

Traffic Control System Using Embedded Wireless Sensor

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Abstract:

The rapidly increasing the traffic and congestion on the highways. So consequently, year by year, we are seeing, the rate of car accidents is increasing in the most of countries. So wireless sensor is required as a solution of this problem. This paper describes a traffic control system using embedded Ad Hoc sensor. This paper deals with the regarding the information about how the Ad Hoc sensor are used. How they are directed. Where they are located and how it is communicated to the central processing unit. It consist implementation of the central processing unit which is used to collect the information on vehicle density from the sensor and open the traffic with respect to density of traffic.

Keywords:

Ad Hoc wireless sensor; embedded system; traffic control system; vehicle density; congestion

Introduction:

In this paper, the aim of the traffic signal is to provide the orderly an act of changing position of traffic by assigning right-of-way at intersecting streets. But gridlocks and accidents are happening in many places. As the vehicle is increasing with respect to the population. Here, the major reasons that the gridlocks are improper by the transport system and traffic control. So the people have to wait

in the signal for long time in the conventional traffic system. Vehicular ad hoc network (VANET) is the most important component of intelligent transportation system (ITS). Supposed VANET are two kind of communication as: vehicle to vehicle and vehicle to road. Side units, where the road side units may be cellular base station. In VASNET, two type of sensor nodes exist. Few are embedded in the vehicles this is known as vehicular nodes (VN) and another is extended in line in predetermined distances besides the highway road. Such sensor is known as road side sensor nodes (RSS). We can have some base station (BS) such as police traffic station, firefighting group and rescue team. The base station may be either stationary or mobile.

Existing system:

Now a days, the conventional traffic system depends upon the timers where the vehicle density is not taken into account. So the people have to wait for their turn to change position irrespective of vehicle density on road. For example, suppose a junction which has four roads in four directions. There is no difficulty if the vehicle density is equally disturbed. But in case, when the vehicle density is more in one side of road as compared to all the other three sides. We can't allow the traffic in denser area to change

position and to discharge immediately using the conventional traffic signal techniques. In this condition it permits traffic to flow with the use of timer. Which consist a specific time

and neglects the traffic density. The general block diagram of traffic control system is shown in figure 1.

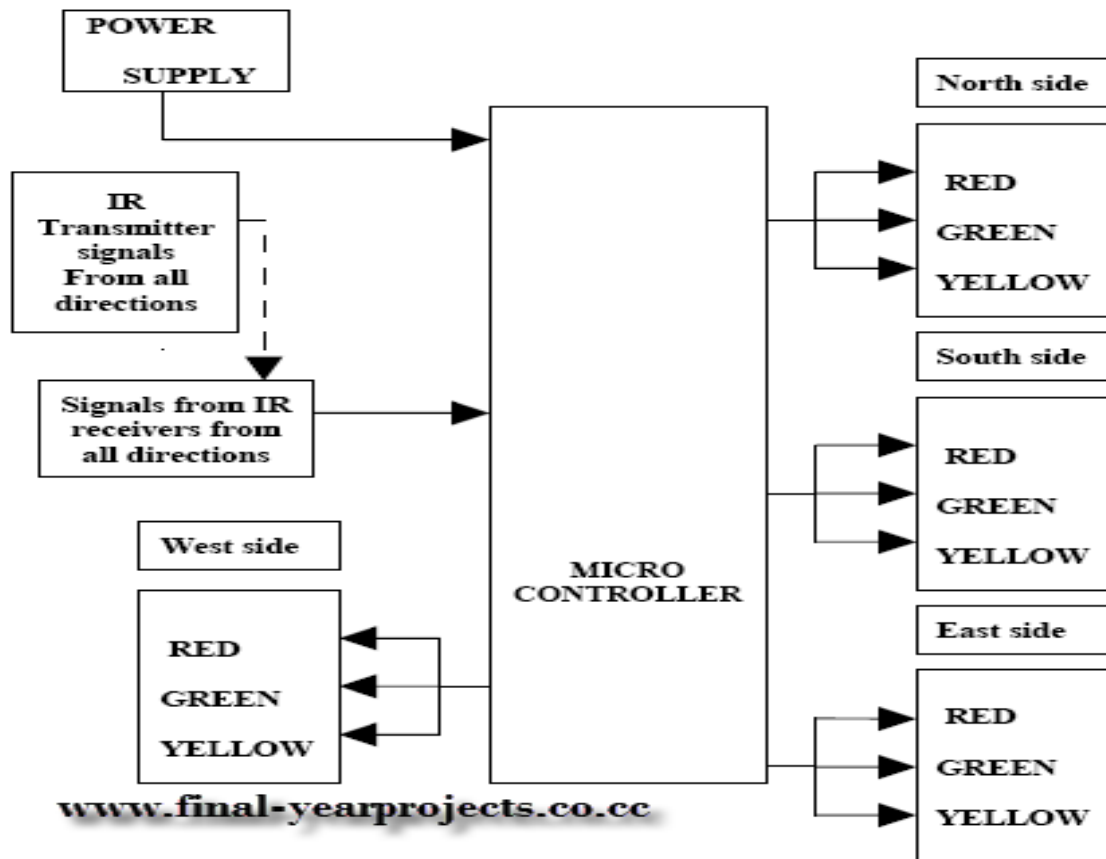


Figure 1: The general block diagram of traffic control system. Where IRS is infrared sensor.

H1 H2 H3 H4 M1 M2 M3 M4

Figure: 2 data bit format.

Ad Hoc sensor:

In fig2. H1, H2, H3 and H4 are high density zone status bit and M1, M2, M3 and M4 are medium density zone status bit. The density of the traffic is defined and the present condition is sent to the Intel 8255 which is interfaced with the MSC8051 microcontroller using Ad Hoc sensors. Each Ad Hoc sensor is directed individually and the median Ad Hoc sensor will arrange the data with respect to address of ad hoc sensor in 8 bit format and data. The data is received to a specific location using various 8255 controller words. The controller is programmed in such a manner that the priority is set for the four rods and then the signal is given to the vehicle with

respect to priority. The road which has high vehicle density is open first. Again then density is checked and so on. Chart of the system is represented by the figure 3.

TRAFFIC LIGHT CONTROLLER USING PIC16F877A

1.4 FLOW CHART

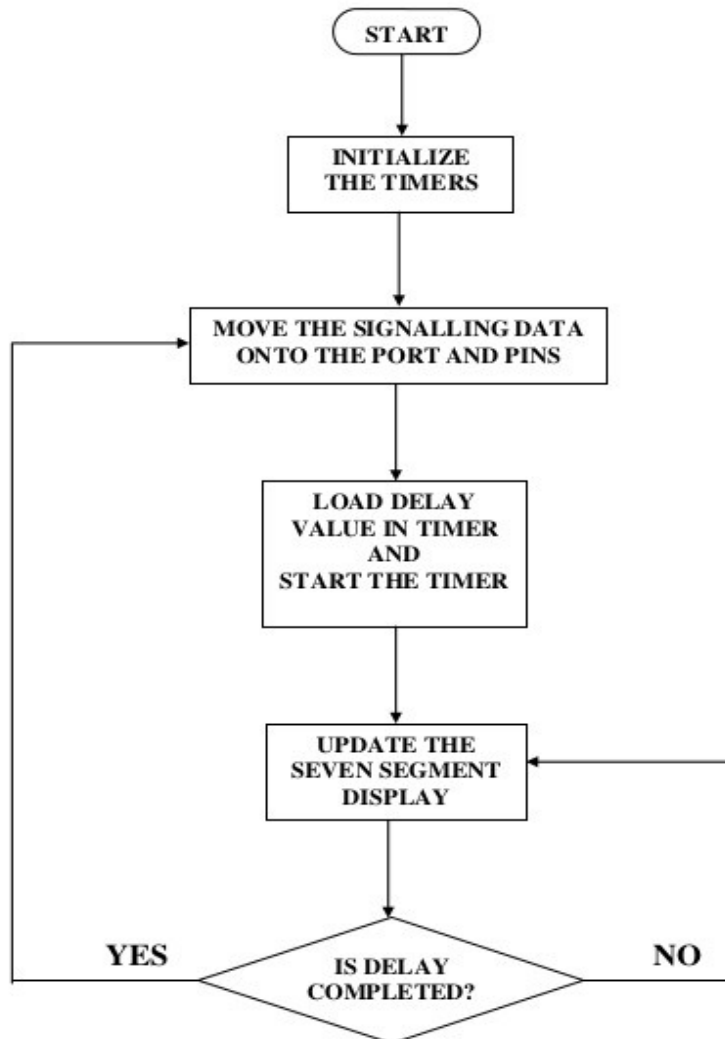


FIGURE-4 PROGRAM FLOW CHART

Figure3: flow chart



The flow chart is used to set the road priority with respect to the vehicle density. Timer is used to shows the load number.

Conclusion:

This paper presents the traffic control system using embedded wireless ad hoc sensor. In this paper, the traffic signals system to provide with wireless technology which reduces the spreading wires across roads by fill up the above idea. This technology can found the effective traffic clearing system. Implemented of this technology consume more power due to the usage of number of wireless sensors. This problem can be reduced by to filling up various non-conventional energy sources.

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