MOVABLE ROAD DIVDER FOR ORGANIZED VECHICULAR TRAFFIC CONTROL WITH MONITORING OVER INTERNET OF THINGS

Abhishek Pandit[1], Vaibhav Panchal[2], Shubham Mundhe[3], Ajay Karde[4], Prof. J.A. Bagban[5]

[1,2,3,4] Students and [5]Asst. Prof. of Department of Electronics and Telecommunication Engineering,

Sinhgad Academy of Engineering, Pune, India

Abstract: *Road Divider is generically used for dividing the Road for ongoing and incoming traffic. This helps keeping the flow of traffic; generally there is equal number of lanes for both ongoing and incoming traffic. The problem with Static Road Dividers is that the number of lanes on either side of the road is fixed. Since the resources are limited and population as well as number of cars per family is increasing, there is significant increase in number of cars on roads. This calls for better utilization of existing resources like number of lanes available. For example, in any city, there is industrial area or shopping area where the traffic generally flows in one direction in the morning or evening. The other side of Road divider is mostly either empty or very underutilized. This is true for peak morning and evening hours. This results in loss of time for the car owners, traffic jams as well as underutilization of available resources. Our aim is to formulate a mechanism of automated road divider that can shift lanes, so that we can have number of lanes in the direction of the rush. The cumulative impact of the time and fuel that can be saved by adding even one extra lane to the direction of the rush will be significant. With the smarter planet application proposed below, we will also eliminate the dependency on manual intervention and manual traffic coordination so that we can have a smarter traffic all over the city. An Automated road divider can provide a solution to the above mentioned problem effectively. Here Low, Medium and High density of traffic value will be posted on IOT server as a graph.*

Index Terms: Arm 7, RF Module, Dc motor, IR Sensor, etc.

I. INTRODUCTION

A steady increase in metro-city population, the number of automobiles and cars increases rapidly and metro traffic is growing crowded which leads to the traffic jam problem. This proposed system will have effective role to avoid the traffic jam.

Under ordinary conditions, traffic signals control mainly has two defects:

1. When the traffic lane waits until the green light, time setting is almost same and fixed. A-road was always crowded with vehicles and go-ahead time is short. So, vehicles can't pass through in the time allowed. But sub lane has few vehicles and go-ahead time is relatively long.

2. Emergency cars are not considered. (For example, fire engines and ambulances have priority over other traffic.

The two lanes should both wait them to pass through.) Because the traffic light control system is lack of emergency measures, the crossroads always meets a traffic jam and leads to unnecessary economic losses.

3. Heavy Traffic Jams:

With increasing number of vehicles on road, heavy traffic congestion has substantially increased in major cities. Thishappened usually at the main junctions commonly in the morning, before office hour and in the evening, after officehours. The main effect of this matter is increased time wasting of the people on the road. The solution for thisproblem is by developing the program which different setting delays for different junctions. The delay for junctionsthat have high volume of traffic should be setting longer than the delay for the junction that has low of traffic. Thisoperation is calling Normal Mode .

II.LITERATURE REVIEW

Movable Traffic Divider: A Congestion Release Strategy 1Advait Kawle, 2Dhruv Shah, 3Kavin Doshi, 4Manish Bakhtiani, 5Yash Gajja, 6 Pratibha Singh In recent years, with an ever increasing rate of development in metro cities around the world, there has been proportional increase in numbers of automobiles on the roads. Although the number of vehicles using the roads has increased, the static road infrastructure is almost the same and is unable to cope with changes like congestion, unpredictable travel-time delays and road-accidents that are taking a serious shape. Traffic congestion has been one of the major concerns faced by the metropolitan cities today in spite of measures being taken to mitigate and reduce it. It has emerged as one of the main challenge for developers in urban areas for planning of sustainable cities.

2. Controlling Of Traffic Using Movable Road Divider S.Jyothirmayee1 ,G.Vamshi Krishna2 , J.Nanditha3 , B.Shashank Yadav4 The main aim of this project is reducing the traffic congestion in our daily life. Road Divider is generically used for dividing the Road for on-going and incoming traffic. This helps keeping the flow of traffic; generally there is equal width of lanes for both on-going and incoming traffic. The problem with Static Road Dividers is that the number of lanes on either side of the road is fixed. Since the resources are limited and population as well as number of cars per family is increasing, there is significant increase in number of cars on roads. This calls for better utilization of existing resources like number of lanes available.

III. PROPOSED SYSTEM

Traditional road dividers have a fixed position and are highly inefficient during peak hours. This leads to chaos and confusion among the commuters which leads to delay in travelling time. Often during peak hours the traffic in one direction is way more than that coming from the opposite direction, while the number of lanes available to both sides remains the same. A solution to this problem is to make the road divider movable. To do this, earlier zipper machines [5] were used, which transfer the movable barrier from one lane to the adjacent one. But this prototype mechanism is automatic .

Our Proposed system will move the road divider using DC motor. The dividers will be analogous to the dividers used with zipper machines but instead of these dividers being moved by the machine we will use an embedded system which will control the moment of the dividers. The dividers will shift according to the signals sent to the embedded system by the system administrator. This will be done by using a IOT module, a database will be configured and when updated and the data is sent to the embedded system will change the state of the divider. Along with a database, the cloud will also contain a log which will contain the history of states of the barrier system over time. This cloud can be accessed through any portal that supports cloud computing i.e. any web based platform or application. A User Interface will contain a login form which will authenticate the administrator and grant access to the database that will contain information related to the system.

IV. SYSTEM ARCHITECTURE OVERVIEW

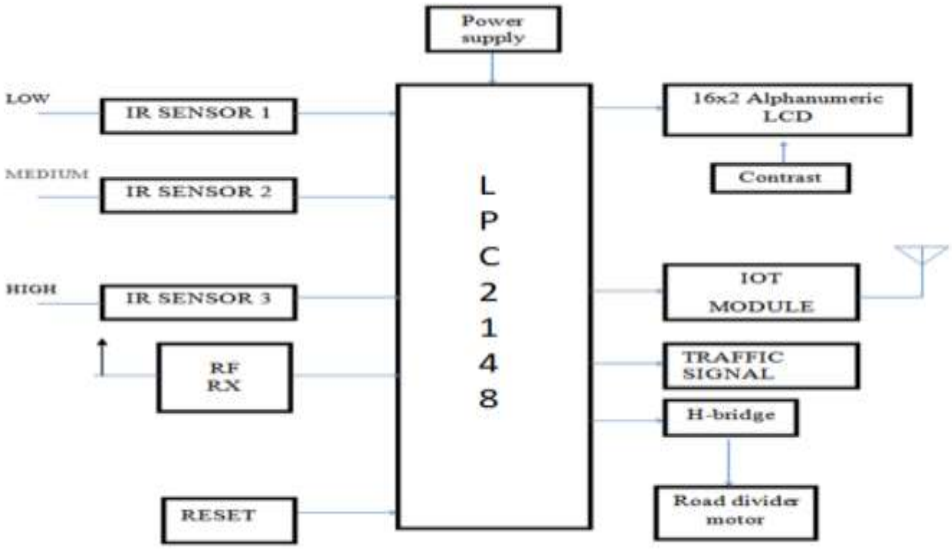


Fig.1 Block Diagram

V. CIRCUIT DIAGRAM

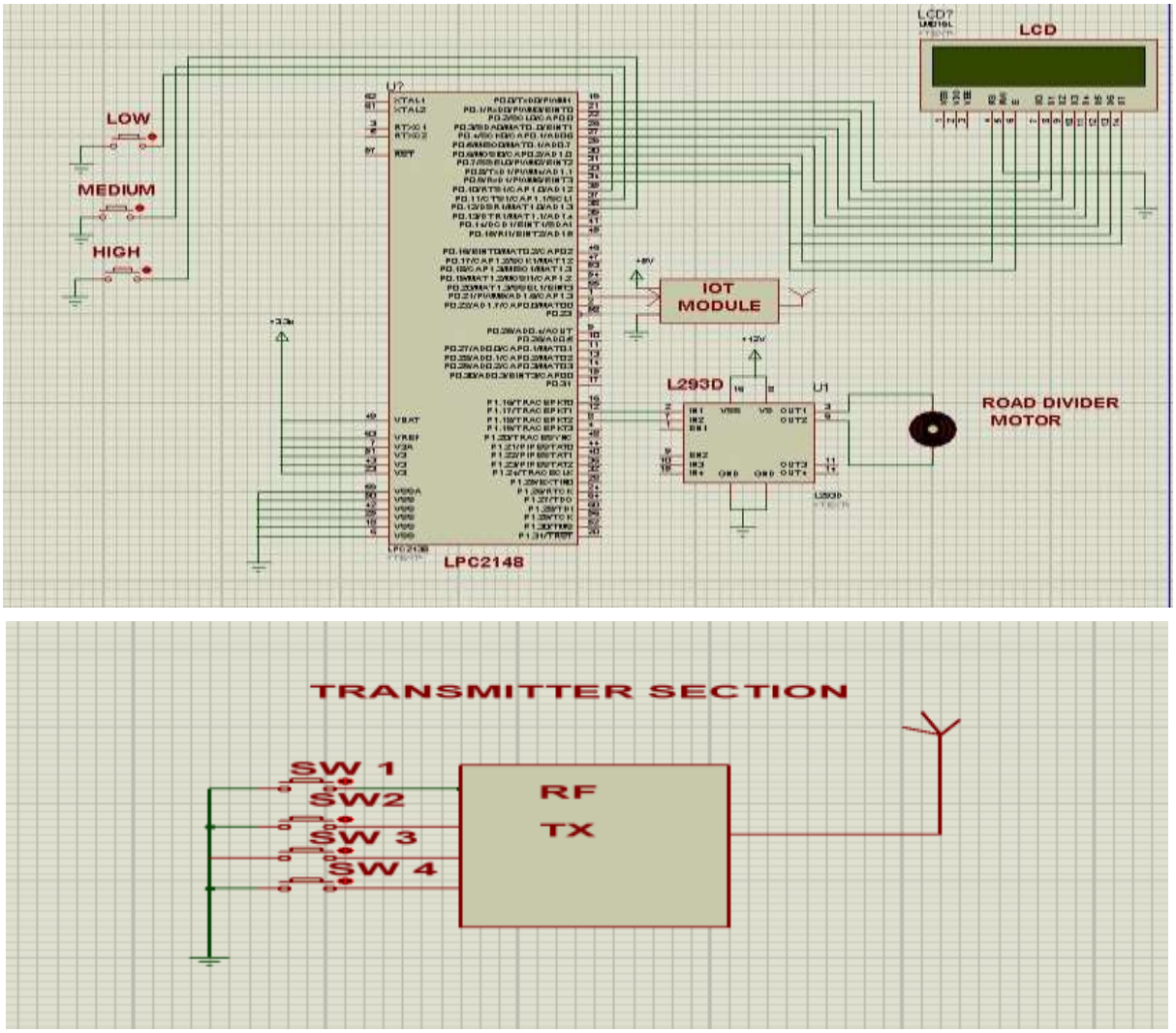


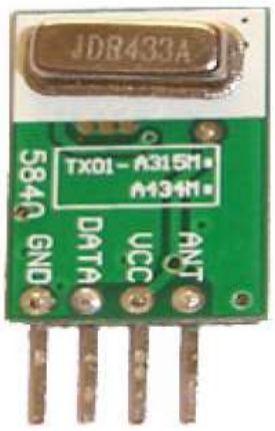
Fig.2 Circuit Diagram

VI. DESIGN Requirements

ARM 7(LPC2148)

Founded in November 1990, it is spun out of Acorn Computers, it Designs the ARM range of RISC processor cores. Licenses ARM core designs to semiconductor partners who fabricate and sell to their customers. ARM does not fabricate silicon itself, it also develop technologies to assist with the design-in of the ARM architecture. Software tools, boards, debug hardware, application software, bus architectures, peripherals etc.

RF MODULE



Radio frequency (**RF**) is a frequency or rate of oscillation within the range of about 3 Hz to 300 GHz. This range corresponds to frequency of alternating current electrical signals used to produce and detect radio waves. Since most of this range is beyond the vibration rate that most mechanical systems can respond to, RF usually refers to oscillations in electrical circuits or electromagnetic radiation



Fig. 4 Rf Module.

VII. ALGORITHM AND FLOWCHART

ALGORITHM

STEP 1:- Start.

STEP 2:- power up hardware.

STEP 3:- Here we are using different types of sensor like IR sensor, LCD display, L293D motor driver.

STEP 4:- IR sensor used to detect traffic density like **low, medium, High.**

STEP 5:- using RF module we are detecting ambulance. Tx section at ambulance side. When driver press switch that time data will receive at receiver side.

STEP 6:- if ambulance detects then one signal get green other will goes red. (same for other side)

STEP 7:- IR sensor used to detect object.

If

(IR sensor detect object)

Then signal =0

Else

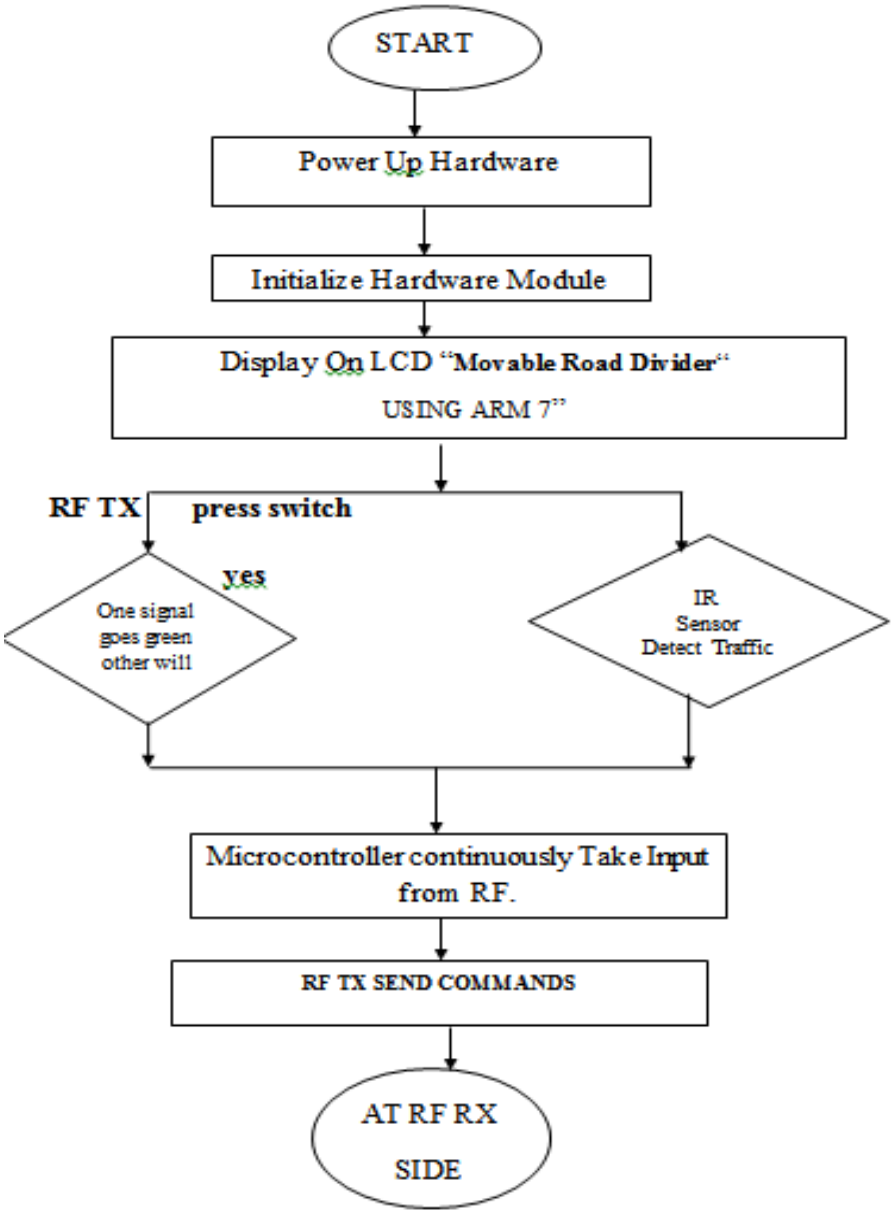
Signal = 1

STEP 8:- About traffic density level then only data will updated on web server.

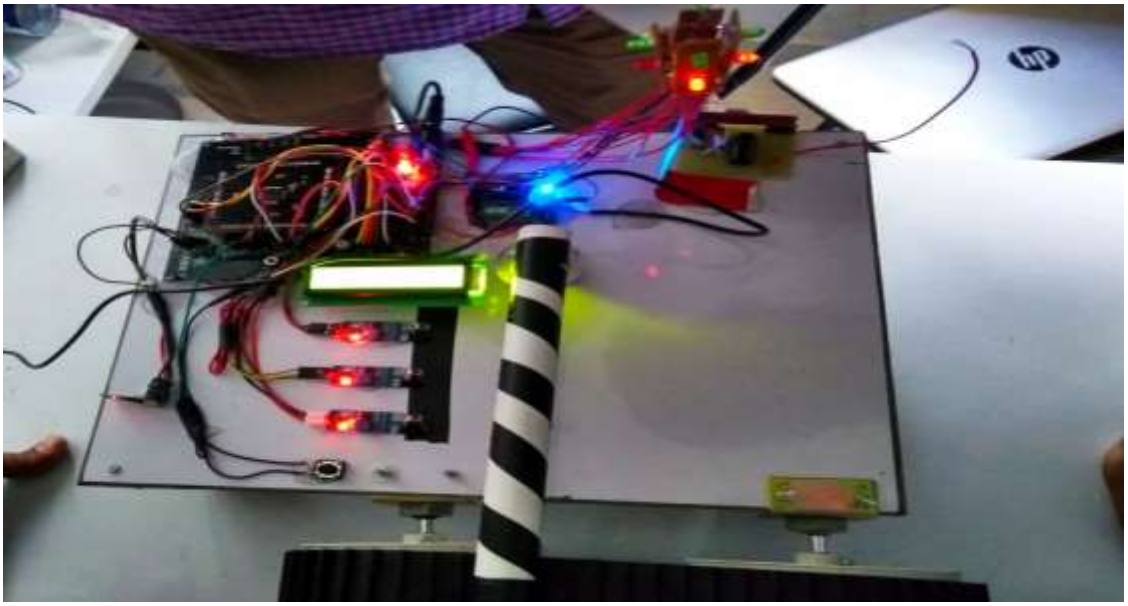
STEP 9:- all sensors measured value will be displayed on LCD.

STEP 10:- STOP.

FLOWCHART



VIII. RESULTS



IX. CONCLUSION

In this project we introduced sensor based technology for traffic control. We conclude that it provides powerful solution to improve existing system with the new intelligent traffic light controller. The method of vehicle detection and counting from a IR sensor has been implemented using ARM development board and LPC 2148 microcontroller. Further modification in the algorithm can improve the system accuracy. Proposed system will have wider future scope That user can get traffic information on pc or Laptop.

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