

Dynamic Traffic Management System Using Infrared (IR) And Internet of Things (IoT)

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Abstract- Traffic clog is an extreme issue in the greater part of the urban communities over the world and it has become a bad dream for the residents. It is brought about by delay in signal, unseemly planning of traffic flagging and so forth. The deferral of traffic light is hard coded and it doesn't relies upon traffic. Hence for improving traffic control, there is an expanding request in orderly brisk programmed framework. This paper is intended to build up a thickness based powerful traffic signal control. The sign planning changes naturally on detecting the traffic thickness at the intersection. The microcontroller utilized in this venture is ARDUINO. The framework contains IR sensors (transmitter and beneficiary) which will be mounted on the either roadside on shafts. It gets initiated and gets the sign as the vehicles passes near to it.

Keywords- congestion, ir sensor, internet of things, micro – controller.

I. INTRODUCTION

It is a wise traffic controlling framework. Our current technique embraced for traffic controlling depends on the fix timing. Each side needs to sit tight for the fix time and they are permitted to go across the street for the restricted fix time. This is plausible during typical traffic yet falls flat during substantial surge. This burn through the hour of suburbanites just as builds surges numerous folds. This issue can be handled by receiving traffic checking framework dependent on thickness of vehicles. This uses vehicles thickness as its device for estimating the scramble for the street. In light of the determined thickness of vehicles the traffic light are being controlled to deal with the traffic. Our project focuses at giving a completely robotized IR-sense based arrangement that makes traffic signs to move the lights (red/yellow/green) progressively. The IR-sensors faculties the impediment in its manner once a vehicle cruises by. Once there is a long impediment, the IR-sensor gets this sign as there is vehicle swarm out and about. The street side with more traffic appreciates additional time, while the side with less traffic encounters less time. The client get cautions about the whereabouts of the traffic on their cell phone. The client screens the traffic-thickness and closer traffic sign's the detected information accumulated from IR sensor. Based on

the information it powerfully moves the holding up time of the sign and the client gets an insinuation of status of the sign on his way. The opening and shutting of the traffic signals are done in clock-wise way to direct the unpredictability. The focal support accumulates all the information from sensors.

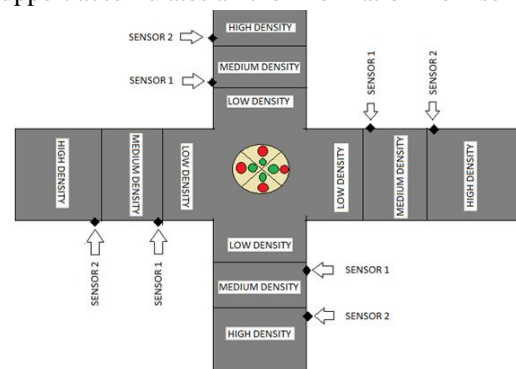


Figure 1: Presentation of Dynamic Traffic System

II. RELATED WORK

The current practices for traffic signal control are given beneath. Straightforward Traffic Management Scheme The traffic is control by one individual as it were. On the off chance that there are four streets from where vehicles are coming, at that point the man ought to have control in rush hour gridlock. He needs to discharge the vehicles individually street. In this plan there is very utilization of labor and it is difficult to deal with when more traffic is there. Programmed Traffic Management Scheme The most broadly utilized programmed framework. Utilizations basic time put together framework which works with respect to time interim premise which is presently wasteful for irregular and non-uniform traffic. yet, time interim remise is very time squandering it is anything but a quick procedure. Savvy Traffic Management Scheme utilizing Wireless Technologies This is utilized to detect nearness of traffic close to any circle and intersection and afterward ready to course the traffic dependent on the thickness wanted way. The traffic design on Indian streets is profoundly heterogeneous in nature. There are around 30 billion vehicles in India developing at the pace of 15-17% every year. The likelihood of mishaps is additionally expanding. Normal number of streets mishaps per thousand is

around 23 which is most elevated on the planet. Transports and trucks are answerable for 43% of mishaps.

K.M. Yousef et al in his paper has built up a versatile traffic control framework dependent on a traffic foundation utilizing remote sensor system to control the progression of traffic. They likewise built up a clever traffic controller to control the activity of the traffic framework upheld by WSN. It detects the traffic and powerfully changes the traffic lights through remote transmission. It just adds comfort to previously existing traffic light framework and not security.

Wen in his paper has proposed a structure for a dynamic and programmed traffic light control framework. They glue RFID labels on vehicles and us RFID reefers to make note of that number of vehicles, normal speed, traffic stream and so on and store in a database by passing the data remote. This database is later used to control the traffic signal lights, which helps in decrease of traffic blockage.

P. Sinhmar has proposed in his paper an answer for lessen the quantity of congested driving conditions with the assistance of IR transmission and microcontroller. The IR transmitter and recipient is to tally the quantity of vehicles passing and choice to change the traffic delay is made by microcontroller dependent on the gathered data. Such a framework is valuable in getting exact insights and aides in planning better traffic signal lights.

Various insightful vehicle framework innovations were created to permit sheltered and simple transportation. They shift from fundamental administration framework, for example, CCTV frameworks, triangular strategy, GPS based traffic framework, Bluetooth recognition and detecting advancements.

III. EXISTING SYSTEM

Traffic design on Indian streets is profoundly heterogeneous in nature. There are around 30 million vehicles in India which are developing at the pace of 15-17% every year. The 23 metros contribute towards 35% of the absolute engine vehicles in the nation. As far as numbers on street bikes overwhelm the scene with about 65% of the offer in absolute number of vehicles though regarding percent portion of excursions, transports spread greatest traveler kms of about 36% of aggregate. Vehicular proprietorship is low in this nation with just 26 vehicles for each thousand of populace as against 533, 546, 623, 615 and 197 engine vehicles for every 1000 of populace in France, Germany, Malaysia and Singapore separately.

In India, work trips are the most significant segment of traffic request during top hours of the day. Transport request is probably going to increment by about 2.5 occasions from 1991 to 2010 in huge metros and other medium estimated urban areas by 3-3.5 occasions. Indian traffic and transport framework has various downsides which causes issues of postponements, hazardously, contamination and lacking stopping. Normal number of street mishaps per thousand of vehicles is around 23, which is one of the most noteworthy on the planet. NMT are associated with about 6065% of the street mishaps and portion of people on foot is likewise extremely high remaining at about 40%.

IV. PROPOSED SYSTEM

The proposed framework controls three parameters in particular, on person on foot crossing, crisis vehicle leeway and traffic rules infringement. For on street passerby crossing, the traffic flagging framework will be filling in as regular dependent on the time postpone rationale yet with an additional schedule opening accommodated passerby crossing. The person on foot signal control will be turned ON based switch which is squeezed by passerby if there should arise an occurrence of crisis. All the above said tasks will be completed consistently.

In the event that any crisis vehicle shows up at any roadside it is distinguished utilizing Bluetooth transmitter and collector. A Bluetooth transmitter is put in the crisis vehicle and collector is set in the sign shaft at each side. The Bluetooth transmitter transmits the sign up to a degree. At the point when the collector gets the sign inside this breaking point, the driver press the switch of the physical gadget like cell phone or module by which we get show of the message as "Crisis" in the LCD show for 5 sec in the predefined course to alarm the individuals and afterward the sign on that side will be changed to green and others to red. In the event that the thickness at a traffic intersection turns out to be high, it will be identified by IR sensors which offer guidance to Arduino which is modified in such a way, that the more is the traffic thickness, more will be time given to that path to clear traffic.

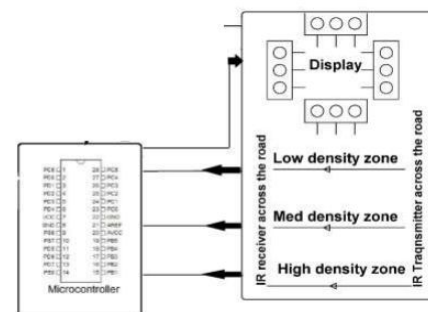


Figure 2: Block Diagram

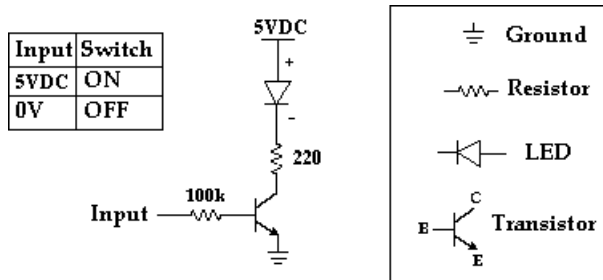


Figure 3: LED Driver Circuit

Emergency Vehicle Detection: RF transmitter utilized here to distinguish the rescue vehicle or insect crisis vehicles. For show we are transmitting a character from PC . At the point when a character is gotten on Microcontroller it changes that specific path to green every single other course will be changed to Red.

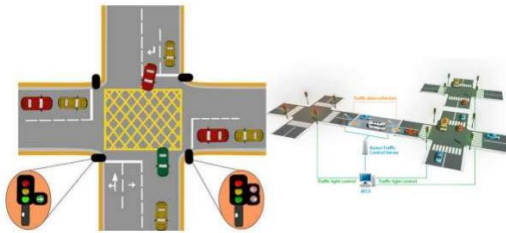


Figure 4: Emergency Vehicle Detection

V. CONCLUSION

In this paper we have contemplated the advancement of traffic light controller in a city utilizing Arduino and IR sensors. A traffic light framework has been structured and created with legitimate coordination of both the equipment and the product. This interface is synchronized with the entire procedure of the traffic framework. Consequently, this task could be modified in any capacity to control the traffic light model and will be valuable for arranging legitimate street framework.

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