iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VIII **Month of publication:** August 2019

DOI: http://doi.org/10.22214/ijraset.2019.8153

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VIII, Aug 2019- Available at www.ijraset.com

An Efficient and Low-Cost Ambulance Detection System with Signal Generation Mechanism

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Abstract: ***Generally, we are seeing many incidents taking place around us that patients are being dead in traffic as many of us is not giving way to the Ambulance when it is necessary. In developing countries like India, people are suffering a lot with the traffic issues because of this most of the people is unable to give way to the Ambulance. Due to this many of the patients are being dead before reaching the hospital. To overcome this serious issue, we have come up with an idea to save those lives by developing a simple device.***
This device will continuously send IR signals to the IR receiver present at that place and based on that it will automatically send the information to the signal light that are present at the side of the road and blown the light based on the emergency when the device is in Turn-on condition in an ambulance. It will turn on the lights with respective to the motion of the vehicle direction. With the help of GSM Communication, we can have a chance to communicate traffic Police authorities to give the way to the ambulances at that route and for lower distances the RF communication is utilized to transfer the data between the device and the police authority.
Keywords: Ambulance, Vehicle, IR Signals, RF communication, Light, GSM Module.

I. INTRODUCTION

In present days most of the people were facing different problems. In that traffic controlling is one of the important problem that we are facing in daily life. Because of this we are facing few problems like most of us are not able to reach offices and colleges on time. Due to the traffic problems in India, it is losing nearly 108% of the money daily and it can be seen clearly in cities, urbans and towns. The main important problem that we are facing in the field of medical i.e. clearly seen in Hospitals that whenever any person needs urgent treatment then they will be moved through ambulances, because of the traffic issue the time wastage is more and in some situations the persons may die due to the traffic problems in cities and urbans.

Generally, we are seeing many incidents taking place around us that patients are being dead in traffic as many of us is not giving way to the Ambulance when it is necessary. In developing countries like India, people are suffering a lot with the traffic issues because of this most of the people is unable to give way to the Ambulance. Due to this many of the patients are being dead before reaching the hospital. To overcome this serious issue, we have come up with an idea to save those lives by developing a simple device. This device will continuously send IR signals to the IR receiver present at that place and based on that it will automatically send the information to the signal light that are present at the side of the road and blown the light based on the emergency when the device is in Turn-on condition in an ambulance. It will turn on the lights with respective to the motion of the vehicle direction. With the help of GSM Communication, we can have a chance to communicate traffic Police authorities to give the way to the ambulances at that route and for lower distances the RF communication is utilized to transfer the data between the device and the police authority. By this efficient sensing technology, we can reduce the death rate in the ambulances due to traffic and provides the efficient route to the Ambulances. And also, we can have a chance to easily intimate to the drivers those who are travelling in that area.

II. EASE OF USE

A. Transmitter Section

In this transmitter section, we are employing a IR transmitter with the micro controller. The micro-controller will continuously transmit the signal by using the IR transmitter whenever the device is in ON condition. It is a Low power device which will be present inside the vehicle and the power supply will be taken from the vehicle battery.

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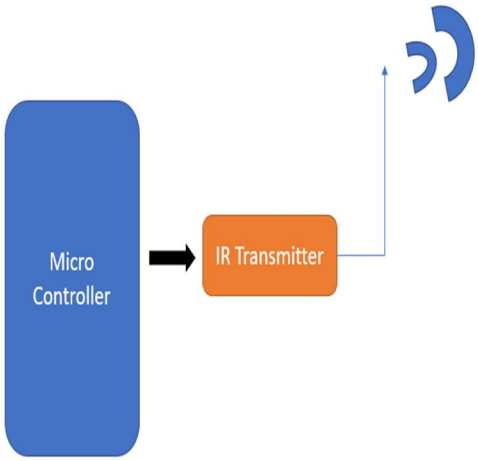

Fig. 1 Transmitter Section

B. Receiver Section

In this Receiver section we are employing a IR receiver with the micro controller connected to GSM module and Light Indication system. The IR receiver will have a chance to continuously receives the signals from the IR transmitter, whenever transmitter sends the signal the signal is received at the receiver end. It is a Low power device which will present on the road of middle place. The IR receiver have sensing range which is nearly up to 10m and the power supply for receiver section will be taken from the solar panel. Its also an energy saving device.

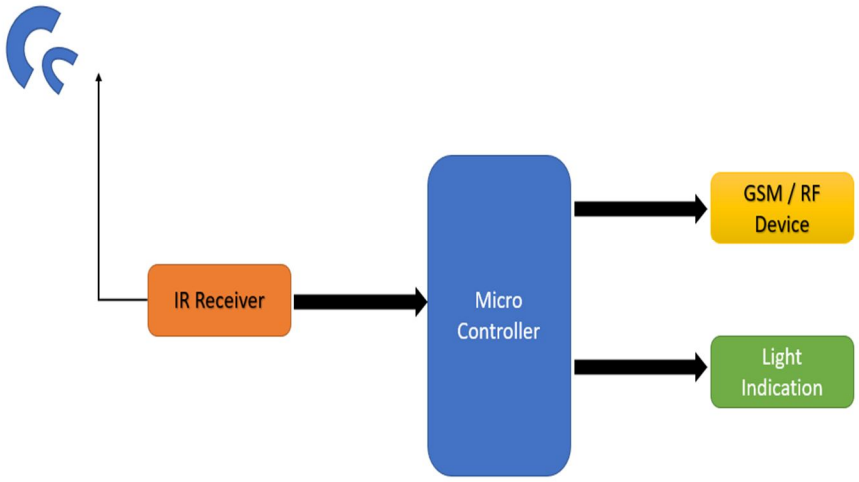

Fig. 2 Receiver Section

In this receiver section it is always present in the mode of accepting the signals which are coming from the transmitter and based on that signals it will operates the devices which are connecting to it. It in this section we are employing the GSM/RF Communication and led output at the output of the device. It will perform the action based on the feed backing mechanism and artificial intelligence is used in the controller to detect or receives the signals and based on that to perform the specified operation. In this system it will continuously in accepting manner to receive the data from the correct transmitter.

In this it will follow feed backing mechanism and checks the coming signals are correct or not. It will follow the generalized feedback formula.

$$\frac{OUTPUT}{INPUT} = \frac{G}{1+GH}$$

Here: G- Open loop gain
H- Gain

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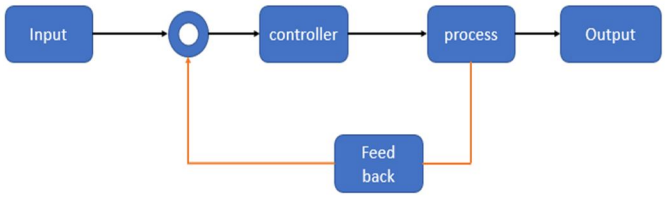

Fig. 3 Block Diagram of closed loop

The Output at the mixer place will be in the format of

O = I + F;

Here: I - Input

F- Feed Back Value

O- Output

In this whenever the signal will come it will automatically check for the errors and if not found any error then it will send the signal to the output.

III.DEVICE FUNCTIONALITY

In this system we are applying the sensors at the place of middle of the roads and continuously checking for the signal response is coming or not.

Fig .4 Arrangement of sensors in the middle of the roads.

Whenever the signal is coming from the device which it was present in the vehicle then the receiver section will receive the signal sends the information to the lights which are present on the side of the roads and also sends the information to the police authority persons those who are present at that particular area by using of GSM device.

This will helpful to the police authorities to clear the traffic in that area and also the persons those who are travelling in that area will have a chance to give you the way to the ambulance based on the signal lights placed on either side of the road.

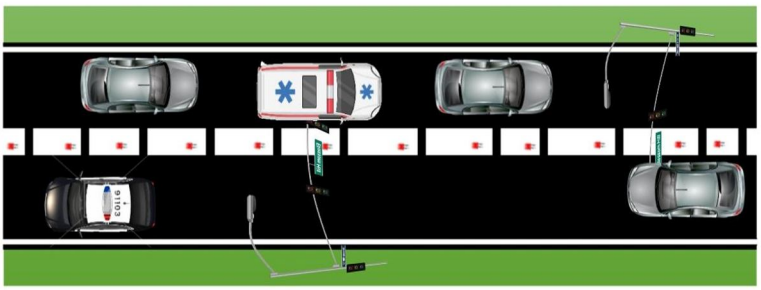

Fig: When the Ambulance will arrive in general condition

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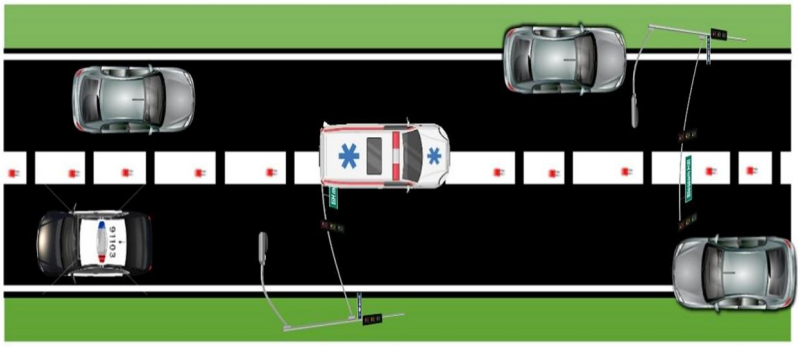

Fig: When our device fitted vehicle came at the center

Whenever our fitted device vehicle came to the center in emergency condition and also the device is in ON condition then the signal lights present on the side of the roads will change.

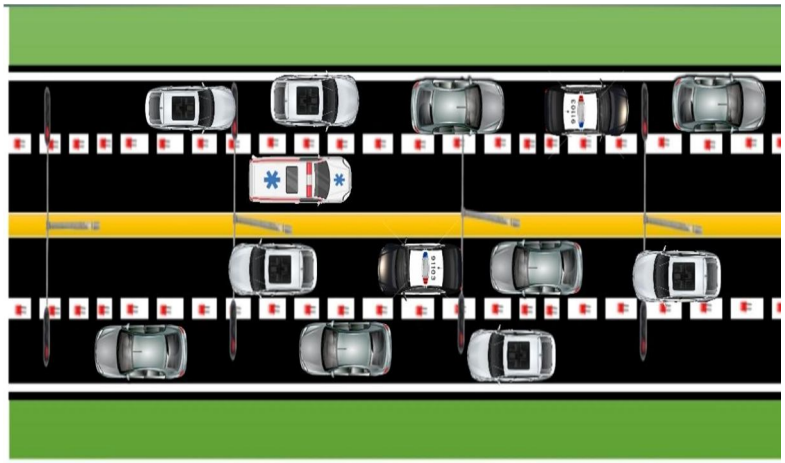

Fig: whenever signals are changed it have cleared way to go

Whenever the indication will be changed then they have a chance to gave the way to that ambulance then it will have a chance to go quickly and save the lives of people.

By this device we can save the lives of so many people. In this we are also connected a GSM device which have a chance to communicate to the police authorities also and we can find the location by using the GSM.

IV. APPLICATIONS

This project is not only used for single application they will have a greater number of applications.

A. By this device we can give the way to the police vehicles in emergency situations
B. We can also use this device for other emergency situations like Fire accidents
C. By this device we can know the VIP's route and can have a chance to give the route to them instead of stopping and doing other activities.

V. CONCLUSION AND FUTURE SCOPE

This Can be Used in and also Extended in

A. By this low cost device, we can have a chance to save the person's life
B. we will be having chance to give the way to the important persons those who are going in that way.
C. This project can be extended in such a way that by employing the GPS to that device we can capture the location of the vehicle also.
D. By employing the IOT to this we can have a chance to know where the vehicles are present and can give you the efficient route which is suitable to it.

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REFERENCES

[1] "Revolutionary New High-speed Infrared Detector Sees First Light". Retrieved 15 June 2015.
[2] "What Is an Ultrasonic Motion Detector? (with picture)". Wisegeek.com.
[3] "Technology comparison of Motion Sensors". ecosirius.com.
[4] Cho, Youngjun (2014). "US patent: Electronic device having proximity touch function and control method thereof".
[5] The way ahead for London's bus priority at traffic signals
[6] Matt Stephens (19 October 2011). "TfL wheels out digital bus info upgrade". The Register.
[7] "Pay-as-you-go tracking". FleetOwner - Penton. January 6, 2011.
[8] "How GPS Receivers Work". 2006-09-25.
[9] "Re: Comments to Access Board Docket Number 2007-1" Office of Technical Information Services, APTA. January 20, 2009. p. 3.
[10] "Cell phone bus tracking applications developed". Metro Magazine. April 2009.
[11] "WebWatch allows you to obtain 'real-time' schedule information for your bus stop and (to) track buses in real time". Duluth Transit Authority. 2007. Retrieved 2009-11-26.
[12] Thomas (March 4, 2009). "Court Asked To Disallow Warrantless GPS Tracking". Information Week. Retrieved 2009-03-18.
[13] "Drivers' hours: EU rules - GOV.UK". www.gov.uk. Retrieved 2017-09-01.
[14] "How does a GPS tracking system work? | EE Times". EETimes. Retrieved 2017-09-01.
[15] https://gotrack.com/5-vehicle-tracking-uses-advice/ Retrieved 1/27/2018

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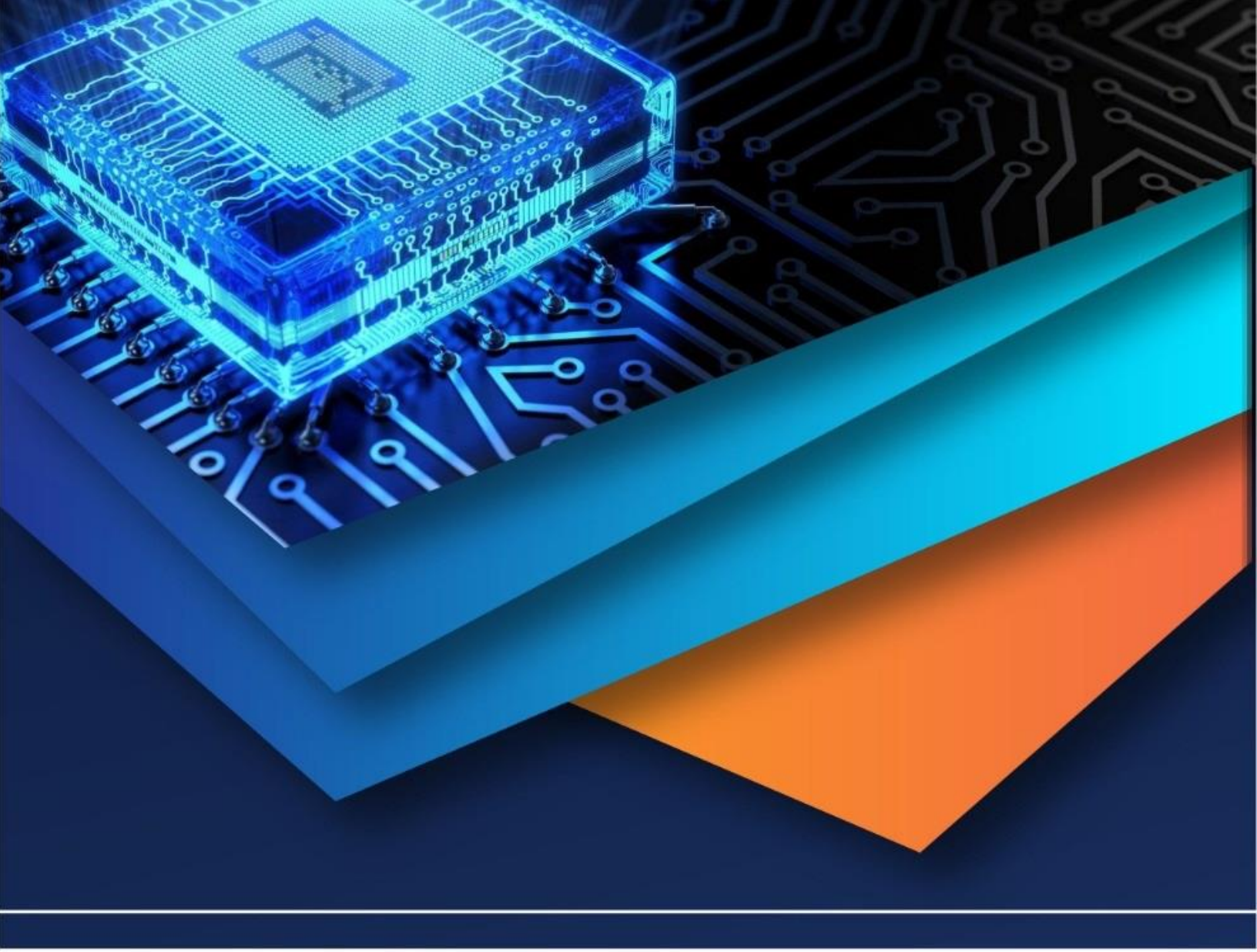

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