CONTROLLING OF TRAFFIC U SING MOVABLE ROAD DIVIDERS

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Abstract:

The actual motive of this project is to reduce the traffic congestion in our daily life. Road divider is generally used to divide the roads into two halves, that is: to divide the road for on-going and incoming of traffic which helps in keeping the flow of the traffic. The major issue with the Static Road Dividers is that the lanes are fixed. Our motive is to draw up a solution that can shift the lanes automatically. The increase in the population and number of vehicles per family has led to the increase in the number of vehicles on the roads. The project can be used in this situation where the controlling of traffic can be done by using the existing resources.

Keywords: Traffic congestion, Road Dividers, Static Road Divider, Traffic Density.

1. INTRODUCTION:

In the past few years, with an increase in the population, there has been a proportional increase in the number of vehicles on the road. The static road dividers are unable to deal with the changes like: traffic congestion, accidents on the road and unpredictable travel-time delays which has become some of the serious issues. Different strategies are applied to solve these problems. This project provides a particular solution that can solve the traffic issues.

In this project, we design an IOT based Automatic Movable Road Divider that moves automatically depending on the traffic density of either sides of the road. In many cases we see that there will be a huge traffic on one side of the road while no traffic on the other side of the road, in

such situations it is possible to control the traffic congestion and solve the traffic problems by using Automatic Movable Road Divider.

In many situations we also see that the ambulance get stuck in the traffic and it has to wait for minutes to hours for the traffic to be cleared due to which the lives of the patients might gets risked. This project also provides a way for the ambulance to pass in emergencies. The main aim of this project is to reduce the journey time, traffic congestion and to provide the way to vehicles based on the priorities. The highest priority here is given to the Ambulance and then to the rest of the vehicles.

2. LITERATURE SURVEY:

Hemlata Dalmia along with Kareddy Damini and Aravind Goud Nakka proposed a system called Implementation of Movable Road Divider using Internet of Things (IOT) in 2017 in which they aimed to build a fully automated movable road divider which can shift the lanes automatically when there is a very traffic on either side of the road. Such mechanism saves time as well as fuel. The proposed system displayed high, low and medium traffic density will be shown in IOT server using graph. The main aim of this proposed system was to reduce manual dependency and traffic.

B Durga Sri, K Nirosha and Sheik Gouse combined together and proposed a system called Design and Implementation of Smart Movable Road Divider using IOT in the year 2017. The main idea behind this proposed system was to draw up a mechanism of automated movable road divider that can shift the lanes automatically so that we can have more number of lanes where the traffic is more. The extra lanes in the direction of the rush can be added in order to reduce the traffic which could be more significant enough. The sensors placed on both the sides of the road measures the density of the traffic and provides as input to the Arduino board which in turn commands the servo motor to rotate either left or right so that the dividers can rotate. If there is low traffic, then there is nothing to worry. But if there is a very traffic, then the divider moves towards to the road that is having lesser traffic.

Satya SrikanthPalle, Sriraksha B M, Vibha H B and Yeshashwini A combined together and proposed a system called Implementation ofSmart Movable Road Divider and Ambulance Clearance using loT in the year 2019 where the proposed system consists of road divider that can move based on the traffic density of the road using IR Sensors. Here, a free path is also provided for the Ambulance during the traffic which helps in saving patients lives.

3. PROPOSED SYSTEM:

The proposed system consists of a microcontroller (Arduino board) module along with the four sensors attached to it which is used to measure the traffic density of the road. The traffic density which is obtained is passed as the input to the Arduino. The Arduino then displays the result using 16X2 LCD Display which is used as a reference by the drivers while riding. When the number of vehicles is more on one side of the road, the traffic density is predicted to be more on that side and

the road divider moves to either side of the road so that the rushed side gets enough space to move.

The red and green LEDs connected to the Arduino board is lit red to the side of the road having less traffic density so that the vehicle to the other side of the road having green light can pass. And the movement of the divider should happen before the signal turns into green color. The ultrasonic sensor connected to the Arduino board is used to measure the distance between the vehicles and the road divider. If at all any vehicle is nearby divider while the divider is supposed to move towards that road, then the ultrasonic sensor starts beeping in order to make the drivers aware that it should provide space for the road divider to move.

The Wi-Fi module connected to the Arduino is used for the purpose of Ambulance. The Ambulance's driver sends the signal to nearby traffic station using TCP/UDP application installed in his phone that he is about to reach to the signal. The nearby traffic station receives the signal and creates a narrow way for only the Ambulance to pass through it. The divider comes back to its normal position as soon as the Ambulance crosses the signal.

4. RESULTS:

The outcome of our project is to reduce traffic congestion and provides the clearance to the emergency vehicles by using movable road divider. Here, we use ultrasonic sensor for measuring the traffic density and to move the divider automatically. In this system, high traffic density can be detected and instant message can be sent through WIFI.

This project helps to clear the traffic in accordance to priority. When ambulance is arriving right side of the road, the divider has to move to the right side of the road making the path narrow, making only ambulance to pass. A narrow path will be created where only ambulance is allowed.

Thus, the project will be helpful in avoiding traffic jams and to control high traffic intensity. If the traffic density is normal then no action is taken. If the traffic density is high in left side then the divider moves to the low traffic side and road gets widened for density side. When traffic density is more in right side of the road the divider moves to the left side making road wider.

When traffic density is normal.
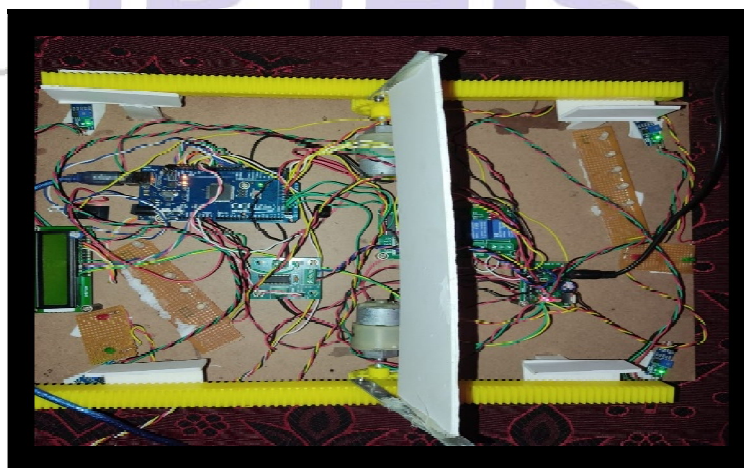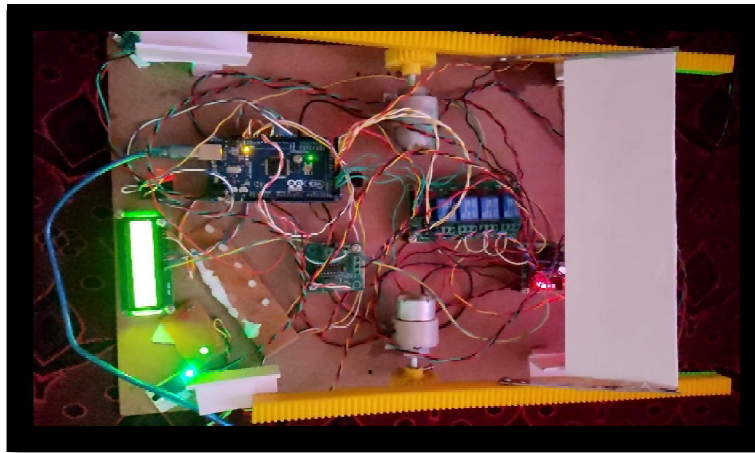
When the traffic density is heavy at left side.
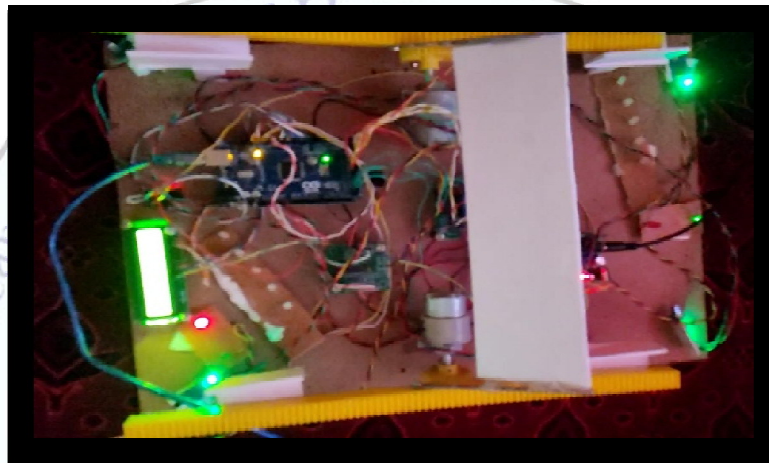
When traffic density is high at right side.

5. CONCLUSION:

The proposed system Titled "Controlling of Traffic is using Movable Road Dividers" is successfully designed and developed, in which the results are satisfactory. Since it is a demo model, it can be shown only through one way of traffic using ultrasonic sensors. The traffic congestion data from the sensors is given to the nearest traffic control room using a Wi-Fi module. The data from the sensors is updated automatically. This projected system reduces the chances of traffic jams, caused by high red light delays provides clearance of roads for emergency vehicle to an extent and successfully. In this proposed work we are aimed to clear the traffic in accordance to priority. Also it is helpful for government to apply the traffic rules and people will follow the rules of traffic. It's applicable in almost all areas in the Pune city. It will be applicable in the cross road and traffic zone.

6. REFERENCES:

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