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# IMPLEMENTING INTELLIGENT TRAFFIC CONTROL SYSTEM FOR CONGESTION CONTROL AND STOLEN VEHICLE DETECTION

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**ABSTRACT**: Traffic Recognition is utilized to control traffic signs, caution a driver, and charge or preclude certain activities. A real time and hearty programmed movement sign identification and acknowledgment can bolster and disburden the driver and altogether increment driving wellbeing and solace. Driving is the procedure which incorporates visual data processing. The driver needs a considerable measure of movement observing keeping in mind the end goal to achieve mishap free driving. Street signs convey much data important for the activity observing, they happen in institutionalized positions in movement scenes, shapes, hues and pictograms. They depict circumstances, characterize right-of-way, restrict or allow certain headings, caution about unsafe variables and so forth, limits speeds in risky conditions, and so on. In this project we perceive vehicle, rescue vehicle by utilizing RFID technology. At the point when ambulance vehicle is there we give green flag so rescue vehicle can without much of a stretch go. Generally red signal enacted agreeing consistent time plan. We can without much of a stretch perceive vehicles on zebra crossing, when red signal initiated and offering sign to vehicle by beeping buzzer.

**Keywords:** Traffic recognition, RFID, stolen vehicle detection etc.

**INTRODUCTION**: At INDIA is the second most crowded Country in the World and is a quickly developing economy. It is seeing unpleasant street blockage issues in its urban areas. Framework development is ease back when contrasted with the development in number of vehicles, because of space and cost limitations. Additionally, Indian movement is non-path based and riotous. It needs a movement control arrangements, which are not the same as the created Countries. Smart administration of movement streams can decrease the negative effect of clog. As of late, remote systems are broadly utilized as a part of the street transport as they give more savvy alternatives. Advances like ZIGBEE, RFID and GSM can be utilized as a part of activity control to give practical arrangements. We utilize RFID framework in our project, for recognizable proof of vehicle like vehicle is stolen or vehicle is emergency vehicle or approve individual vehicle. For various vehicle distinctive activities perform by microcontroller unit. In the event that emergency vehicle recognized red signal change by green signal. Same if stolen vehicle recognized around then buzzer warning will give. On the off chance that any vehicle attempt to cross if red signal is on punishment will be taken.

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**LITERATURE REVIEW:** Mrs Vidya Patil says in this paper "INTELLIGENT TRAFFIC CONTROL SYSTEM" about Intelligent Traffic Control and Management System which utilizes shrewd parts like RFID, IR sensors, microcontroller, and so on. It likewise comprises of modules for i) Allowing section of organized vehicles viz Ambulance, VIP, and so forth ii) Enabling clients to track their stolen or lost vehicles.iii) Help individuals to get data about the activity thickness in particular zone .iv) Avoiding debasement via computerized fine reasoning. RFID labels are utilized for novel ID of vehicles and IR sensors are utilized to get the vehicle tally. RFID perusers utilized are having recurrence 125 KHz. PCB (Printed circuit Board) are utilized to mount circuit segments

Rajeshwari Sundar et.al. Exhibits in this paper "IMPLEMENTING INTELLIGENT TRAFFIC CONTROL SYSTEM FOR CONGESTION CONTROL, AMBULANCE CLEARANCE, AND STOLEN VEHICLE DETECTION" around a clever movement control framework to pass crisis vehicles easily. Every individual vehicle is outfitted with exceptional radio recurrence ID (RFID) tag (set at a key area), which makes it difficult to evacuate or wreck. We utilize RFID peruser, NSK EDK-125–TTL, and PIC16F877A framework on-chip to peruse the RFID labels joined to the vehicle. It checks number of vehicles that passes on a specific way amid a predefined span. It additionally decides the system clog, and henceforth the green light term for that way. On the off chance that the RFID-label read has a place with the stolen vehicle, then a message is sent utilizing GSM SIM300 to the police control room. What's more, when a rescue vehicle is moving toward the intersection, it will impart to the activity controller in the intersection to turn ON the green light. This module utilizes ZigBee modules on CC2500 and PIC16F877A framework on-chip for remote interchanges between the rescue vehicle and movement controller. The model was tried under various blends of contributions to our remote correspondence research facility and exploratory results were found not surprisingly.

Ayush Kr. Mittal et.al. Says in paper "A NOVEL APPROACH TO IMPLEMENT GREEN WAVE SYSTEM AND DETECTION OF STOLEN VEHICLES" about today's reality, car influxes amid surge hours is one of the real concerns. Amid surge hours, crisis vehicles like Ambulances, Police autos and Fire Brigade trucks stall out in jams. Because of this, these crisis vehicles are not ready to achieve their goals in time, coming about into lost human lives. We have built up a framework which is utilized to give leeway to any crisis vehicle by turning all the red lights to green on the way of the crisis vehicle, henceforth giving a total green wave to the craved vehicle. 'Green wave' is the synchronization of the green period of movement signs. With a 'green wave' setup, a vehicle going through a green signal will keep on receiving green signals as it goes not far off. Around the globe, green waves are utilized to awesome impact. Frequently criminal or

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psychological militant vehicles must be recognized. Notwithstanding the green wave way, the framework will track a stolen vehicle when it goes through a movement light. eera Venkatesh et.al. Says in the paper "Smart TRAFFIC CONTROL SYSTEM FOR EMERGENCY VEHICLE CLEARANCE" that the Traffic clog is real issue in urban communities of creating nations like India. The point of this venture is to pass crisis vehicles like VIP Vehicles, ambulances, fire trucks to their goals at the most punctual by utilizing insightful activity control framework. Then we can distinguish stolen vehicles by utilizing this control framework. Here we have executed by reaching out to every one of the streets in a multi-street intersection. In this framework every individual vehicle is furnished with extraordinary radio frequency identification (RFID) tag (put at a vital area), which makes it difficult to evacuate or obliterate. We utilize RFID peruser, NSK EDK-125–TTL, LPC2148 A framework on-chip to peruse the RFID labels joined to the vehicle. It checks number of vehicles that passes on a specific way amid a predefined length. Relies on the thickness of vehicles on the specific intersection, the movement signs will fluctuate. In this, RFID tags are the vehicles and the Reader which is at Traffic control room, gets the information when the vehicle is stolen and the GSM will Send the Message to the concern authority so that, the ready area is dynamic. We can track the stolen vehicle by utilizing this framework. Md. Abdus Samad Kamal et.al. says in paper "Smart Driving of a Vehicle Using Model Predictive Control for Improving Traffic Flow" Traffic management on street systems is a rising look into field in control designing because of the solid request to reduce activity blockage in urban ranges.Connection amongvehicles every now and again causes clog and also bottlenecks instreet limit. In thick activity, influxes of movement thickness engenderin reverse as drivers attempt to be careful separations through regularincreasing speed and deceleration. This paper exhibits a vehicle driving framework in a model prescient control structure that successfully enhances activity stream. The vehicle driving framework controls safe intervehicle remove under the limited driving torque condition by foreseeing the previous activity. It likewise concentrates on easing the impact of braking on the vehicles that take after, which helps sticking waves weaken to in the movement.

**ARCHITECTURE DIAGRAM:**

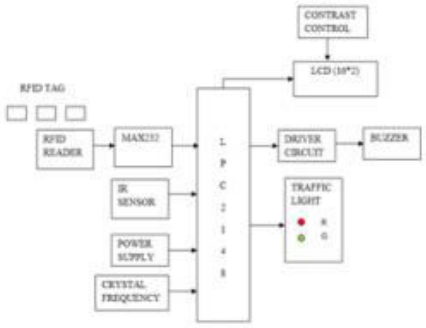


Figure. 3.1 Architecture diagram

**POWER SUPPLY:**

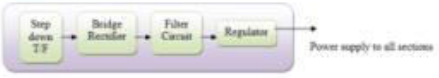


Figure 3.2 Power supply

In This Project We Assume That Each Vehicle Attach With RFID Tag. RFID Reader Read That Vehicle Tag and Identify Vehicle for Traffic Management. On the off chance that First Tag Show to RFID Reader System Understand Vehicle Is Authorize Person. On the off chance that Second Tag Shows System Identify Its Ambulance, At That Time Red Signal Goes Green and Same Time on LCD Display String "Ambulance Detected". On the off chance that Third Tag Detected Means Vehicle Is Stolen At That Buzzer Is Beep.In the event that IR Sensor Activated When Red Signal Is On, Display on LCD As "Penalty" This project utilizes regulated 5v, 750mA power supply. 7805, a three terminal voltage regulator is utilized for voltage direction. Connect sort full wave rectifier is utilized to redress the AC yield of secondary of 230/12v step down transformer.

## HARDWARE CONFIGURATION:

ARM 7 Microcontroller

LCD Display

Buzzer

IR Sensor

RFID TAG

RFID Reader

## HARDWARE REQUIREMENT:

**4.1 ARM 7 Controller**: The ARM7TDMI-S is a universally useful 32-bit microprocessor, which offers superior and low power utilization. The ARM engineering depends on Reduced Instruction Set Computer (RISC) standards, and the guideline set and related interpret system are much easier than those of miniaturized scale customized Complex Instruction Set Computers (CISC). This straightforwardness brings about a high direction throughput and great ongoing interfere with reaction from a little and practical processor center. Pipeline procedures are utilized with the goal that all parts of the preparing and memory frameworks can work ceaselessly. Regularly, while one direction is being executed, its successor is being decoded, and a third guideline is being gotten from memory. Details

•16-bit/32-bit ARM7TDMI-S microcontroller in a small LQFP64 bundle.

•8 kB to 40 kB of on-chip static RAM and 32 kB to 512 kB of on-chip streak memory.

•128-bit wide interface/quickening agent empowers rapid 60 MHz operation.

•In-System Programming/In-Application Programming (ISP/IAP) by means of on-chip boot loader

•Software. Single glimmer division or full chip eradicate in 400 ms and programming of 256 bytes in 1 ms.

•Embedded ICE RT and Embedded Trace interfaces offer continuous investigating with the •On-chip Real Monitor programming and rapid following of direction execution.

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•USB 2.0 Full-speed agreeable device controller with 2 kB of endpoint RAM.

**4.2 IR SENSOR**: An Infrared (IR) sensor is utilized to recognize snags before the robot or to separate between hues relying upon the setup of the sensor. An Infrared (IR) sensor is utilized to recognize deterrents before the robot or to separate between hues relying upon the setup of the sensor. An IR sensor comprises of an emitter, indicator and related hardware. The circuit required to make an IR sensor comprises of two sections; the emitter circuit and the collector circuit. An infrared sensor (IR sensor) is an electronic sensor that measures infrared (IR) light transmitting from items in its field of view. They are frequently utilized as a part of PIR-based movement detectors.IR Sensors work by utilizing a particular light sensor to identify a select light wavelength in the Infra-Red (IR) range. By utilizing a LED which creates light at an indistinguishable wavelength from what the sensor is searching for, you can take a gander at the force of the got light. At the point when a protest is near the sensor, the light from the LED ricochets off the question and into the light sensor. This outcomes in a substantial bounce in the force, which we definitely know can be distinguished utilizing a limit. Details

•Operating voltage - +5v DC regulated •Obstacle recognition: - Indicated by dynamic high yield •Logic yield:- 1 or 0.

•Sensitivity:- up to 30cm customizable.

**4.3 LCD 16 * 2 SPECIFICATION**: LCD remains for Liquid Crystal Display. LCD is finding far reaching use supplanting LEDs (seven portion LEDs or other multi fragment LEDs) on account of the accompanying reasons of the declining costs of LCDs, The capacity to show numbers, characters and illustrations. This is as opposed to LEDs, which are constrained to numbers and a couple characters, Fuse of an invigorating controller into the LCD, along these lines soothing the CPU of the undertaking of reviving the LCD. Conversely, the LED must be invigorated by the CPU to continue showing the information and Simplicity of programming for characters and design.

Details

Show :- 16 Char* 2 Lines

Controller:- LSI HD44780 IN BUILT

Control Supply :- + 5v Dc Show Color :- Gray Weight :- 35g

**4.4 RFID TAG**: A radio-frequency identification framework utilizes labels, or names joined to the items to be recognized. Two-way radio transmitter-beneficiaries called cross examiners or readers send a signal to the tag and read its reaction. RFID labels can be active, passive or battery-assisted passive. An active tag has an on-board battery and occasionally transmits its ID flag. A battery-assisted passive (BAP) has a little battery on board and is initiated when within the sight of a RFID reader. An inactive tag is less expensive and littler in light of the fact that it has no battery; rather, the label utilizes the radio vitality

transmitted by the reader. Be that as it may, to work an inactive label, it must be enlightened with a power level around a thousand times more grounded than for signal transmission. That has any kind of effect in obstruction and in presentation to radiation.

**4.5 RFID READER:** RFID frameworks can be arranged by the sort of tag and reader. A Passive Reader Active Tag (PRAT) framework has a detached reader which just gets radio signs from active tags (battery worked, transmit as it were). The gathering scope of a PRAT framework reader can be balanced from 1–2,000 feet (0–600 m), permitting adaptability in applications, for example, resource security and supervision. An Active Reader Passive Tag (ARPT) framework has a active reader, which transmits investigative specialist signals furthermore gets validation answers from uninvolved labels. An Active Reader Active Tag (ARAT) framework utilizes active tags awoken with an investigator motion from the active reader. A variety of this framework could likewise utilize a Battery-Assisted Passive (BAP) label which acts like a latent tag yet has a little battery to control the label's arrival reporting signal. Repaired readers are set to make a particular cross examination zone which can be firmly controlled. This permits an exceedingly characterized perusing territory for when labels go all through the cross examination zone. Versatile readers might be hand-held or mounted on trucks or vehicles.

Detail

•Operating Voltage - 5v

•Current-<50mA

•Read separate- 10cm

•Operating frequency- 125khz

**4.6 BUZZER**: A buzzer or beeper is a sound signaling device, which might be mechanical, electromechanical, or piezoelectric. Run of the mill employments of signals and beepers incorporate alarm devices, clocks, and affirmation of client information, for example, a mouse snap or keystroke. Piezo bell is an electronic gadget usually used to deliver sound. Light weight, basic development and low value make it usable in different applications like auto/truck turning around marker, PCs, call chimes and so forth. Piezo signal depends on the opposite rule of piezo power found in 1880 by Jacques and Pierre Curie. It is the marvels of producing power when mechanical weight is connected to specific materials and the other way around is additionally valid. Such materials are called piezo electric materials. Piezo electric materials are either actually accessible or synthetic. Piezo clay is class of artificial material, which postures piezo electric impact and is broadly used to make circle, the heart of piezo signal. At the point when subjected to an exchanging electric field they extend or pack, as per the recurrence of the flag along these lines delivering sound.

Determination

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•Voltage : 2 - 5VDC

•Maximum current : 30mA/5VDC

•Decibel : > 85db/10cm

•Resonant recurrence : 2500Hz (+/ - 300 HZ) •Operating Temperature : - 20 to 70 C

## SOFTWARE REQUIREMENT:

1.PROGRAMMING LANGUAGES:- Embedded C 2.COMPILERS:- Keil 4.0uv

3.DUMPING SOFTWARE:- Using Micro controller flash magic Software we are dumping our HEX Code into Micro Controller

## MATHEMATICAL MODULE:

Let W be the whole system which consists

Input = {R}. 1. Let R is the set of number of RFID user

R= {r1,r2,…..rn}.

2. Let I be the IR sensor check for vehicle not follow traffic rule.

I={i1,i2….in}.

Procedure

1. Verification of RFID tag

Step 1 :-First RFID Which Is Place At Vehicle Get Check.

Step 2 :-Authorize Person RFID Tag Get Check.

Step 3 :-IF Ambulance Detected at that Time Traffic Signal Get Change to Green.

Step 4 :-If Stolen vehicle detected at that time buzzer get activated for alert.

2.Check for IR sensor

Step 1 :-IR sensor check if any vehicle not follow traffic rule.

Step 2:-At that time buzzer get activated. Step 3:-Display on LCD as “penalty”.

## ADVANTAGES:

- Solve Traffic Issues.
- Vehicle Identification Is Easy.
- Instant Notification.
- Reliable.
- Solve Traffic Congestion Issue

## CONCLUSION AND FUTURE SCOPE:

With automatic traffic control in light of the movement thickness in the course, the manual exertion with respect to the movement policeman is spared. The outline and usage of this strategy is straightforwardly focused for movement administration so that crisis vehicle on street gets clear approach to achieve their goal in less time and with no human interference. As the whole framework is robotized, it requires less human mediation. With stolen vehicle identification, the signal naturally swings to red, so that the cop can make suitable move, on the off chance that he/she is available at the intersection. As the whole framework is computerized, it requires less human intercession. With stolen vehicle location conceivable intersections.

Ambulances need to achieve their goals at the most punctual. In the event that they invest a great deal of energy in car influxes. With crisis vehicle leeway, the activity signal swings to green the length of the crisis vehicle is holding up in the movement intersection. The signal swings to red, simply after the crisis vehicle goes through. At present, it is executed framework by thinking of one as street of the movement intersection. ACKNOWLEDGEMENT: Author want to acknowledge Principal, Head of department and guide of his project for all the support and help rendered. To express profound feeling of appreciation to their regarded guardians for giving the motivation required to the finishing of paper.

**REFERENCES**: [1]. Prof. Mrs Vidya Patil "Intelligent Traffic Control System" International Journal of Engineering Technology, Management and Applied Sciences, February 2016.

[2]. Sundar, Rajeshwari, Santhoshs Hebbar, and Varaprasad Golla. "Implementing intelligent traffic control system for congestion control, ambulance clearance, and stolen vehicle detection." IEEE Sensors Journal 15.2 (2015): 1109-1113.

[3]. Mittal, Ayush Kr, and Deepika Bhandari. "A novel approach to implement green wave system and detection of stolen vehicles." Advance Computing Conference (IACC), 2013 IEEE 3rd International. IEEE, 2013.

[4]. Veera Venkatesh, Nazneen Syed. " Smart Traffic Control System for Emergency Vehicle Clearance." International Journal of Innovative Research in Computer and Communication Engineering, Vol. 3, Issue 8, August 2015.

[5]. Abdus Samad Kamal. Md, Jun-ichi Imura, Tomohisa Hayakawa, Akira Ohata, and Kazuyuki Aihara (2014), „Smart Driving of a Vehicle Using Model Predictive Control for Improving Traffic Flow," IEEE Trans. Intell. Transp.Syst, vol. 15, no. 2

[6]. Arunmozhi.P, Joseph William.P (2012), „Automatic Ambulance Rescue System Using Shortest Path Finding Algorithm," International Journal of Science and Research, vol.3, Issue 5. [7]. Andrew Phan and Frank P. Ferrie (2011), „Interpolating Sparse GPS Measurements Via Relaxation Labeling and Belief Propagation for the Redeployment of Ambulances,"IEEE Trans. Intell. Transp. Syst, vol. 12, no. 4.

[8]. Akyildiz.I.F, W. Su, Y. Sankarasubramaniam, and E. Cayirci(2002), „A survey on sensor networks," IEEE Communications Magazine, Vol. 40, pp. 102- 114.