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Movable Road Divider

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Abstract: 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 Pune city today in spite of measures being taken to mitigate and reduce it. It has emerged as one of the main challenge for developers in Pune for planning of sustainable cities.

In Pune, 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 traffic 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, and other transportation is restricted. This report will discuss the implementation of movable traffic dividers as congestion release strategy for Pune in the traffic prone 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 existing road.

Keywords: Congestion, Traffic, Movable Traffic Divider, Metro count, Pune, Model

I. INTRODUCTION

Countries around the world are day by day facing problem of traffic congestion due to increase in number of vehicles in society. 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 deals with study of traffic in Pune and suggesting a movable traffic divider technique for the same which can be used irrespective of the topographical, climatic, geographical obstructions and in combination which can help us to solve the traffic congestion problem in an optimal manner.

The theory is simple.

Take the morning peak period. In many cities the most congested highways are main radial feeders channeling traffic into a downtown central business district.

These roads often demonstrate unbalanced flows with perhaps 70% of traffic travelling inbound and only 30% – sometimes even less – travelling outbound. This scenario leads to recurring congestion in the peak direction but free-flow conditions counter-peak. If it was possible to inject some flexibility into the supply of highway capacity, the existing road space could be realigned to better match this profile of demand and an enhanced Level of service could be provided to drivers without building any extra capacity (additional lanes or new roads). Moveable barrier technology does just that.

II. EXISTING SYSTEM

Commuters daily face extreme traffic during peak hours resulting in a delay to reach their destination. In the morning, during peak hours the traffic on one side of the road is more compared to opposite side of the road, same is the situation in evening. To tackle this problem Abdulreidha Abdulrasoul Alsaffar, had published an idea is US in 2013, which included a technique to solve the problem by moving road barriers using heavy vehicles before the accumulation of traffic in peak hours.

The approach used to move the road barrier transfer machine are, Barrier transfer machines, also known as zipper machines, are heavy vehicles used to transfer concrete lane barriers.

It contains an S-shaped channel in its under-carriage which lifts the barrier segments off the road surface and transfers them over to the other side of the lane.

This reallocates the traffic lanes to accommodate increased traffic for the currently dominant direction. These barriers are linked together with steel connectors to create a sturdy but flexible safety barrier. Moveable barriers are in permanent use in cities like Auckland, Montreal, Canada, Philadelphia, Pennsylvania, New York etc.

III. PROPOSED SYSTEM

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..

This project identifies the status of each car using IR transceivers and informs it to microcontroller. This project is used to avoid the car collision, thus we save the valuable human lives and losses. 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 and for the execution we are using H-bridge and for the controlling operations we are using ATmega328 microcontroller.

When the car comes near the artificial position, the proximity sensor senses the car and gives its output to the microcontroller. The H-bridge is used for the forward and reverse movement of the divider.

This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

Power Supply Design:

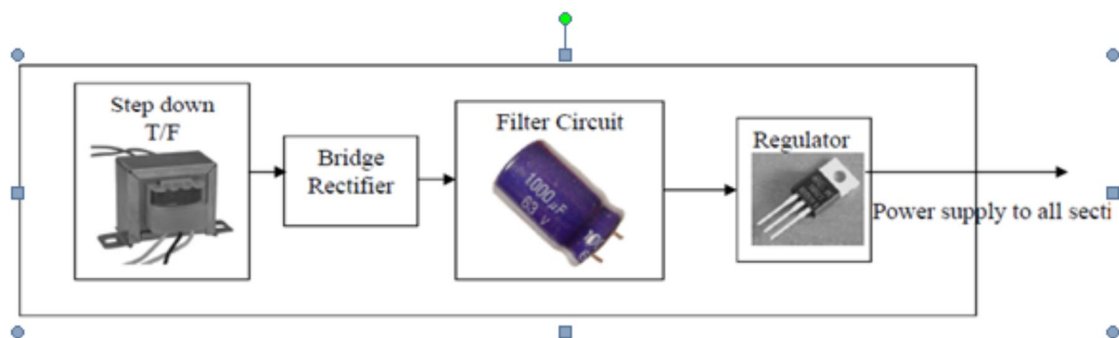


Fig. Proposed Architecture Diagram.

IV. COMPARISION AND ANALYSIS

We have found that this system is more reliable than current Ration Distribution System. Following Table I show this clearly:

| Sr. no. | Existing System | Proposed System |
|---------|---|---|
| 1. | Dividers are fixed in roads | Dividers are movable. |
| 2. | There is no proposed system to working out process. | There is proposed system based on auto condition. |
| 3. | Traffic can't be measure. | Traffic can be measure with the help of sensors. |
| 4. | Critical conditions of traffic takes place. | Critical conditions of traffic can be avoided. |

Table I: Comparison

V. PROPOSED SYSTEM DESCRIPTION & WORKING

Block Diagram

Block Diagram:

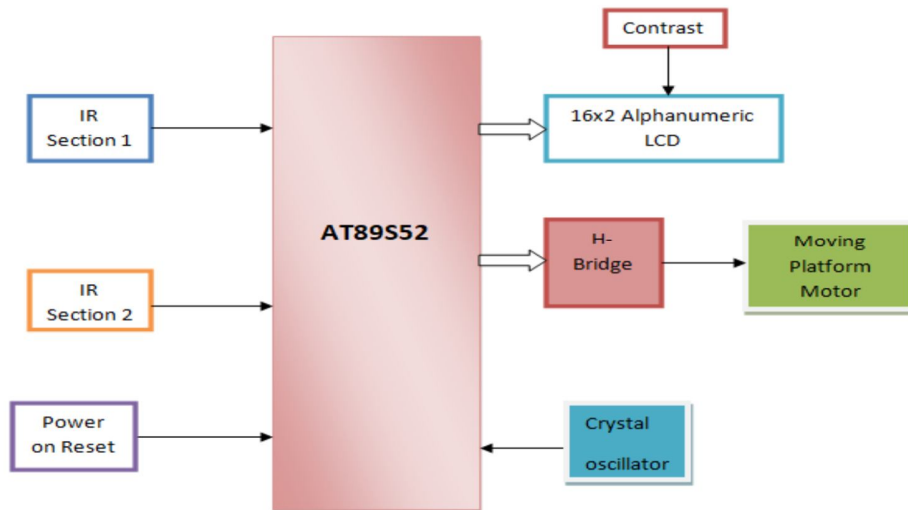


Fig 2. Block diagram of proposed system

VI. CONCLUSION

In this paper, we have successfully designed and developed a demo model of 'Controlling of traffic using Ultrasonic sensors', in which the results are satisfactory. Since it is a demo model, we have only shown it through one way of traffic using ultrasonic sensors.

It will help in to reduce the traffic At Hinjewadi chowk and highway. Also it is helpful for the government to apply 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.

By using this design we reduce a 1 side traffic from Hinjewadi area. But in real time traffic congestion can be in more than one direction, then also this module can be used by using image processing rather than the basic sensors.

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