

# Microcontroller using Density Based Traffic Signal Systeming

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## Abstract:

The project is designed to develop a concentration based dynamic traffic pointer system. The signal altered automatically on sensing the transfer. The system tries to condense possibilities of traffic jams, caused by traffic lights, to an level. The structure is based on microcontroller. We are proposing such a system that compact with such kind of problem by automatically switching the signal by calculating the time at which the vehicles inwards at stop line. The image captured in the traffic signal is processed and transformed into grayscale image then its threshold is calculated asked on which the shape has been drawn in order to calculate the number of vehicles current in the image. Administrator sitting on computer can domination system (microcontroller) to download recorded information, update light delays, erase memory, etc.

**Keywords — Microcontroller, Image Processing, light emitting diode, wireless sensor networks.**

## I. Introduction :

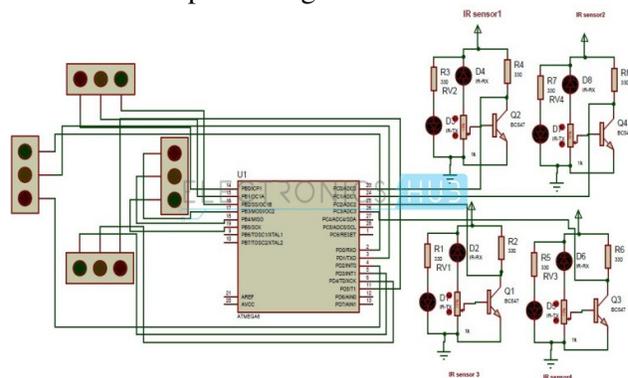
Traffic investigate has the aim to optimize traffic flow of citizens and goods. This causes lots of troubles especially when there are emergency cases at traffic light intersection which are always busy with lots of vehicles .However some restrictions to the handling of intelligent traffic control exist. The Density Based Signal executive in Traffic System is to work out traffic congestion difficulty which is a big problem in many present cities and many people face these problem. The system proposed here involves restricted Traffic routing for each connection junction based on wireless sensor Networks. The proposed system has a central microcontroller at each junction which receives data from tiny wireless antenna nodes place on the Road. most density of traffic will allow traffic with highest timing assigned Minimum density of traffic will allow traffic with lowest amount timing assigned. The signals increase the traffic-handling capacity of most intersections. They can work without help on timers, or connect to a computer-controlled system that operates over

few intersections. In a mechanized system, traffic detectors are placed at several locations—generally in the pavement.

## II. Proposed System:

Traffic light controlling or optimization is a difficult problem. Even for junctions there might be no observable result or critical to solved. The planned system involves sensor networks which are made of tree basic works.

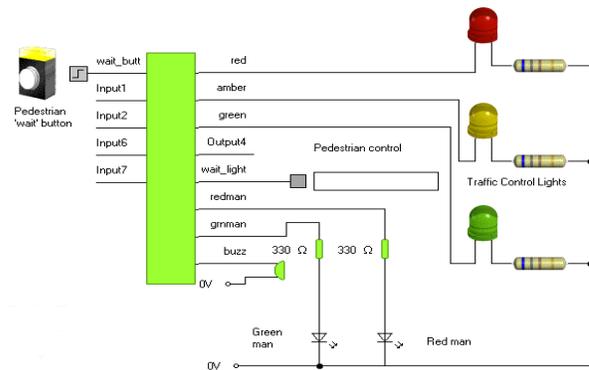
1. The Sensor nodes or Motes,
2. Power source
3. Central processing unit Microcontroller.



With various junctions the states of one light consent the flow of traffic towards several other traffic lights. The power resource provides the power looked-for for the sensor nodes and it is the the largest part regenerative. The central microcontroller performs every part of the computations for the antenna networks. The microcontroller receives the input from all sensors and processes all together to make the essential decision. The matchlessness of our work is that the control is not just based on traffic density result but also priority. The enhanced Priority Based Signal Management in Traffic system is proficient enough to track various priority based vehicle. The versatility of the industrial traffic light control system was made feasible through the use of a Programmable bendable and cost effective clarification. As wireless antenna nodes are typically very small electronic procedure, they can only be equipped with limited power source. The sensors required exposure can be either ultrasonic or Infrared Laser based sensors for better higher efficiency.

### III. The Microcontroller

Microcontrollers are used in automatically restricted products and procedure, such as automobile engine organize systems, implantable health devices, remote controls, office machines, appliances, power tools, toys and other fixed systems. By dropping the size and cost compared to a blueprint that uses a detach microprocessor, memory, and input/output devices, microcontrollers make it easy on the pocket to digitally control even more devices and processes. Mixed signal microcontrollers are regular, integrating analog components looked-for to control non-digital electronic systems

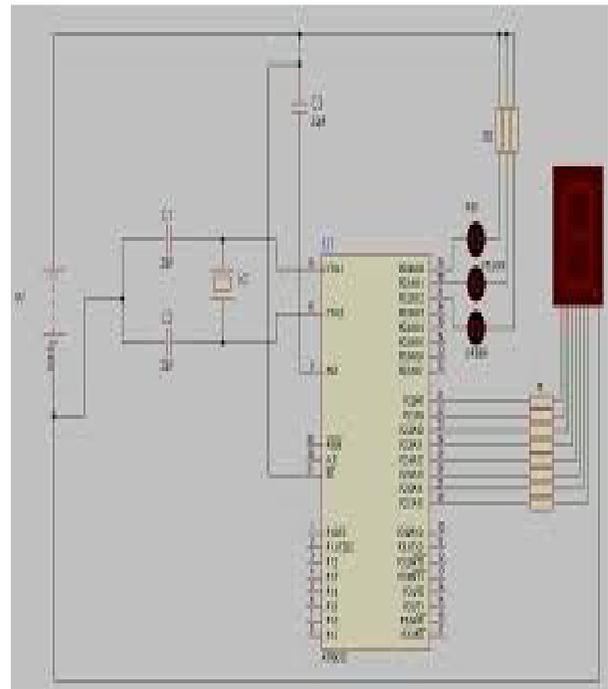
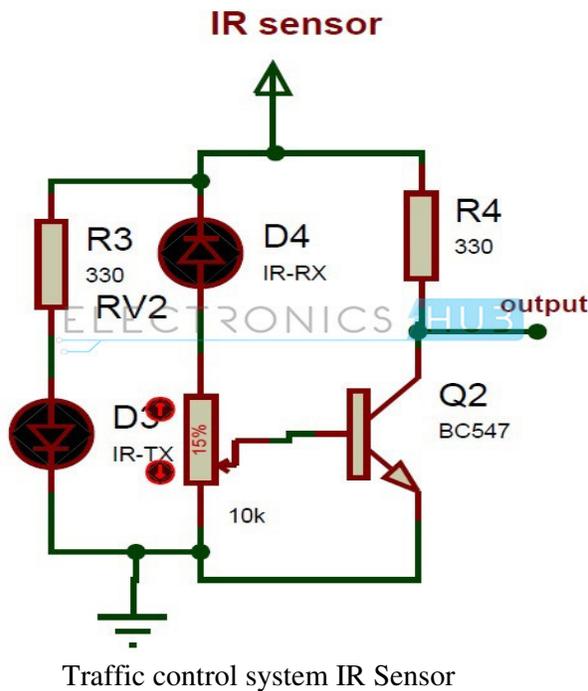


### IV. The System Construction:

The production of the path was done in stages, namely assemble, Soldering and Casing. The next period is the soldering of the components. The soldering iron and lead be use to fix the apparatus to the Ferro-board. The last phase of the project production was the skin of the project. The case is the structure where the built circuit is seated. Holes were made on the case using the drilling device and the cases with the track were joined alone with the use of bolts and nuts.

### V. Traffic control system :

IR source looks like an LED. This IR transmitter at all times emits IR rays from it. The working voltage of this IR transmitter is 2 to 3v. . In this element we are using IR transmitter microcontroller as a support unit. used to receive the pointer from vehicle system. Traffic Control System The general time division based traffic signal management will create massive traffic troubles in peak hours. The proposed organism is an adaptive system based on vehicle concentration result which gives a perfect solution to control the traffic problem.



designed microcontroller-based traffic light system

## VI. Design Details

The largely design of the microcontroller for road connection is depicted in Fig. 4. The lanes of each intersection consist of a difficulty switch sensor to identify the vehicle. Three different colour LEDs are sited on each of the four lanes for displaying purposes. The director was designed in such a line of attack that it samples all the lanes in turn to detect whether there is a motor vehicle on any lane and this is interruption for a time period of 15sec. Once the input type is high, the PIC coordinate the action by particular the lane with high input a passage directly and indicates Red on the LED output of the three other lanes. If there is no high input on the other lane, the controller will pass the next turn on the same lane.

## VII. RESULT

The results include the doing well of the traffic control and monitor system. The developed system could be superior upon by incorporate a wireless network into the industrial system. It is imperative to gear further make inquiries towards a solar-powered interchange control system. The IR system gets activate whenever any vehicle passes on the road between IR sensors. When one antenna was On at that time concreteness will be less when two sensors will be on at that traffic concreteness is medium when all 3 sensors will be on at that time density will be high.

## VIII. Conclusion

The above proposed System for Automated sharp Traffic Control system map-reading using Wireless sensor network is gainful to many existing systems in this heavy people of vehicles. data transfer between the microcontroller and computer can also be done all the way through telephone network , data call activated SIM This technique allows the

operator to gather the recorded information from a far end to his home computer without going there.

By using this system configuration we try to condense the possibilities of traffic jams, caused by traffic lights. The number of passing vehicle in the fixed point slot on the road decide the density range of traffics and on the basis of automobile density calculation, microcontroller decide the traffic light delays.

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## **IX. Reference:**

[1] Ms Promila Sinhmar “Intelligent traffic light and density control using ir sensors and microcontroller” International Journal of Advanced Technology & Engineering Research.

[2] K.Vidhya, A.Bazila Banu “Density Based Traffic Signal System” International Journal of Innovative Research in Science, Engineering and Technology.

[3] Ganiyu R. A., Arulogun O. T., Okediran O. O. “Development Of A Microcontroller-Based Traffic Light System For Road Intersection Control”International journal of scientific & technology research.

[4] Ashwini Y. Dakhole, Mrunalini P. Moon “Design of Intelligent Traffic Control System Based on ARM” International Journal of Advance Research in Computer Science and Management Studies.

[5] Shweta N. Pable, Amit Welekar “Literature Survey on Density Based Signal Management in Traffic System”.International Conference on Quality Up-gradation in Engineering, Science and Technology.

[6] Rashid Hussian, Sandhya Sharma,Vinita Sharma, Sandhya Sharma “WSN Applications: Automated Intelligent Traffic Control System Using Sensors”. International Journal of Soft Computing and Engineering.

[7] Ganiyu R. A., Arulogun O. T., Okediran O. O.” Development Of A Microcontroller-Based