MOVABLE ROAD DIVIDERS

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Abstract: The main aim of this project is to reduce the traffic congestion in our daily life. The problem with Static Road Dividers is that the number of lanes on either side of the road is fixed which cannot be varied. Since the resources are limited and population as well as number of vehicle's per family is increasing, there is significant increase in number of vehicle's on roads. This calls for better utilization of existing resources like number of lanes available without any additional resources. The situation is worse when an emergency vehicle has to wait for other vehicles to give way at intersections with traffic lights. This causes a delay in time and may affect the emergency case. All these difficulties faced by emergency vehicles can be avoided using this traffic light control system based on Wi-Fi module. The system will reduce accidents also. As the result, this project successfully analyzes and implements the traffic assistance system for emergency vehicles.

Keywords: **ultrasonic sensors, IR sensors, Raspberry pi, DC motors.**

1. INTRODUCTION

In recent years, proportionally increase in numbers of automobiles on the roads. Although the count 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 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 reduce it. It has emerged as one of the main challenge for developers in urban areas for planning of sustainable cities with traffic free lanes.

In India, traffic is inherently chaotic and noisy. Identification of magnitude of traffic congestion is an essential requirement for defining the congestion and finding appropriate measures. The main focus of this paper is aimed at understanding the recurring urban congestion, its measurement, precautionary measure and suggests a remedial measure for the same. The implication of widening existing roads or building new ones will only results in additional traffic that continues to rise until peak congestion returns to the previous level. The total available space within the city for the construction of roads, railways and other transportation is restricted. The paper discusses implementation of movable traffic dividers as congestion release strategy for metropolitan areas instead of traditional solution of widening the roads. The moveable traffic divider helps in there configuration of road capacity, so as to attain optimum benefit from roadway.

2. RELATED WORK

Movable Traffic Divider: A Congestion Release Strategy [1]. The paper discusses implementation of movable traffic dividers as congestion release strategy for metropolitan areas instead of traditional solution of widening the roads. The moveable traffic divider helps in there configuration of road capacity, so as to attain optimum benefit from roadway usage on the existingroad.

Implementation of Movable Road Divider using Internet of Things(IOT) [2]. The purpose of using road divider is to separating the two ways of traffic i.e. ongoing and incoming vehicles in the traffic. We aim to build a smart road divider in terms of automated road divider which moves or shift the lane directing the rush in traffic. Such type of mechanism of traffic system not only saves time but also fuel. It provides a better solution for traffic problem.
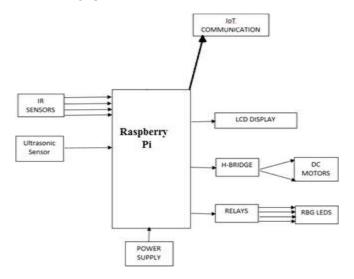
Design and Implementation of Smart Movable Road Divider using IOT [3]. The other side of Road divider is mostly either empty or under- utilized. This is true for peak morning and evening hours. These results in loss of time for the car owners, traffic jams as well as underutilization of available resources.Our idea is to formulate a mechanism of automated movable road divider that can shift lanes, so that we can have more number of lanes in the direction of the rush. . This is possible throughIOT.

3. IMPLEMENTATION

The main aim of this project is to automate change road divider & announce the status of the changes for users. In this system is also used to avoid accident problems by alerting a sound signal. So this project is useful for road transport departments. The recent survey from the social analytics was said that the most disadvantages in Indian road traffic. Our proposed system mainly deals with the rectification of this disadvantage. Here we are introducing the new concept of artificial road divider.

For the successful approach we are using sensors for the controlling operations.

Fig 1: Structure of the model

4. METHODOLOGY

Traffic detection:

The main aim of this module is to detect the count of vehicles according to which the movement of divider depends.

IR Sensors are placed at the start of the divider. It is used to get the count of the vehicles indicating the traffic density. If the traffic density is high, then the divider moves towards less density side. If the traffic density is normal then no type of action is taken and the divider is in the middle.

- In this proposed system, a module has been developed based on microcontroller that consists of an ultrasonic sensor which is used for measuring the traffic.

- Whenever ambulance is detecting on the either of the road side the color of the road will change and display on the LCD display.

Ambulance Detection:

➢ RGB LED's deployed on two sides of theroad

➢ Whenever divider receives signal from ambulance RGB LED's connected on road side will start glowing.

➢ Ambulance will be detecting for 100m away in our project so accordingly respective Signal will clear the Path to the Ambulance.

➢ A narrow path will be created where only ambulance is allowed.
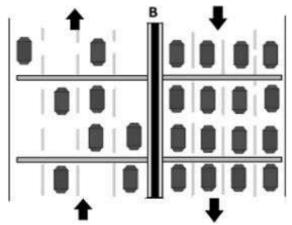
5. FUNCTIONALITY OF PROPOSEDSYSTEM

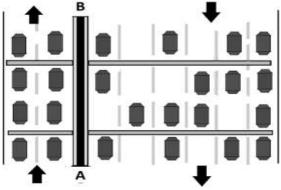**Fig 2:** when traffic is heavy on the right side of the road

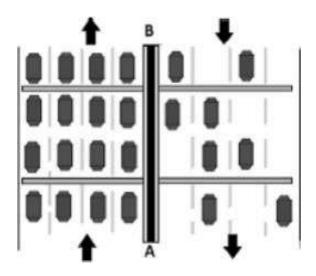**Fig 3:** when divider is moved to the left side of road

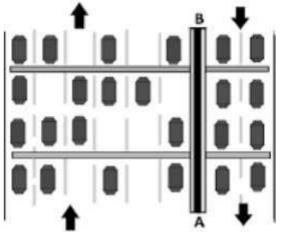**Fig 4:** when traffic is heavy on left side of the road

Fig 5: when dividers move towards the right side of the road

6. RESULT

• A module has been developed based on microcontroller that consists of an ultrasonic sensor which is used for measuring the traffic density and to move the dividers automatically.

• When the signal turns red**,** the traffic density is measured and the action should take place before the signals turns green.

• If the traffic density is high then the divider moves to low traffic side and road gets widened for high density side

• If the traffic density is normal then no type of action is taken and alerts a message stating traffic normal.

Ambulance Detection and Divider Operation:

• RGB LED's deployed on two sides of the road

• Whenever divider receives signal from ambulance RGB LED's connected on road.

• A narrow path will be created where only ambulance is allowed.

7. CONCLUSION

The proposed structure helps to reduce the traffic jams and to provide clearance of road for the emergency vehicles to an extent. In these proposed work we are aimed to clear the traffic in accordance to priority like ambulance and VIP vehicles. It will help to reduce the traffic on highways. Also it is helpful for the government to apply traffic rules. And people will follow the rules of traffic. It will be applicable in the cross road and traffic zone.

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