

Ingenious speed and traffic controller for vehicles

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Abstract: Accidents that are prone near the traffic signal are mainly due to human errors in calculating the time period and the distance to cross the signal. In order to reduce these accidents we propose an intelligent traffic signal system with a speed controller device with a line follower which controls the speed of the vehicle when coming near the traffic signal, since we use line follower technique this reduces the traffic near the signals.

Index Terms— speed gun, Line follower, speed control device, Automation

I. INTRODUCTION

Accidents are prone in many areas but the recent survey says that the occurrence of accidents is near the traffic signals where the human error is more. It's because of wrong calculations made by them while crossing the traffic signal so to limit these accidents and guide the vehicles effectively across the signal we propose this system.

II. CONSTRUCTION

Speed gun:

It's a device which is used to measure the speed of a moving object or vehicle. It works by Doppler radar mechanism commonly used in law enforcement where it uses frequency; the returned frequency from the movement of the object is used to calculate the speed.

Speed controller device:

This device plays an important role in controlling the speed of an vehicle, this device generates Necessary signal which is sent to the automotive vehicle, where the vehicle comes under the control of this device if the control is needed

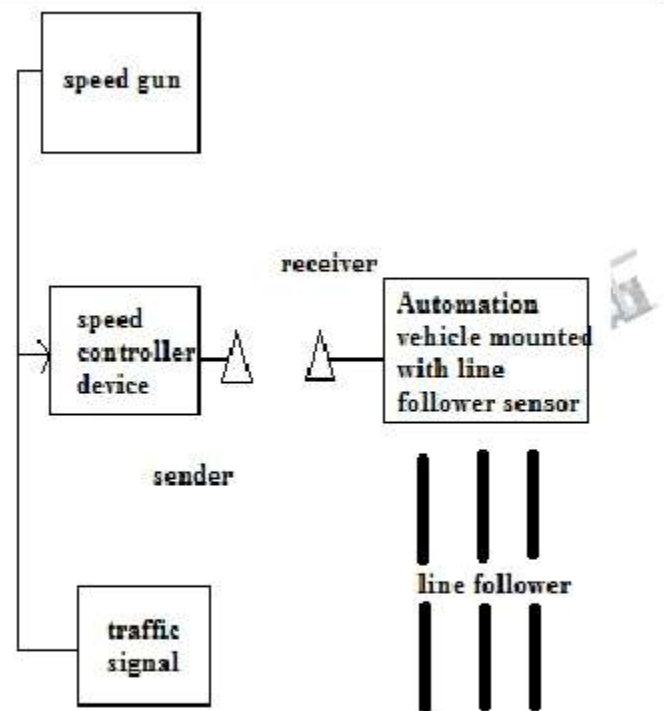


Fig 1: block diagram

Line follower:

The line follower is generally a line tracker device with help of infrared LED or infrared light sensor, this sensor detects the reflected infrared signal based on the intensity of the reflected signal it determines the whether the surface is light or dark colored.

III. WORKING:

The speed gun which is installed at a distance of 500 meter from the traffic signal measures the speed of the vehicle approaching the traffic signal, after measuring the speed the data is sent to the speed controller device. This speed controller device refers the vehicle speed within the timeperiod of the traffic signal turning to red, based on the

information it calculates and generates two possibilities. If the vehicle speed is enough to cross the traffic signal before turning into red the vehicle is allowed to pass.

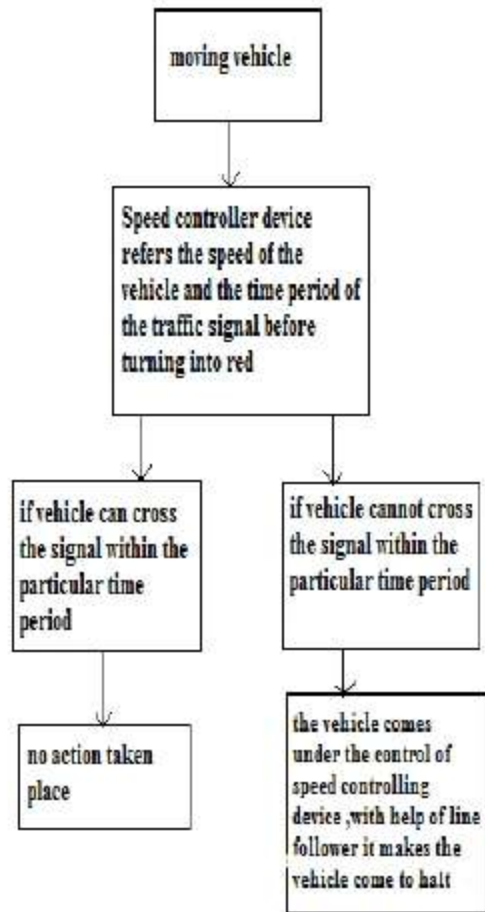


Fig 2: flowchart of the operation

If the vehicle speed is high or if it couldn't able to cross the traffic signal before turning into red. The speed controller device takes control of the vehicle and controls the speed by reducing it and bringing it to halt. Here to avoid zig zag parking which leads to confusion and traffic, we use line follower technique where the vehicle comes into halt position in order to avoid any traffic.

IV. RESULT:

To reduce the miscalculations by human beings while crossing the signal that cause accidents we propose this idea. Here the speed gun where it measures the speed of the moving vehicle which is installed at the distance of 500 m from the traffic signal, the data is sent to speed controller device and the traffic signal also gives necessary data to the speed control device.



Fig3: speed gun located at the distance of 500 meters from the traffic signal

If the vehicle can't pass the signal within the time period then a signal is sent to the vehicle to reduce the speed, thus by reducing the speed the vehicle comes to halt.



Fig 4: shows the speed of the vehicle gets reduced.



Fig 5: prototype of a vehicle attached with line follower.

To avoid traffic when the vehicle comes to halt we include line follower concept where the vehicle tracks and arranges itself in order with respect to the line drawn on the road. to avoid any traffic jam.

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