

TRAFFIC CONTROL SYSTEM USING DENSITY CALCULATION

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Abstract

This work focuses on traffic management through image processing. It counts the number of vehicles and calculation of density. We propose a work which automatically detects the number of objects in an image and automatically changes the traffic lights. Existing methods involves large amount of hardware which involves more cost and maintainence. The proposed work involves in counting the number of vehicles and the hardware implementation using ARDUINO. In this work we have used MATLAB software to count the objects and we have used “MATLAB® Support Package for Arduino® Hardware” for interfacing ARDUINO and MATLAB.

1.INTRODUCTION

Traffic congestion is a common problem that has arisen due to the increased number of vehicles on the road. Many cities are facing lot of problems due to inefficient management of traffic. The wastage of fuel is happening. The valuable time of people wasted in big cities because of ineffective traffic management.

According to a recent research, traffic on Mumbai's key roadways takes one hour to 66 minutes at peak hours, rather than 30 minutes. The extra gasoline expenditure due to traffic is projected to be Rs 265/-.In order to address these issues our paper focuses on developing a smart traffic systems.

This paper focuses on developing a smart traffic system. In this system we capture image through camera and through image processing techniques we get number of vehicles. From the number of vehicles we can change traffic lights in a junction. As the inputs are continuously updated through camera the chances of getting error are very less and the man power to operate the traffic lights will be reduced.

2. LITERATURE SURVEY

Many traffic methods were discussed inorder to reduce complexity of traffic with the help of image processing. A method is proposed with the help of edge detection techniques for counting the number of vehicles and vehicle density is proposed in [1].Another similar method is proposed in [2] using thresholding and edge detection. Based on removal of noise Wiener filter and morphological operations , a similar method is proposed in [3].A method for tracking and counting the vehicles by Canny edge detection ;Foreground detector is used to detect the objects is proposed in [4]. A method uses two cameras for acquiring traffic information, MATLAB for image processing, ATMEGA8 microcontroller for controlling traffic lights and USART (Universal Synchronous Asynchronous Receiver Transmitter) module for sending control information to the microcontroller is proposed in [5].A method related to the counting of vehicles and images based on blob area is proposed in [6]. In these ways similar approaches were proposed in different papers for better traffic systems to reduce man power, time and money.