TRAFFIC CONTROL SYSTEM USING RASPBERRY-PI

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ABSTRACT: *The existing Traffic control system is based on the "time" which is already assigned in the system. According to these times the signals are working in each lane. But in these system condition is occurs as all vehicles in lane(L1) are passed and vehicles in another lane (L2) still in waiting state because time is not over and hence signal is still red. These systems are very inefficient because they are unable to handle various simple situations which are occurs throughout the day. Major drawback is it has unnecessary waiting time and there is no facility to handle emergency vehicles.*

The project is designed to develop a system which perform execution based on density of vehicles(Vehicle Count). After calculating the number of vehicles we will came to know in which side the density is high based on which signals will be allotted for a particular side. Raspberry pi is used as a microcontroller which provides the signal timing based on the traffic density. And can provide facility to handle emergency vehicles automatically and efficiently.

KEY WORDS: *Traffic Control, Raspberry Pi, Image Processing, Vehicle Counting, Open CV*

I. INTRODUCTION

India is a large country and around the world India is second most populous country and fast growing economy , In today's life we have to face different kinds of problem one of which is increasing amount of vehicles it becomes increase in traffic and chaos. Infrastructure growth in India and growth in number of vehicles is not equal , because of large population speed of increase in no of vehicles is much faster than infrastructure growth. Roads capacity and interaction along the roads (cross-roads / junctions) are not capable to handle higher number of vehicles.

Major drawback of Indian traffic is non-lane based and chaotic. So for Indian traffic the solution system is required which is different from developed countries. The paper is grouped into different part. We discuss each part one by one for better understanding.

mining technique. The important aspect about the contract will be extracted. The only relevant aspects will be displayed to one or many acceptor, who will then decide whether to make an approach for the contract or not

II. LITERATURE SURVEY

India is the second most populous Country in the World is a fast growing economy. It is seeing increased no of road congestion problems in its cities. Infrastructure growth is slow as compared to the growth in number of vehicles, due to space and cost constraints [3]. Conventional traffic light system is based on fixed time concept allotted to each side of the junction which cannot be varied as per varying traffic density. Some time it will be not provide sufficient time to pass vehicles because traffic signal time is pre define [1].

Nowadays traffic problem are increasing because of the increasing number of vehicles and the limited resources provided by the current infrastructures. Due to this, there is a need to wait more time in front of the signals [2].

We propose a system for controlling the traffic light by image processing. The system will detect vehicles through capture camera images instead of using electronic sensors embedded in the pavement. A camera will be installed alongside the traffic light. It will capture image sequences. The image sequence will then be analyzed using digital image processing for vehicle detection, and according to traffic conditions on the road traffic light can be controlled [4].

III. PROPOSED SYSTEM

The existing system is based on the "time" which is already assigned in the system. According to these "time" the signals are working in each lane. But in these system condition is occurs as all vehicles in lane(L1) are passed and vehicles in another lane (L2) still in waiting state because time is not over and hence signal is still red. These systems are very inefficient because they are unable to handle various simple situations which are occurs throughout the day. Major drawback is it has unnecessary waiting time. We propose a smart traffic signal controller system. The proposed system tries to minimize the possibilities of traffic jams, caused by the traffic lights, to some extent by clearing the road with higher density of vehicles. Through which less number of vehicles in waiting state and can reduce time consuming. And our system also provides the clearance for the emergency vehicle if any. For example fire emergency, ambulance emergency and VIP persons vehicles. The system is based on the AVR micro controller technology. The code for this project is compiled in high tech C compiler and the simulated with Proteus software.

Complete system of Automotive traffic control System Separated in Following Seven Stages:

1. *Image Acquisition*
2. *Image Pre-Processing*
3. *Morphological Processing*