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IOT BASED INTELLIGENT TRAFFIC MANAGEMENT SYSTEM

R. Rukvitha[1], P. Mary Namratha[2], P. Ravi Kumar[3], N. Anila Sri[4]

[1,2,3,4]*Bachelor of Technology, Computer Science and Engineering, Dhanekula Institute of Engineering and Technology, Andhra Pradesh, India.*

Abstract - *All metropolitan cities face traffic jam problems especially within the downtown areas. Normal cities are often transformed into "smart cities" by exploiting the knowledge and communication technologies (ICT).The paradigm of Internet of Thing (IOT) can play a crucial role in realization of smart cities. Here we propose an IOT based traffic management solutions for smart cities where traffic flow can be dynamically controlled. An additional time is provided based on the basis of Traffic flow which prevents traffic clogging and improves Time efficiency. Traffic is controlled on the basis of density count .However the scheme proposed is general and may be utilized in any Metropolitan city without the loss of generality. Entire System is Automated without any Human Intervention. This can be done so as to reduce the human efforts and improve time efficiency by preventing most of the traffic clogging.*

Key Words: **Density Count, Time Efficiency, Arduino, Buzzer, Traffic Sensing, IR Sensor.**

1. INTRODUCTION

Over the years, there has been a sudden increase in the number of vehicles on the road. Traffic congestion is a growing problem everyone faces in their daily life. Manual control of traffic by traffic police has not proved to be efficient. Also the predefined set time for the signal in the least circumstances (low and high traffic density) has not solved this problem. A model to effectively solve the above mentioned problems by using Internet of Things (IoT) is proposed.. A network of sensors is employed to trace the amount of vehicles and the traffic congestion at the intersections on a road and rerouting will be done on the basis of the traffic density on the lanes of a road .Traffic signal management is one of the major problematic issues in the current situation. Such scenarios, every signal are becoming 60 seconds of timing on the road at a daily interval, even when traffic thereon particular road is dense. As per this proposed model in this article, which will be optimized the timing interval of the traffic signal purely depends on the number of vehicles on that particular roadside. In this system, we are going to use IR Sensors. IR sensor is additionally called as an Infra-Red spectrum. IR sensors have 2 parts in it, one is the transmitter and second is a receiver. The transmitter is employed to transmit the sunshine and receiver keeps on receiving the sunshine .When this connection is interrupted, the counting process is started, i.e., when the receiver does not receive the light transmitted by the transmitter it is said that the object is there in between transmitter and receiver. The line of sight concept is employed during this approach."

Fig -1: Introduction

2. LITERATURE SURVEY

The Author mainly discussed about the ways to reduce traffic flow using web based Technologies and Internet of things. Existing system works in default and is not automated .whereas proposed system controls the traffic based on the number of vehicles that cross the signal at a particular point of time. The theme behind this is to improve time efficiency and to reduce human efforts. It is cost effective as the components used are efficient and are of minimum cost. Hardware Requirements include Arduino board, Infrared sensor, led lights, LCD display, Internet. Software Requirements include Arduino IDE, Embedded C programming language is used. Entire system is Automated Without any human intervention.

3. WORKFLOW

In Traditional Traffic Management Systems the timer to release the traffic is set to either 30 sec or more in default. Due to this time complexity increases and traffic will be clogged. In this research paper we are going to propose a better way through which time efficiency is achieved and traffic flow can be controlled .Initially the lane is divided into different segments and infrared sensors are arranged at the end of each segment .Whenever a vehicle passes through the lane IR sensor is activated and the density count is incremented. For each segment a partial amount of time is given to release the traffic from one way to the other way. The amount of time given depends on the number of segments that are filled at that point of time. The signal status is switched based on the density of traffic in a

particular lane. Initially when the lanes are empty traffic lights blink continuously. When an object enters a particular lane the IR sensor gets activated and the density count is incremented. Parallely the time count is set to 5 seconds in default (it can be modified accordingly). The lane is considered from various directions and based on the traffic density the lights are switched in accordance with the density. The traffic is released after the particular time is finished. The density count is arranged for all the directions (eg:-east density, west density..).Based on this density count the count value (time) runs down from highest point of time to zero. Within this time the traffic is released to the opposite direction. And again the traffic is sensed. Based on the flow lights are switched. This is a continuous process.

4. BLOCK DIAGRAM

The Figure Mentioned below describes various blocks of the project that are related to each other:-

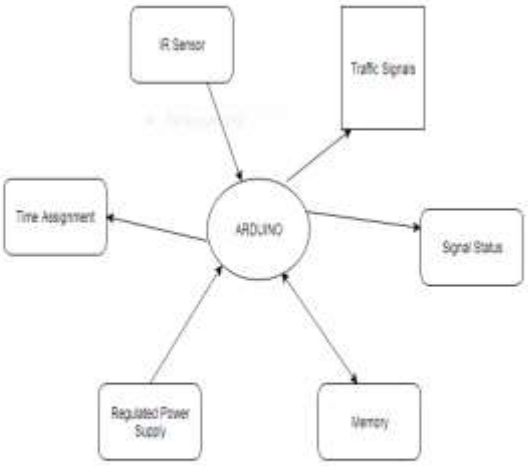

Fig -2: Block Diagram

4.1 FLOW CHART

The figure below describes the step by step flow of workflow mentioned above:-

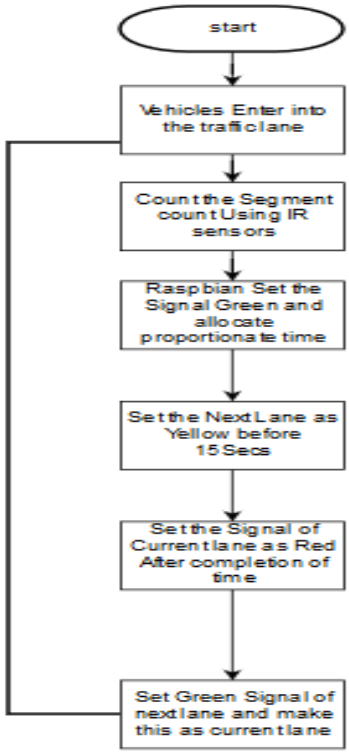

Fig -3: Flow Chart

4.2 TECHNICAL DESIGN

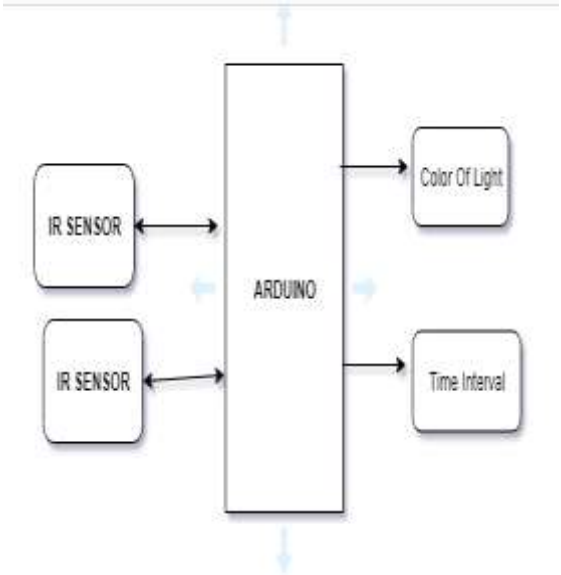

Fig -4: Technical Design

5. CONCLUSION

Planning boundaries for roads and assessing associated environmental effects are often supported socioeconomic considerations, leading to a mismatch between planning scales and spatial scales at which ecological systems operate. In part, this mismatch results because there are few legal incentives or disincentives to contemplate environmental effects beyond political jurisdictions, and thus deciding remains primarily local. The ecological effects of roads are typically much larger than the road itself, and that they often extend beyond regional planning domains.

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