

Vehicle Theft Detection System based on Nordic Radio Frequency

S. Nagadevi, K.V.N. Anilkumar, G. Kumar Raja

Received 08 November 2018 ▪ Revised: 30 November 2018 ▪ Accepted: 06 December 2018

Abstract: The vehicles are growing rapidly in the urban areas vehicle theft has become more popular shared between their citizens vehicle tracking system has been designed based on internet of things by using RFID tags and alerts the Police by the location using IOT. The traffic sections are formed in a secure network by using NRF which gathers the information of the stolen vehicle and passes to the other traffic section. Hence this method helps us to find the stolen vehicle location accurately.

Keywords: IOT, NRF, RFID.

INTRODUCTION

Vehicle tracking system has been designed various technologies by using their RFID tags, RFID reader and NRF RFID is an identification of method and RFID reader read their tag details and it sends to a controller unit and it update into their data.NRF is an used to create between the traffic section signals and it is a wifi module it can work with speed of 1mbps and wide range upto 1km.Whenever the vehicle passed through the traffic signal RFID reader read their tag details and it sends to the controller to check whether the vehicle is theft or not in the data base if it is stolen vehicle then sends the information to the police station with the the help of transport office, so police can trace the vehicle by their next possible path

LITERATURE SURVEY

Lili Wan TiejunChen Automobile Anti Theft vehicle system based on GSM This paper mainly focuses on GSM network owner can receive a message and it can monitor a car accuarently if it is necessary by developing a GSM network we can get a better results[1]

Kingshuk Mukherjee Anti Theft Vehicle Trackingabd immobilization system This paper mainly This paper mainly describes on GSM and GPS tracking system and its immobilization GSM receives a message with the help of GPS location of their accurately ifthe owner sends a message track with the help of aurdino it passes to a GPS and it send back to the aurdino if the owner send a message immobilize the relay which is connected to their fuel injector through the GSM modem if the owner sends a message reverse the relay which is connected across the fuel injector there by closing their circuit[2]

Shruthi.K, Ramaprasad. P, Ruschil Ray, Manj Unath A. Naik, Shubham Pansari Design of an antitheft vehicle tracking system with a smart phone application This paper mainly describes on GSM and GPS, web camera to track their vehicle.

If the moves the owner can receive a image with the help of camera the owner can check whether the driver authenticated or not. If it is not authenticated he can send the message so alert to the police station regarding car colour, number model. They can trace the vehicle with the help of GPS with the coordination of GPS sends to the controller and it sends a location of the vehicle accurately[3]

Hui Song, Sencum Zhu and Guohong Cao SVATS A Sensor network based vehicle anti theft system. This paper mainly focused on sensor network based anti theft system which can un authorized vehicle movement to track their stolen vehicle and it sends a information to the base station[4]

Pazhampilly Sreedevi, B. Sarath S Nair image processing based real time vehicle theft detection and prevention system. This paper mainly describes by taking their photos and his face will be check into their data base whether the driver is authenticated or not.

S. Nagadevi, Department of Computer Science and Engineering, SRM University.

K.V.N. Anilkumar, Department of Computer Science and Engineering, SRM University.

G. Kumar Raja, Department of Computer Science and Engineering, SRM University.

If is not authenticated electronic signals will not get activated. To over come background cancellation while clicking the photos we need to develop DCT normalization for their face detection and face recognition algorithms have been used[5].

Table 2.1: Survey has been investigated and studied

EXISTINGS SYSTEM	PLATFO RM	METHAD OLOGY	FRIEN DLY
Automobile Anti-theft System Design based on GSM	PC based system. WSN are used to monitor the system	Location analysis sending information to server	The system is comple x
Anti-Theft Vehicle Tracking and Immobilizati on System	GPS, GSM based system.	GPS tracking, monitoring using Google map and alerting	The system is user friendl y
Design of an Anti-theft vehicle Tracking System with a Smartphone Application	GPS, GSM and microcon troller based system.	GPS tracking, control using map and sending alert SMS.	User friendl y
A Sensor-network-based Vehicle Anti-Theft System	PC based system. WSN are used to monitor the system	Location analysis, sending information to server	The system is comple x
Image Processing Based Real Time Vehicle Theft Detection And Prevention System	GSM based system	Image processing, sending to server	The system is comple x

SYSTEM BLOCK DIAGRAM

In this proposed system, we can design a anti - theft tracking system to track the theft vehicle. In this project nRF is used to transfer the data. RFID is used to identify the theft vehicle. IoT is used for live update. We can get the lot update detail from any place.

In the proposed system anti-theft tracking system is developed. In which the anti theft control management. Each and every vehicle provides a RFID tag and stored in to their data base.NRF is used to create a local network among the traffic signals whenever the vehicle passed to their traffic signal which is connected to their IOT modules. The Arduino UNO controller is used to interface the NRF, RFID and IOT

modules. When ever the vehicle passed through the traffic signal RFID reader reads the tag details and it sends to the controller to check whether the vehicle is theft or not in the data base if it is stolen vehicle then sends the information to the police station with the help of transport office, so police can trace the vehicle by their next possible path.

Vehicle Unit:

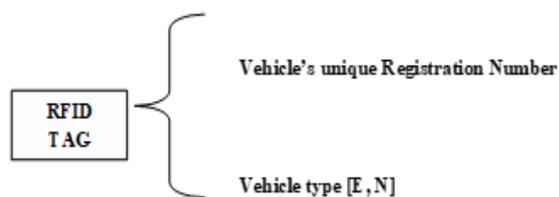


Fig. 3.1: Vehicle Unit
Traffic signal section 1

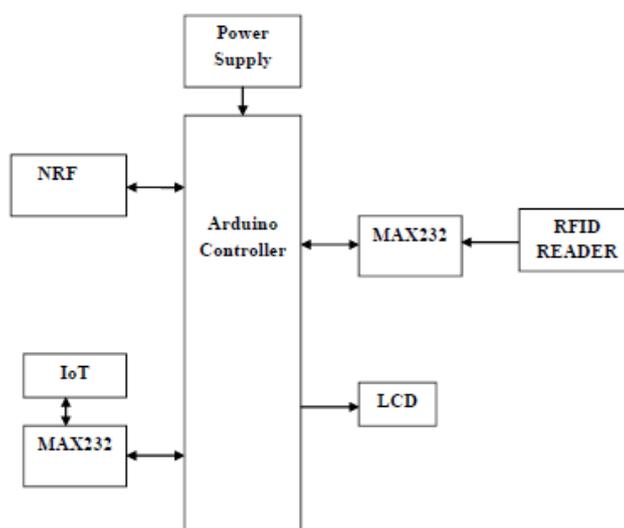
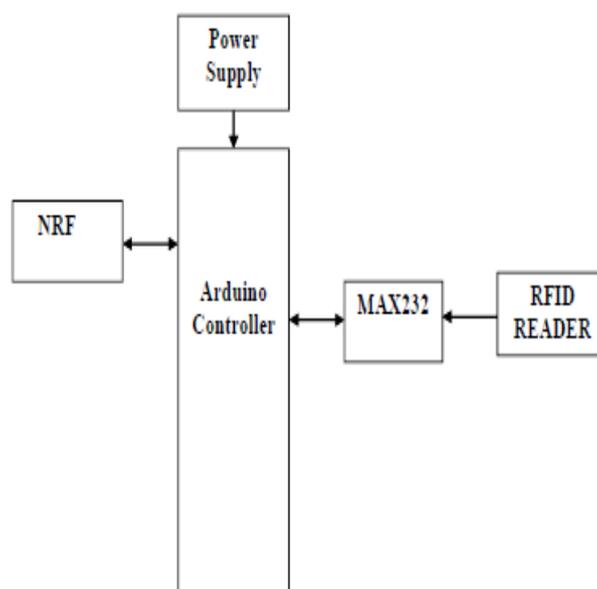
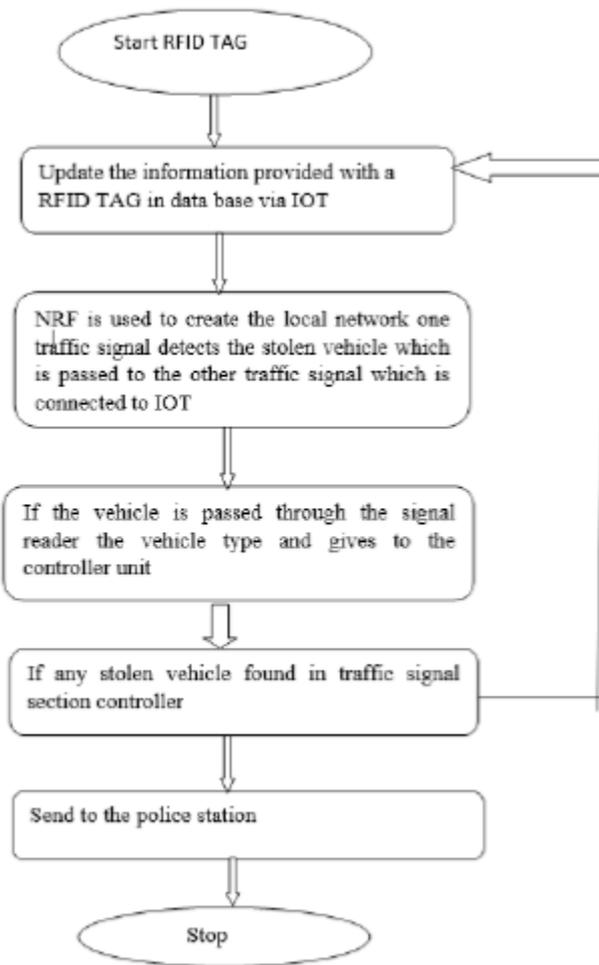


Fig. 3.2: Traffic Signal Sections
Traffic signal section 2



Flow chart



APPLICATIONS

- Low cost
- Easy to find the theft vehicle. High flexibility
- No need to recharge(money) the nRf
- Easy to track the vehicle

HARDWATRE COMPONENTS

AURDINO UNO

Aurdinouno is an micro controller is based on AT Mega 328P. It consist of A1-A5 analog pins, USB cable, 2-13 digital i/o pins, reset button, resetpin. It can be connected to their computer for their power supply as shown fig 5.1

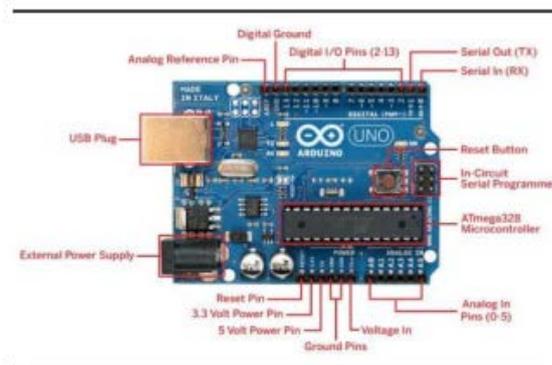


Fig. 5.1: Aurdino uno board

RFID TAG

A RFID is a micro chip containing which identifies a information and an antenna that transmit a data into a reader.

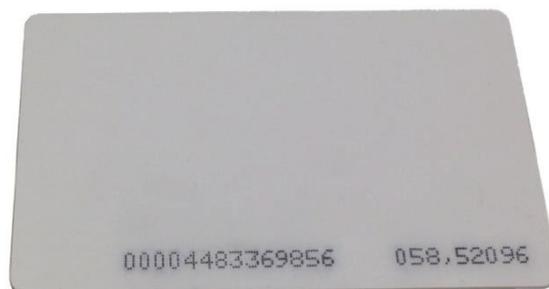


Fig. 5.2: RFID passive tag

RFID READER

RFID reader reads the RFID tag details

It has more one or more than one antenna Which leaves their radio waves and receive their signals.

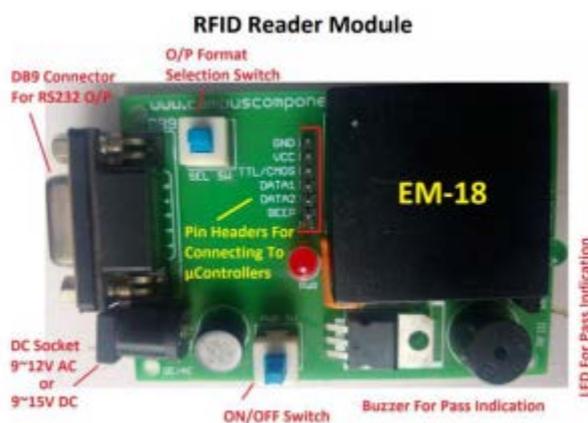


Fig. 5.3: RFID reader module

NRF

NRF is a wireless module it is used to communicate between the devices it can work with speed of 2.4Ghz and its range upto 1km

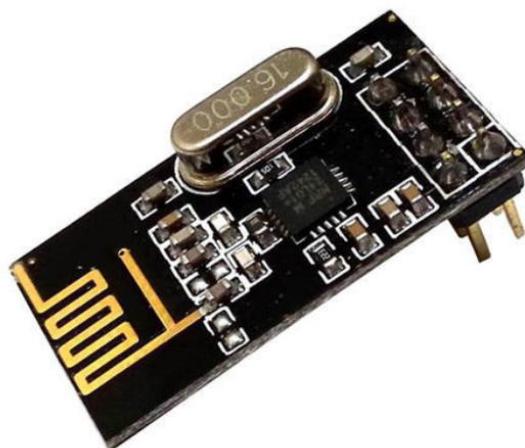


Fig. 5.4: NRF wireless transceiver module

IOT

The internet of things is a inter relation of computer devices, digital systems, electronic devices that can provide their unique identifiers and used to transfer and exchange their data

LCD

LCD is an is an electronic device and it can be used in various types of applications.It has 16 characters per line there are 2 such lines and seven segments and it can display 16x2 with the size of 5x7 pixel matrix.

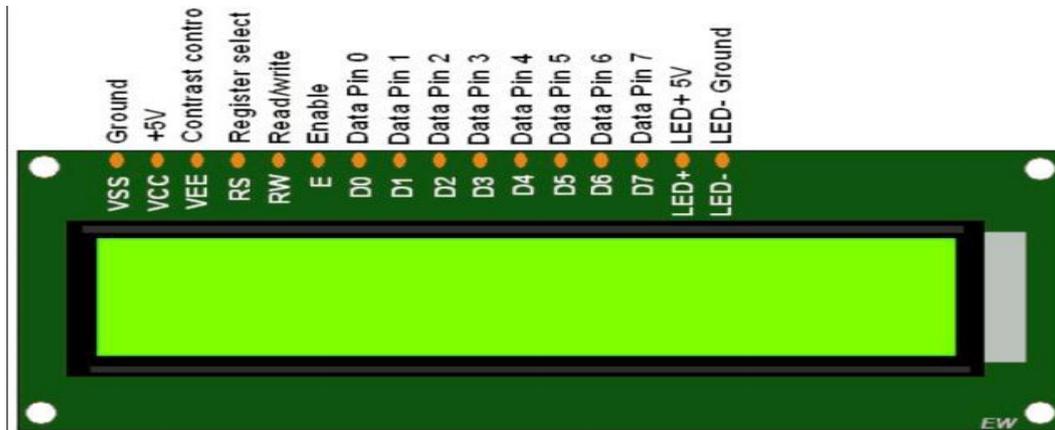


Fig. 5.5: LCD Aurdino

RESULTS AND DISCUSSION

The work given in the flowchart has been designed antitheft vehicle tracking system based on RFID tag, RFID reader and NRF. Each and every vehicle we are providing RFID tag. If the vehicle is stolen then we need to update the tag details to the data base if any vehicle theft vehicle is moving from the traffic signals then RFID reader reads the tag details it sends to the controller unit then controller unit check whether it is theft vehicle or not if it is theft vehicle is found it sends information to the police station with the help of transport office.

If any theft vehicle and ambulance is arrived at the same time to the traffic signal then we will give the first preference to the ambulance. If the theft vehicle is found the traffic signal if stops for 5seconds mean while police should reach near the traffic signal otherwise the vehicle will be moved and converting yellow and green light to reach from red signal 5milliseconds

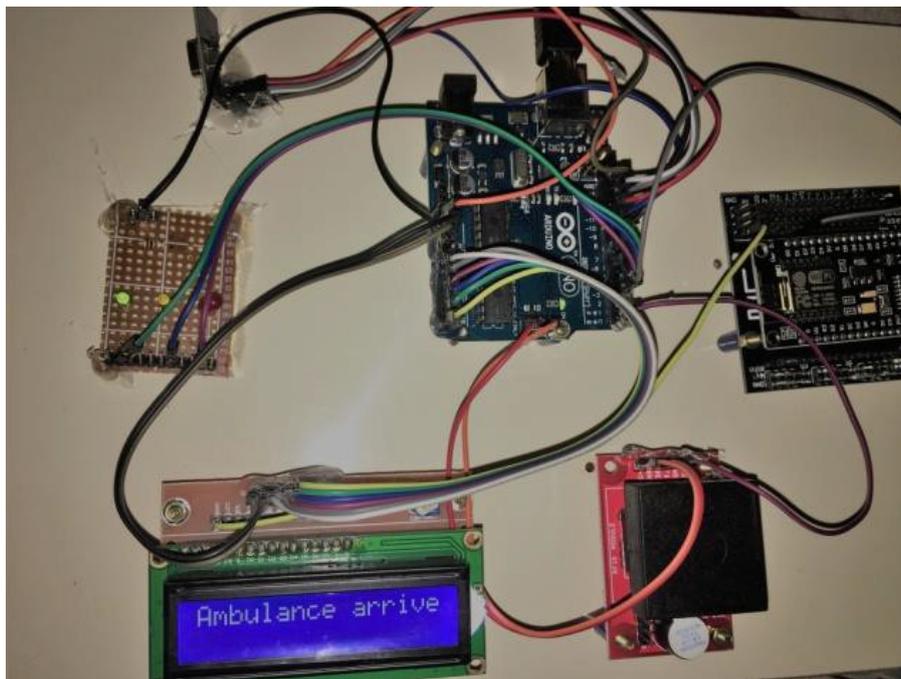


Fig. 6.1: When ambulance is arrived to the traffic signal



Fig. 6.2: when the theft vehicle is arrived near the traffic signal 1



Fig. 6.3: When the theft vehicle is arrived near the traffic signal 2

COM3 (Arduino/Genuino Uno)

```

RFID-0
RFID-1
0800AE3337A
0800A745DA3
1
Theft vehicle detected in signal2
0
08
080
0800
0800A
0800A7
0800A74
0800A745
0800A745D
0800A745DA
0800A745DA3
0800A745DA30
Theft vehicle
RFID-11
Theft vehicle detected in signal2
0800A745DA30
0800A745DA30
0800A745DA30
0800A745DA30
0800A745DA30
0800AE45DA30
0800AE35DA30
0800AE33DA30
0800AE333A30
0800AE333730
0800AE3337A0
0800AE3337A2
Ambulance
RFID-01

```

Fig. 6.4: Monitoring vehicles information which arriving from the traffic signals.

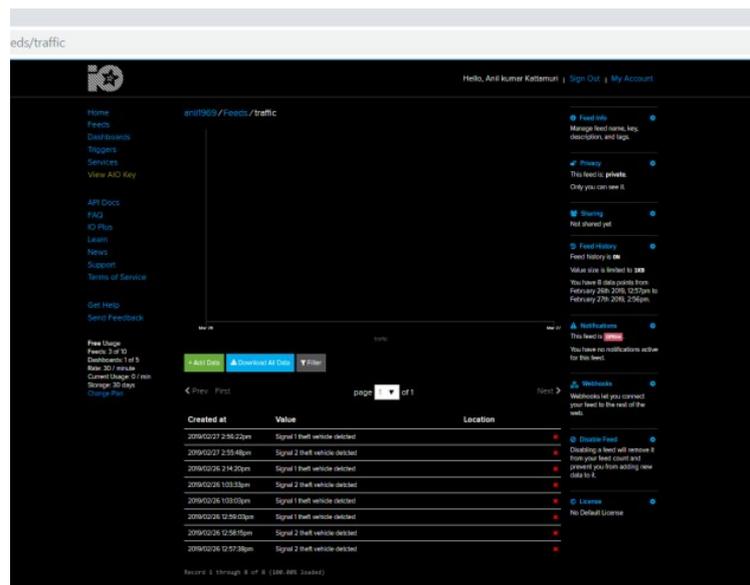


Fig. 6.5: Entering data and time into data base from their traffic signals.

CONCLUSION

Designed a system is a vehicles checking on the road by the police department. WE introducing RFID tags, RFID reader and NRF. We are placing RFID reader on the road so we can track the vehicles easily NRF is used to communicate between the traffic signals. the police department and owner can find their vehicles very easily.

REFERENCES

- [1] Lill wan thejunchen automobile and theft vehicle system based on GSM 2012.
- [2] Kindshukmukherjeeanti theft vehicle trackingand immobilization system 2014.
- [3] Shruthi.k, Ramaprasad.p,RuschilRay,M njunathA.Naik,ShubhamPanasari Design of anti theft vehicle tracking system with a smart phone application 2015.
- [4] Huisong,Sencumzhu and guohongcao SVATS A sensor network based vehicle anti theft system 2008.
- [5] Pazhampillysreedevi,B.Sarath s nair I mage processing based real time vehicle theft detection and prevention system 2011.
- [6] ManishBuhptani Shahram Moradpour, RFID field guide developing radio frequency identification systems, prentice hall 2005.
- [7] Sewoboh,joosangpark,yogioon lee RFID baed middle ware system for automatic identification, IEEE 2005.
- [8] Alien technology corporation, Turkish municipality gives green light to RFID tracking field guide 2007.
- [9] Benamarhaten,hamanhabib bus management system using RFID in WSN,I european and Mediterranean conference on information technology 2010.
- [10] Kumaryelamarthi,Daniel Haas, RFID and GPS integrated navigation system for the visually impaired, I 2010.
- [11] Mahammad Abdul Hannan,Aishah Mustapha, aini Hussain, RFID and communication technologies for an intelligent bus monitoring and management, I Turkish journal of Eletrical Engineering and Computer Science 2012.
- [12] S.P.Manikandan,P.Balakrishnan, An efficient real timequery system for public transportation service using zigbeeand RFID,I International journal of research in communication engineering2012.
- [13] Roy Want An introduction to RFID technology I,journal IEEE Pervasive computing 2006.
- [14] A,Chattaraj, S.Chakrabarti, S.bansal, S.H alder and A. Chandra An intelligent traffic control system using RFIDI,IEEE potentials 2009.
- [15] Chong hua Li Automatic vehicle identification system based on RFIDI Anti counterfeiting security and identification in communication 2010.