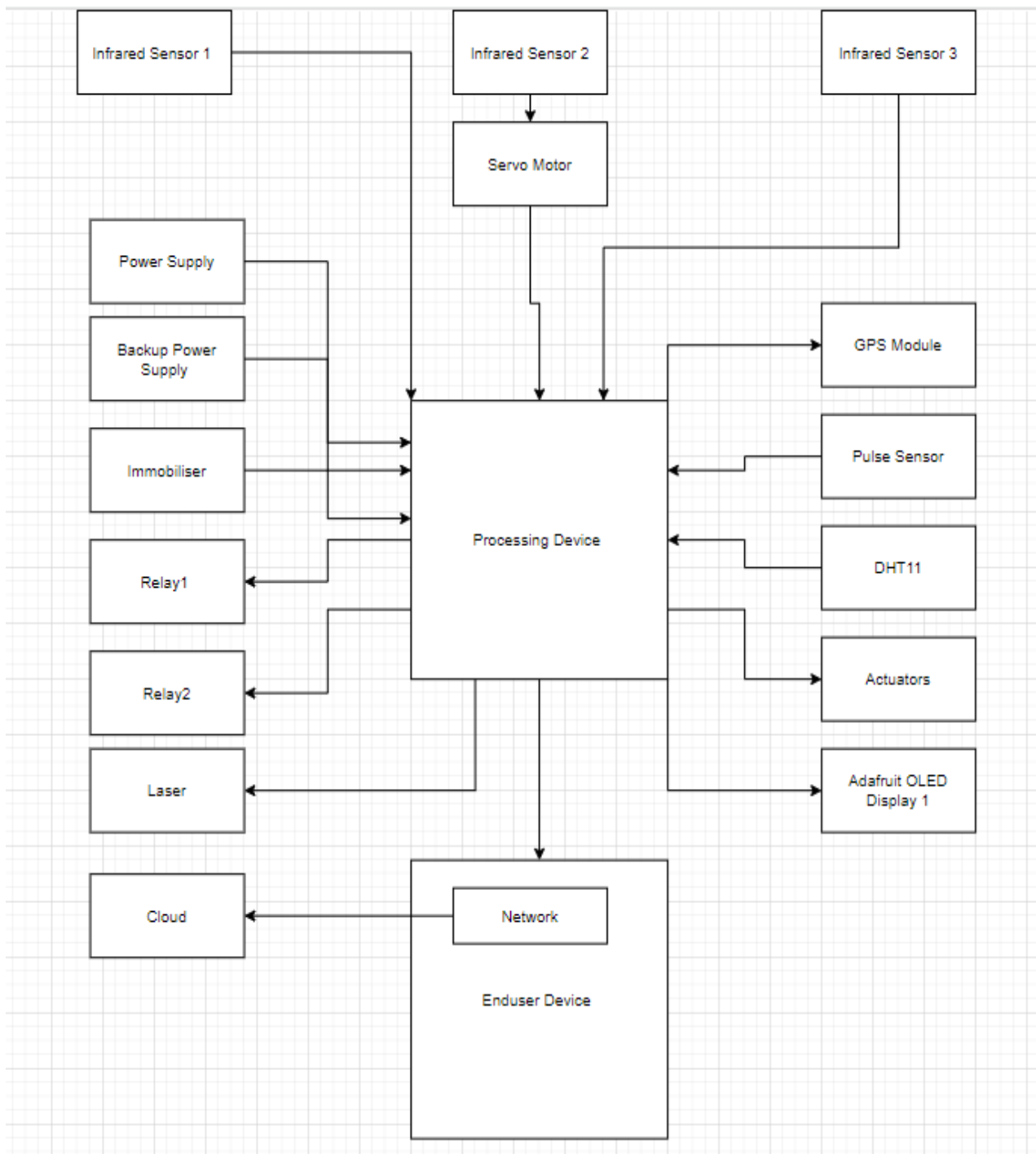

Fig. 1: RF transmitter and receiver.

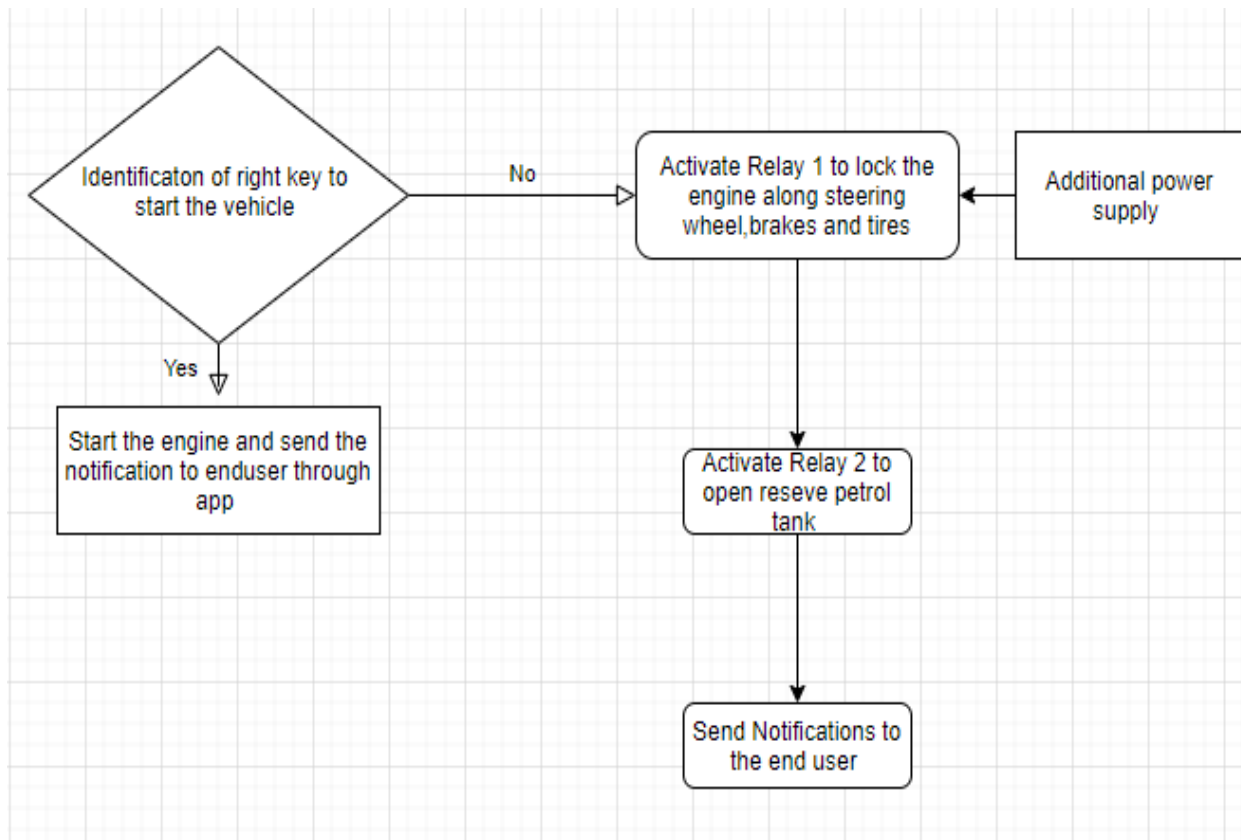Fig 2: Block Diagram of Anti-Theft System.

Fig 3: Anti-Theft System Flow Chart.

3. Conclusion

In this work, we proposed the vehicular security system with sensor network communication and correspondingly increasing a swift pace. This so called Emergency Wireless Communication System mainly includes two important components. The first one is that Autonomous Vehicles act as access points that provide internet access from Internet Service Providers to travelers by creating a user profile for each one who connects to the access points. The second one is that during accidents and other emergencies when people may not be able to communicate directly, sensor network implemented in the vehicles connect directly to the autonomous vehicles present in their range which forms a chain with other access points to inform the whereabouts of the person in danger to the nearest hospital, police station and possibly to the concerned person's family members & friends. The systems and methods described here provide an improved approach for providing connectivity during emergency through sensor network communication.

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