A SURVEY ON RED LIGHT VIOLATION AND DETECTION USING RFID TECHNOLOGY

[1]Aishwarya Bante, [2]Apurva Rangari, [3]Mrunal Chincholkar, [4]Nikita Umredkar, [5]Prof. Shailesh Kurzadkar
[1,2,3,4]Student, [5]Assistant Professor

[1,2,3,4,5]Computer Technology,
[1,2,3,4,5]K.D.K.College of Engineering, Nagpur, India.

Abstract: ***Today red-light violation is one of the most common and serious problem which leads to the collision of millions of vehicles at the traffic light signals every year. So to give the punishment to the drivers who are violating red signals, we must identify the vehicle that violates the traffic light signals. The main objective of the project is to detect the traffic signal red light violator on road by means of RFID reader and RFID tag technology. The paper will include deploying RFID tags on the car and RFID readers at the signal. The RFID reader will be responsible to detecting the cars violating traffic rules. The RFID tag will have a unique ID. A red-light violation occurs when a vehicle try to cross the intersection at the junction. So to avoid this, we must identify the vehicle that violates the traffic light signals. The RFID tag details will be linked to the mobile number of the car owner. Whenever a car violates the traffic rules, the fine amount with all other details about the red signal violation like date, time, place and etc. will be messaged to the owner. Designing an Intelligent traffic control system to detect the violator at traffic signals using sensors, RFID tag and readers and also improve the security in communication between RFID reader and tag.***

Index Terms **– RFID reader, RFID tag, sensor, unique ID.**

I. INTRODUCTION

India is the second most populous country in the world and is a fast-growing economy. Because of more population the growth in the number of vehicles is increasing exponentially day by day. But the infrastructure growth is slow due to space and cost constraints. As a result, India is facing terrible road congestion problems in its cities. The Radio Frequency Identification Technology displays a steady growth in various applications fields like commerce, logistics, medical science, security, access control, etc. The main objective of the project is to detect the traffic signal red light violator on road by means of RFID reader and RFID tag technology. The project will include deploying RFID tags on the car and RFID readers at the signal. The RFID reader will be responsible to detecting the cars violating traffic rules.

II. RFID TECHNOLOGY

2.1 RFID Introduction

This project addresses the various risks involved in stock market. It also reduces the chances of fraud and helps in detecting it in a sophisticated manner. One of the major problem faced in trading of stocks is the stock brokers and it helps the prospective buyer in buying and selling of stocks while reducing the price incurred in between. Fraudulent behavior, suspicious transactions, potential future attacks. How can this be mitigated? A I can analyze huge volumes of security data and scale to the size of a company as it grows So much valuable company data is being stored online. More and more. Using machine learning, systems can detect unique activities or behaviors and flag them for security teams. algorithms can detect fraudulent transactions that would go unnoticed by human analysts while improving the accuracy of real-time approvals and reducing false declines.

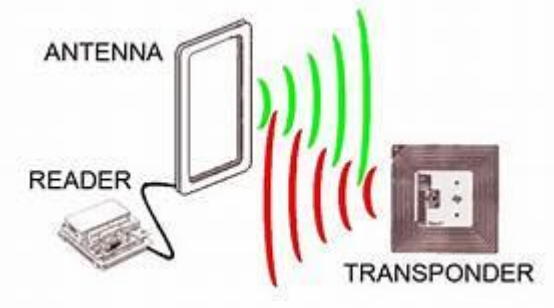

Figure 1- RFID Transponder

Given the unmeasurable high number of ways that security can be breached, genuinely "learning" systems will be a necessity in the five to ten years ahead. According to a 2015 study by research firm Javelin Strategy, wrong declines, legitimate transactions that are wrongly rejected, account for 118 billion in losses for retailers. A third of wrong decline cases result in lost customers, and in US alone they incur damage that is worth 13 times the value of actual fraud. By analyzing various data points, machine learning.

2.2 RFID Tags

Active Tag: Active tags has its own battery that is used for broadcasting signals over great distances. Generally, it is bigger in size and suited of carrying more information.

Passive Tag: No internet power source. The power to tag is acquired by electromagnetic field generated by signals of RFID reader. It is much cheaper.

Semi- Passive Tag: It is fixed with an on-board battery that drives the chip's circuitry but power for communication of the signal is derived from the reader's electromagnetic field as in the case of passive tags.

2.3 Working of RFID

RFID belongs to a class of technologies referred to as Automatic Identification and Data Capture (AIDC). AIDC technique works automatically identifying objects, collect data about them, and enter those data directly into computer systems with no human interruption. RFID methods uses radio waves to complete this. At a basic level, RFID systems includes three components: an RFID tag or smart label, an RFID reader, and an antenna. RFID tags consist of integrated circuit and an antenna, which are used to transmit data to the RFID reader. The reader then converts the radio waves to a more utilizable form of data. Information gathered from the tags is then transmitted via a communications interface to a host computer system, where the data can be stored in a database and analyzed at a later time.

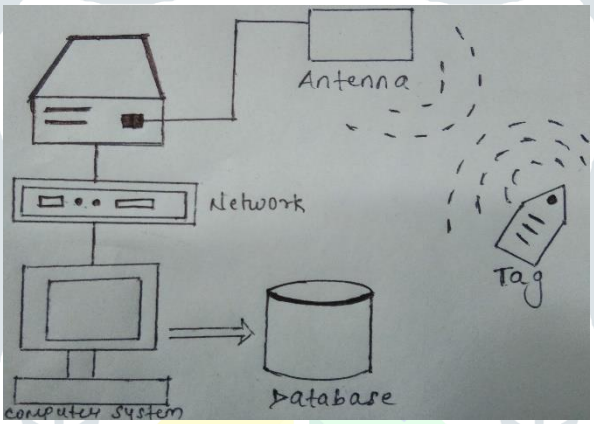

Figure 2 - Working of RFID

III. Related Work

(1)Ms. Pallavi Choudekar, Ajay Kumar Garg Engineering College, Department of electrical and electronics Ghaziabad, UP ,India Real Time Traffic Light Control Using Image Processing[3] IR Sensors are used measure the density of vehicles which are fixed within the fixed distance. The system will detect vehicles through images instead of using electronic sensors embedded in the pavement. A camera will be installed alongside the traffic light. It will capture image sequences. The image sequence will then be analyzed using digital image processing for vehicle detection, and according to traffic conditions on the road traffic light can be controlled.

(2)Journal of Advanced Computing and Communication Technologies (ISSN: 2347 - 2804) Volume No. 3 Issue No. 3, June 2015 56 Traffic Detection System Using Android.[1] Traffic detection system using Android. It determine the behavior of traffic in a particular location. It calculates the speed of the vehicle on the basis of sensors. If any such obstruct found, then driver provided an option to send message regarding high traffic to his friends.

(3)International Journal of Computer Applications (0975 - 8887) Volume 43- No.14, April 2012 38 RFID Technology for Smart Vehicle Control using Traffic Signal Speed Limit Tag Communication[2] RFID Technology for smart vehicle control using traffic signal speed limit tag communication. Used to reduce these reckless accidents for which, proposes a system that governs and controls the speed of the vehicle without any direct inconvenience to the driver.

IV. Proposed System

The project will include deploying RFID tags on the car and RFID readers at the signal. The RFID reader will be responsible to detecting the cars violating traffic rules. The RFID tag will have a unique ID. A red-light violation occurs when a vehicle try to jump the intersection at the red traffic light. So to give the penalty to the drivers of these vehicles, we must identify the vehicle that violates the traffic light signals. The RFID tag details will be linked to the mobile number of the car owner. Whenever a car violates the traffic rules, the fine amount with all other details about the red signal violation like date, time, place and etc. will be messaged to the owner. Designing an Intelligent traffic control system to detect the violator at traffic signals using sensors, RFID tag and readers and also improve the security in communication between RFID reader and tag.

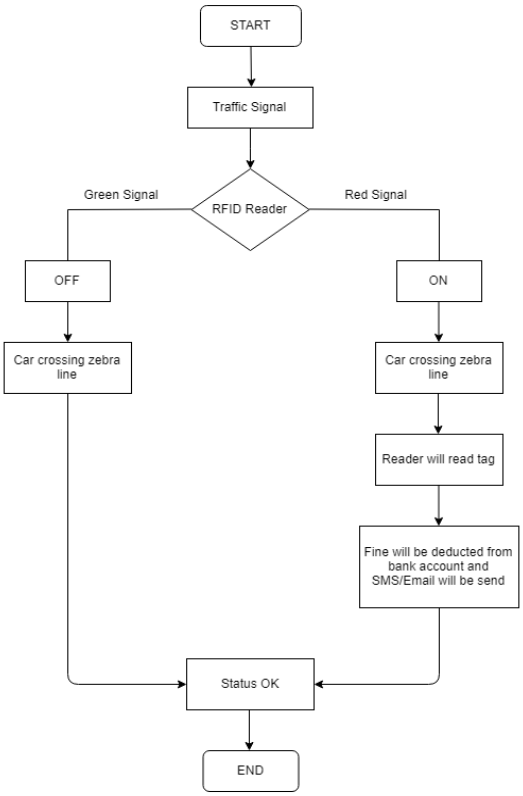

Figure 3- Flowchart

The RFID readers will be deployed at the signal post. The RFID tag details, vehicle owner's information such as name, contact violating the red signal will be estimated in prior. Taking into consideration a scenario of breaking a traffic signal, suppose once the red signal (Stop) turns on, the RFID reader will be activated. If any car passes the stop signal, the reader will read the tag that violated the rule and will retrieve its information from the database. The fine to be charged for breaking signal will be deducted from the car owner's account number and a notification regarding same will be sent to the owner through message or email. Also crime count will be increased. A limit of violating a certain rule will be set in prior. If any person exceeds this limit legal action like cancelling his/her license for a certain period can be taken.

V. CONCLUSION

This survey introduces a technology which will help to punish the culprit who are violating the signals. This technology will help directly to send message on to the mobile who has violated the signal.
For this RFID technology is used to scan the Tag and find out who is violating the signal with help of reader. The decided amount for violation will be deducted from the account of violator.

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