

# An Intelligent Identification and Controlling System for Stop Sign Traffic Violation in Traffic Signal Processing

Neelambari S<sup>1</sup> Sathya B<sup>2</sup> Sowmiya E<sup>3</sup> Dhanalakshmi D<sup>4</sup> Sundhar C<sup>5</sup>

<sup>1,2,3,4</sup>UG Student <sup>5</sup>Assistant Professor

<sup>1,2,3,4,5</sup>Department of Electronics & Communication Engineering

<sup>1,2,3,4,5</sup>The Kavery Engineering College, India

**Abstract**— In this system, the vehicles can stop automatically when it violates the traffic rules at a road intersection. The traffic police cannot able to find and stop the vehicles who are not following the traffic rules at rush time. In this project by providing a control system we can stop and give penalty to the person who violates at traffic lines. Through this project we can avoid unnecessary road accidents inside the city also. In this project we introduce a system that detects all kinds of violations at a street intersection such as red light running, speed violation, stop line violation and lane violation by tracking individual vehicles. The IR modules fixed in under zebra line as well as vehicle unit. The RF transmitter is activated by IR modules when the vehicle crosses the zebra line during stop sign. The RF receiver module is fixed in vehicle engine controller mechanism which used to deactivate the engine ignition when it receives the signal from transmitter unit. The information about the violated vehicles is automatically updated in traffic control unit which is used provides penalty for that particular vehicle owner by using GSM technology.

**Key words:** Traffic Signal Violation, GSM, RF Module and IR Sensor Module

## I. INTRODUCTION

TRAFFIC light detecting plans to recognize conditions of street traffic lights that assume a critical job in numerous applications, for example, traffic the board, traffic lights streamlining and continuous vehicle route. It winds up less demanding for traffic the board when the traffic light state data is accessible. Various research ventures concerning traffic light advancement are being done. To perform traffic lights enhancement, traffic light state data of the past and the present is imperative information. What's more, with continuous state data of traffic lights, route frameworks can prescribe drivers with better way arranging. Vehicular networks have received increasing attention from both industry and academia as they are

Promising for a wide assortment of uses like driving security and Internet get to. Traffic light state data is additionally important to structure of remote vehicular system conventions. The data delivery performance of a vehicular network is highly dependent on the mobility of vehicles, which is greatly influenced by traffic lights. With the traffic lights data, a vehicle will most likely locate a superior next bounce for bundle conveyance since a red traffic light may delay a traffic stream before the traffic light and make great availability for certain length.

The system mainly focused towards controlling the any type of automobile vehicles during the period of traffic red sign by using hardware networks listed below: IR Sensor module, RF 433MHz transmitter and receiver module, HT12E Encoder, HT12D Decoder, AT89S52

Microcontroller, +12V Power Supply unit and GSM Technology. The Global System for Mobile communication is the wireless application protocol which is used to communicate the information from one point to globally. The GSM800Sim modeled modem can be used in this system for communicating the violated vehicle information to traffic controller office via SMS.

## II. LITERATURE SURVEY

1. Traffic light detecting expects to identify the status of traffic lights which is significant for some applications, for example, traffic the board, traffic light advancement, and constant vehicle route. In this work, we build up a framework called POVA for traffic light detecting in extensive scale urban zones. The framework utilizes unavoidable test vehicles that simply report constant conditions of position and speed every once in a while. POVA has preferences of wide inclusion and low sending expense. The imperative perception propelling the structure of POVA is that a traffic light considerably affects portability of vehicles out and about appended to the traffic light. In any case, the framework configuration faces three one of a kind difficulties: 1) Probe reports are essentially discrete while the objective of traffic light detecting is to decide the condition of a traffic light whenever; 2) there might be a very predetermined number of test reports in a given span for traffic light state estimation; and 3) a traffic light may change its state with a variable interim. To handle the difficulties, we build up another method that makes the best utilization of restricted test reports just as factual highlights of light states. It first gauges the condition of a traffic light at the time moment of a report by applying greatest a back estimation.

- 1) At that point, we detail the state estimation of a light whenever into a joint improvement issue that is illuminated by an effective heuristic calculation. We have actualized the framework and tried it with an armada of around 4,000 test taxis and 2,000 transports in Shanghai, China. Follow driven experimentation and field examine demonstrate that about 60 percent of traffic lights have an estimation blunder lower than 19 percent if 20,000 test vehicles would be utilized in the urban zone of Shanghai. We further exhibit that the estimation mistake rate is as low as 18 percent notwithstanding when the quantity of accessible reports is only 1 every moment.
- 2) In general, lane change violations are likely to happen before the stop line in the red-light violation detection region. The framework which can be recognizing red-light and path change infringement is exceptionally valuable for the traffic the executives. This paper presents a novel method for the red-light violation detection using vehicles moving in the region of interest

and combining with the evaluation of the trajectory's behavior of multiple vehicles using mean square displacement (MSD) to detect both of violation. We are utilizing picture handling method just to distinguished traffic motion without assistance of another other framework. The test result demonstrates that the calculation is high exactness to recognize both of infringement.

- 3) One of the primary causes of crashes at signalized intersections involves a vehicle entering an intersection when the red signal is displayed. This type of collision occurs frequently. The National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS) reports that red-light running crashes alone caused 762 deaths in 2008. An expected 165,000 individuals are harmed every year by red-light sprinters. The Insurance Institute for Highway Safety (IIHS) reported that half of the people killed in red-light running crashes are not the signal violators. They are drivers and pedestrians hit by red-light runners. The primary element of automated enforcement is photographic technology. Red light cameras (RLC) detect a motor vehicle that passes over sensors in the pavement after a traffic signal has turned red. The sensors are associated with PCs in rapid cameras, which take two photos of the infringement. Ordinarily, the primary photograph is taken of the front of the vehicle when it enters the convergence, and the second photograph is taken of the back of the vehicle when the vehicle is in the crossing point. Law requirement authorities survey the photo, and a reference is sent to the enrolled proprietor of the vehicle. The proprietor can test the reference on the off chance that the person was not the driver at the season of the infringement. As of June 2010, approximately 441 cities and municipalities are using red-light cameras. An additional seven States have legislation that allows red-light camera enforcement statewide. Twelve other States have legislation that allows red-light cameras in cities of certain size population.

### III. EXISTING METHOD

Numerous applications in vehicular specially appointed systems (VANETs) depend on communicate to scatter data among vehicles. In ordinary communicate conventions, just a single vehicle is booked to rebroadcast a message at a specific time to maintain a strategic distance from crashes among vehicles. In this paper, we infer the greatest transient uprooting required by the simultaneous transmissions in VANETs and propose a Concurrent Transmission based Broadcast (CTB) convention. The CTB incorporates two sections, communicate in a road and communicate at convergences. We divide the transmission range in the broadcast direction into segments and schedule the concurrent transmissions of the forwarders in the same segment. In our convention, regardless of whether some chosen forwarders neglect to get the message, different forwarders having gotten the message can at present rebroadcast it, which decreases the communicate deferral and builds the communicate dependability. Simulation results

show that our protocol is faster and more reliable compared to conventional broadcast protocols.

### IV. PROPOSED SYSTEM

The proposed system, the vehicles can stop automatically when it violates the traffic rules at a road intersection.

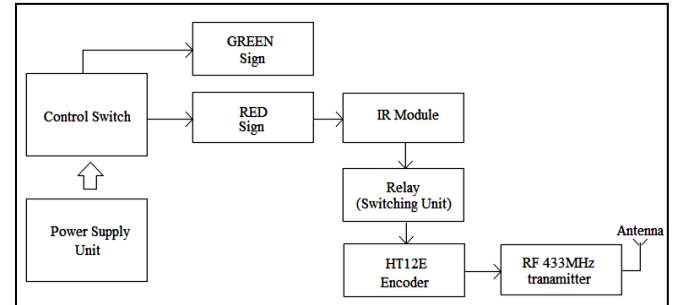


Fig. 1.1: transmitter unit

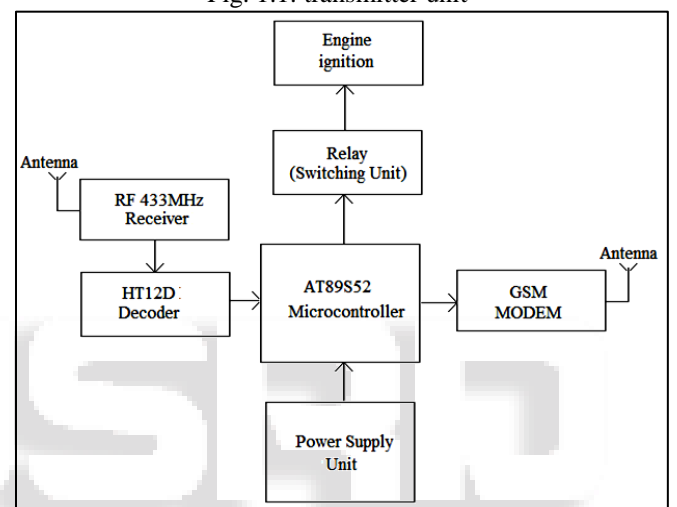


Fig. 1.2: Vehicle control Unit

The traffic police cannot able to find and stop the vehicles who are not following the traffic rules at rush time. In this project by providing a control system we can stop and give penalty to the person who violates at traffic lines. Through this project we can avoid unnecessary road accidents inside the city also. In this project we introduce a system that detects all kinds of violations at a street intersection such as red light running, speed violation, stop line violation and lane violation by tracking individual vehicles.

The IR modules fixed in under zebra line as well as vehicle unit. The RF transmitter is activated by IR modules when the vehicle crosses the zebra line during stop sign. The RF receiver module is fixed in vehicle engine controller mechanism which used to deactivate the engine ignition when it receives the signal from transmitter unit. The information about the violated vehicles is automatically updated in traffic control unit which is used provides penalty for that particular vehicle owner by using GSM technology.

### V. SOFTWARE DETAILS

Embedded C is a lot of language augmentations for the C Programming language by the C Standards advisory group to address shared trait issues that exist between C expansions for various inserted frameworks. Verifiably, inserted C programming requires nonstandard augmentations to the C

language so as to help extraordinary highlights, for example, settled point number-crunching, various particular memory banks, and fundamental I/O tasks.

#### A. KEIL

Compile your C code, assemble your assembler source files, and link your program together, create HEX files, and debug your target program.

- $\mu$ Vision2 for Windows™ Integrated Development Environment: combines
- Project Management, Source Code Editing, and Program Debugging in one incredible condition.
- C166 ANSI Optimizing C Cross Compiler: makes relocatable article modules from your C source code,
- A166 Macro Assembler: makes relocatable article modules from your 8xC166 or C167 constructing agent source code,
- L166 Linker/Locator: consolidates relocatable item modules made by the compiler and constructing agent into the last supreme article module,
- LIB166 Library Manager: consolidates object modules into a library which might be utilized by the linker,
- OH166 Object-HEX Converter: makes Intel HEX records from supreme item modules,
- RTX-166 constant working framework: disentangles the plan of complex, time basic programming ventures.

#### B. Future work

The complete traffic violation monitoring and control can be done automatically through web server.

### VI. CONCLUSION

The proposed technique indicates superior as far as exactness for infringement location and calculation multifaceted nature since the framework can be perform in the ongoing. The system can be detecting traffic light signal using purely video processing with high accuracy and it showed high performance red-light and lane-change violations detections. In the next research, a neural-network will be employed for vehicle traffic violations detection. The problem in image capturing process will be improved for higher performance in identifying how many vehicles are in each frame.

### REFERENCES

- [1] Yanmin Zhu, Member, IEEE, Xuemei Liu, Minglu Li, Member, IEEE, and Qian Zhang, Fellow, IEEE
- [2] Katanyoo Klubsuwan, Wittaya Koodtalang Image Processing Research and Development.
- [3] Lloyd Rue Technology to Stop Red-Light Running.
- [4] Peter Koonce, P.E. Kittelson Associates, Inc.
- [5] Daniel González Montoya, Student Member, IEEE, Carlos Andrés Ramos-Paja, Senior Member, IEEE, and Roberto Giral, Senior Member, IEEE.
- [6] S.P. Nagahage, E.A.A. Dilrukshi Visvesvarya Technological University Belgaum INDIA
- [7] H.J. Helikson, D.Z. Haman and C.D. Baird2 Kassem (IEEE Member) and M. Hamad (IEEE Member)
- [8] Okpeki U.K. otuagoma.S.O Department of electrical/Electronic/Computer Engineering, Delta State University