

# A Smart Solution for Traffic Control & Stolen Vehicle

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**ABSTRACT:** In this paper, we proposed an Implementing Intelligent Traffic Control for Congestion, Ambulance clearance, and Stolen Vehicle Detection. This system was implemented based on present criteria that tracking three conditions in those one is heavy traffic control and another one is making a root of emergency vehicle like ambulance and VIP vehicle. In this paper we are going to implement a sensor network work which is used to detect the traffic density and also use RFID reader and tags. We use ARM7 system-on-chip to read the RFID tags attached to the vehicles. It counts number of vehicles that passes on a particular path during a specified duration. If the RFID tag read belongs to the stolen vehicles. GSM SIM300 used for message send to the police control room. In addition, when an ambulance approaching the junction, it will communicate the traffic controller in the junction to turn on the green light. This module uses Zigbee modules on CC2500.

## I. INTRODUCTION

The aim of this project is, INDIA is one of the most populous Country in the World and is a fast growing financial prudence. It is seen that terrible road congestion problems in cities. Infrastructure growth is slow as compared to the growth in number of vehicles, due to space and cost bounds. Also, Indian traffic is non-lane based. It needs a traffic control solutions, which are different from the other Countries? Smart management of traffic flows can reduce the negative effect of congestion. In recent years, wireless networks are widely used in the road transport as they provide more cost effective options. Technologies like XBee, GSM and RFID can be used in traffic control to provide cost better solutions. RFID system is a wireless technology that uses radio frequency electromagnetic energy to carry information between the RFID tag and RFID reader. Some RFID systems will only work within the range inches or centimetres, while others may work for 100 meters or more. A GSM modem is a special type of modem, which accepts a SIM card and operates over a subscription to a mobile operator, just like a mobile phone. The XBee operates at low-power and can be used at all the levels of work configurations to perform predefined tasks. It operates in ISM bands (868 MHz in Europe, 915 MHz in USA and Australia, 2.4 GHz in rest of the world).

## II. BLOCK DIAGRAM

The implementation of proposed system mainly involves three steps, which are Congestion control, Ambulance clearance, and stolen vehicles detects. The block diagram of the system is shown in Fig. 1.

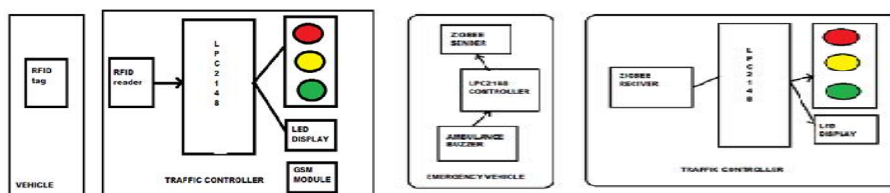


Fig.1. Block Diagram

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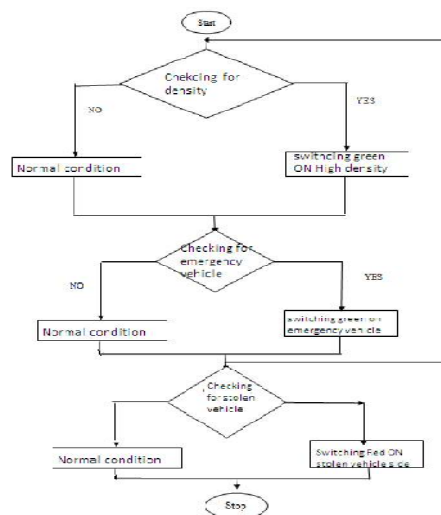
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1. First part contains automatic signal control system. Each vehicle equipped with an RFID tag. When it comes in the range of RFID reader, it will send the signal to the RFID reader. The RFID reader will track the how many vehicles have passed through for a specific period and determine the congestion volume. Accordingly, it sets the green light duration for the path.
2. Second part for is the emergency vehicle clearance. Here each vehicles contain Zigbee transmitter and Zigbee receiver will be implemented at the at the traffic junction. The buzzer will be switched ON when the vehicle used for emergency purpose.
3. If a match is found, it sends SMS to the police control room and changes the traffic light to red, so that the vehicle is made to stop in the traffic junction and local police can take appropriate action. List of components used in the experiment are CC2500RF module, Microchip ARM-7, RFID Reader–125KHz–TTL and SIM300 GSM module.



Fig 2:- Hardware of proposed Model

### III. FLOWCHART OF SYSTEM MODULE



### IV. PROPOSED WORK

Under the proposed work, each intersection contains RFID reader. The road is divided into two lanes. Each lane has its RFID to track the vehicles to passing through it. Each intersection point has its own data base to store the information regarding to vehicles that passes from it with timestamp and traffic light. Every vehicle has a RFID enabled device that stores a vehicle identification number (VIN). Every vehicle has its unique VIN number that provides the information

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that regarding the priority of vehicle and type of vehicle. With the help of VIN we can uniquely identify the vehicle and its owner.

Vehicle Identification Number:- In the proposed work RFID, tag will store vehicle identification number. These numbers is divided in three parts. First part represents the priority of the vehicles. Next part represents the type of vehicle and next, digit represents the vehicle number. In the proposed work, different types of vehicles have different type of priorities. Vehicles are divided into 4 categories. First system category includes Ambulance, Fire brigade vehicles and VIP vehicles. These vehicles have a highest priority. The second category includes the buses school and colleges buses. These buses need to reach their destination on time so these vehicles also need a fast service. Third category includes the car, motorcycle and scooter and forth category includes the heavy vehicles. Day time priority of 3rd category is high as compare to 4th category but during night hours the priority of heavy vehicles is high.

## V. CONCLUSION

As the entire system is automated, it requires very less human intervention. With stolen vehicle detection possible junctions. Emergency vehicles need to reach their destinations at the earliest. If they spend a lot of time in traffic jams. With emergency vehicle clearance, the traffic signal turns to green as long as the emergency vehicle is waiting in the traffic junction. The signal turns to red, only after the emergency vehicle passes through. Currently, it is implemented system by considering one road of the traffic junction.

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