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# A Survey on Universal Network of Intelligent Traffic System

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**Abstract:** A control system to pass the vehicles smoothly. Each vehicle is equipped with special radio frequency identification (RFID) tag which is placed at a fixed location which makes it impossible to remove or destroy. We are going to use RFID reader system on chip to read the RFID tags attached to the vehicle. IR sensors count number of vehicles that pass on a particular path during a specified duration. It also determines the network congestion, and hence the green light duration is decided dynamically by the system for that path. In addition, when an ambulance is approaching the junction, it will communicate to the traffic controller in the junction to turn ON the green light. Android application is used to view the current traffic conditions.

**Keywords:** RFID Reader & tags, Communication system, IR Sensor, Switches,.

## I. INTRODUCTION

An application for Intelligent Traffic system includes the communication system, traffic response system, adaptive control system, real time data and control analysis, maintenance management which will make the signal system to work correctly. The system includes intersection traffic signal to combine them together with communication network and to maintain the system computer server or network of computer server. Number of techniques can be used for co-ordination which include the hand wired interconnection network and time based method. We are implementing these systems which may lead to efficiency as the traffic system now a days is not up to date. In today's day to day like emergency vehicle are waiting in traffic due to inconsistency of traffic to our system will give solution to these problems too.

### A. Purpose

- 1) To reduce waiting and travelling time we need efficient traffic management system which would also save the fuel and money
- 2) The aim of our system is to monitor the traffic data and to control the signal
- 3) As it is important to understand how the timer of traffic light works hence information used for timing the timer is necessary
- 4) We have developed a project to solve some traffic issue hence we learn concept of traffic efficient system

### B. Scope

- 1) RFID based vehicle detection
- 2) Detection of stolen vehicle
- 3) When rule is broken the system deduct some fine from user account

### C. Advantages of Traffic System

- 1) Intelligent control system to pass emergency vehicle
- 2) As vehicle is equipped with RFID tag which makes it impossible to remove or destroyed as it will be placed on a strategic location
- 3) Vehicle will not have to wait for long time on signal as the signal will fluctuate based on vehicle count

### D. Definition, Acronyms, and Abbreviations

#### 1) Definition:

- a) *Rfid* - RFID stands for Radio-Frequency Identification. The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a barcode or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information.

#### 2) Acronyms:

- a) GSM - Global System for Mobile Communication.

### b) LED - Light-Emitting Diode.

#### E. Technologies to Be Used

##### 1) Java, Android, and Arduino

- 2) *About Java:* Java has been tested, refined, extended, and proven by a dedicated community of Java developers, architects, and enthusiasts. Java is designed to enable development of portable, high-performance applications for the widest range of computing platforms possible. By making applications available across heterogeneous environments, businesses can provide more services and boost end-user productivity, communication, and collaboration—and dramatically reduce the cost of ownership of both enterprise and consumer applications.
- 3) *About Android:* Android's user interface is mainly based on direct manipulation, using touch gestures that loosely correspond to real-world actions, such as swiping, tapping and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input. In addition to touchscreen devices, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with a specialized user interface. Variants of Android are also used on notebooks, game consoles, digital cameras, and other electronics. Android has the largest installed base of all operating systems of any kind. Android has been the best selling OS for tablets since 2013, and on smartphones, it is dominant by any metric.
- 4) *Arduino:* Arduino refers to an open-source electronics platform or board and the software used to program it. Arduino is designed to make electronics more accessible to artists, designers, hobbyists, and anyone interested in creating interactive objects or environments. Arduino is a hardware and software company, project, and user community that designs and manufactures computer open-source hardware, open-source software, and microcontroller-based kits for building digital devices and interactive objects that can sense and control physical devices

## II. LITERATURE SURVEY

Table: 1 literature Survey

| Title   | Author  | Publication year | Findings   |
|---|---|------------------|--|
| Quantifying Incident-Induced Travel Delays on Freeways Using Traffic Sensor Data.     | Wang, Y. H., M. Hallenbeck, and P. Cheevarunothai.                  | 2008             | Automatic incident detection is an important component of intelligent transportation management systems that provides information for emergency traffic control and management purposes. Social media are rapidly emerging as a novel avenue for the contribution and dissemination of information that has immense value for increasing awareness of traffic incidents. In this paper, we endeavor to assess the potential of the use of harvested tweets for traffic incident awareness. |
| Topical keyphrase extraction from Twitter   | X. Zhao, J. Jiang, J. He, Y. Song, P. Achanauparp, E. Lim and X. Li | 2011             | The main idea is to extract information of traffic from Twitter. There are several critical information that the system must get and store in the database. Android-based mobile application should get those data, so the information can be presented in map view. The information extraction system will run continuously and should not be shut down. It must keep listening to the data, checking the database if there is new tweet to be processed.                                 |
| Vehicle-To-Vehicle Wireless Communication Proto. for Enhancing Highway Traffic Safety | S.Biswas, R.Tatchikou, F.Dion                                       | 2006             | Vehicular adhoc network communication has recently become an increasingly popular research topic in the area of wireless networking as well as   |

|   |   |      |  |
|---|---|------|--|
|   |   |      | the automotive industries. Recent advances in vehicular communications make it possible to realize Vehicular Sensor Networks (VSN) where mobile vehicles are equipped with sensors of different nature which can sense events, process sensed data and route messages to other vehicles.   |
| Performance Evaluation of Flooding In Manets in The Presence of Multi-Broadcast Traffic | M. B. Yassein, O. Khaoua, S. Papanastasiou      | 2005 | It acts as a general solution framework which enables quick propagation of messages generated from various applications of any type and any rate for all of V2V communication applications.  |
| Estimation of traffic density under Indian traffic conditions                           | A. Padiath, L. Vanajakshi and S. C. Subramanian | 2010 | Dimensional analysis is a popular method for first determining the variables required to characterize a system or a process and then determine their relationship. It also helps in significantly reducing the amount of experiments that must be performed. Dimensional analysis can provide a strategy for choosing relevant variables |

### III. PROPOSED ARCHITECTURE

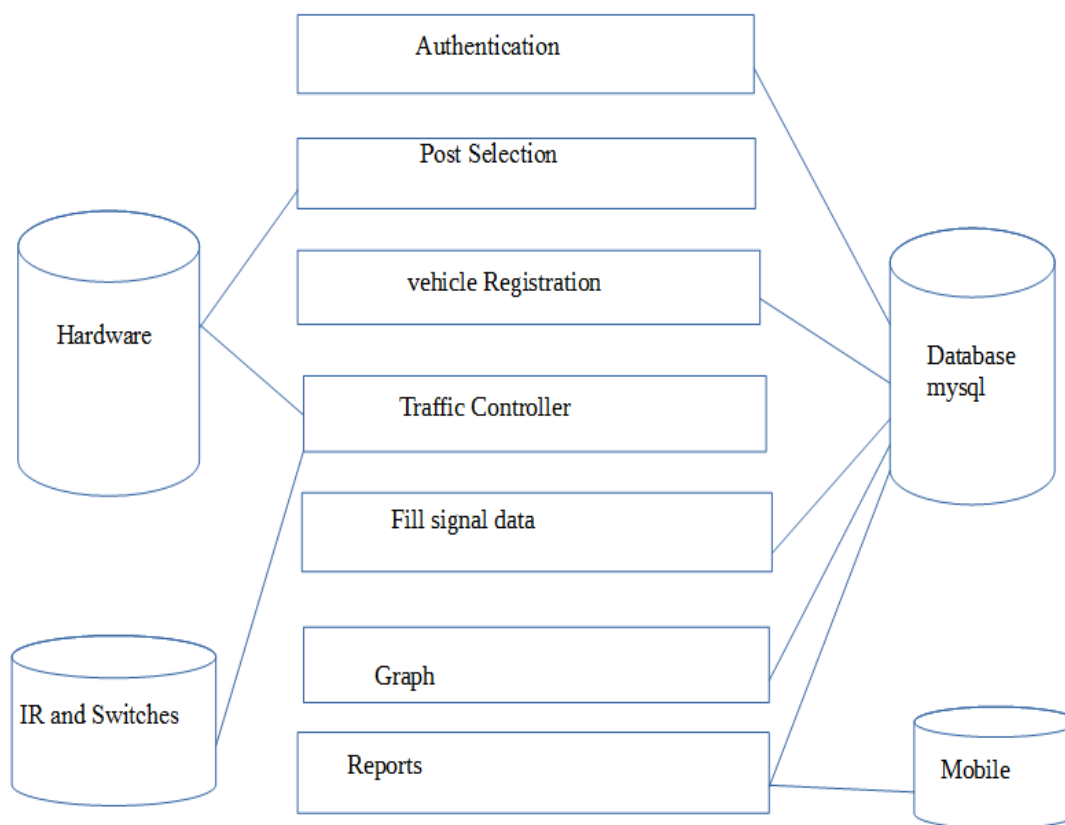


Fig 2 : Proposed Architecture



#### IV. EXPLANATION ON PROPOSED SYSTEM

In this Proposed System we are making use of Arduino controller, RFID TAG's & RFID Reader, PCB Circuit, Switches as Hardware. We are Building Web Application for Authentication and Registration of Vehicles at the administrator side. Firstly we have to Register and Authenticate the vehicle at the on our web app, which will store the information of User vehicle in Database. Post selection will contain the area of selection for implementing the system. As we are Registering the vehicle hence we need to store that information somewhere that's why we are making use of MySql database. Therefore we are linking the vehicle registration to the database. At the signal side we are making use of RFID Reader which scans the RFID tag which is attached to the vehicle. The RFID Reader is connected with the Arduino Controller. After scanning the vehicle the count will be increased accordingly. According to the value of the count the time of the Signal will be decided i.e when the vehicle are in large amount time for Green signal will be more and when vehicles are in less amount it will be less. The Traffic Controller will fluctuate the signal from Red to Green and Green to Red according to the count. And we are filling the Signal data hence it will be stored in our Database. After this we will get the generated Reports and Graphs.

#### V. CONCLUSION

- A. Traffic related issues are more and hence need to be controlled.
- B. This system provides dynamic traffic light that will manipulate according to size of traffic and vehicles detected with the help of RFID tag.
- C. Passing of Emergency vehicle through traffic signal will be easy.

#### VI. ACKNOELEDGMENT

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