Literature Survey on Density Based Signal Management in Traffic System

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ABSTRACT

The propose system is the Traffic Density Based Signal Management in Traffic System which deal with traffic load in each side of lane during high density traffic on road at specific time. Here we are considering the main scenario at time when the traffic is extended for, less no. of vehicles then signal activate for less number of time. If the traffic gets on increasing on other side of lane then, the problem with previous algorithm is that, the vehicles on other side those arrived first as compared to others have to wait. In previous they introduce equal size platoon. We are proposing such a system that deal with such kind of problem by automatically switching the signal by calculating the time at which the vehicles arrived at stop line. We first formulate the vehicular traffic signal control problem as a job scheduling problem on processors. In our system we switch the signal if the density of vehicle is high then the maximum time is allocated. In our system we are not decide the platoon length or size. Our system show result under light medium & heavy traffic.

Keywords

RSUs, WSN, Intelligent Traffic system (ITS)

1. INTRODUCTION

The proposed system will examine the possibility of deploying an intelligent real-time traffic signal controller, which will receives information transmitted from vehicles, and then utilizes this information to optimize the traffic signal scheduling at the intersection. To monitor the density of the traffic, we will keep the Road Side Unit (RSU) besides the road and depends upon the images from the Road Side Unit (RSU), the delay of the traffic signals will be increase or decrease. The Density Based Signal Management in Traffic System is to solve traffic congestion problem which is a big problem in many modern cities and many population face these problem. For that, we have designed a framework for a dynamic and automatic traffic light control system and developed a simulation based model with codes in to help build the system. Generally, each traffic light on an intersection is assigned fixed signal time. It is possible to propose dynamic time-based coordination schemes where the green signal time of the traffic lights is assigned based on the present conditions of traffic.

The Density Based Signal Management in Traffic System is used in heavy traffic roads and the junction which is based on the time as well as the density and the time delay will be controlled and density will control by programe coded. If the traffic density is high on particular side more priority is given for that side. The Road Side Unit (RSU) continuously keeps watching density on all sides and the Green signal is given to the side on priority basis. The side with next priority level follows the first priority level. By using this pattern traffic can be cleared without irregularities and time delay though there

is no traffic on the other side can be avoided. Maximum density of traffic will allow traffic with maximum timing assigned Minimum density of traffic will allow traffic with minimum timing assigned.   .

2. LITERATURE REVIEW

Density, speed, and flow are the three critical parameters for road traffic analysis. High-performance road traffic management and control require real-time estimation of space mean speed and density as input for large spatial and temporal coverage of the roadway network. In Adaptive Traffic Control System which receive information from vehicle such as position and speed and then it utilize to optimize the traffic signal. The system specifies the use of onboard sensors in vehicle and standard wireless communication protocol Specified for vehicular applications. They implement various traffic Signal control Algorithms [1].Intelligent traffic system for VANET suggest that creation for smart city framework for VANET consisting of Intelligent Traffic Lights which transmit warning messages and traffic statistic. In That System Various Routing Protocol Has Been Discus And Compare. They suggest that AODB is best suited for Intelligent Traffic Light [2]. Author suggest in reference [3] the data forecasting model for transmitting data from one to other. This article studied about the dynamic traffic control system and based on radio propagation model for predicting path loss &link. The author suggests in reference [7] Intelligence road Traffic signaling System. In that system OBUs used. OBUs used destination information for calculating load traffic on road for reducing the conjunction on road. The general belief is that it is more difficult to estimate and predict traffic density than traffic flow .In Intelligent Traffic Light and Density Control using IR Sensors and Microcontroller [4] the author propose that the delay of Signal not depend on traffic density. TheAuthor optimize the traffic using microcontroller this system reduce traffic jams problem cause by traffic light to extent. Thesystem contains IR Transmitter and IR Receiver. IR count the vehicles on the road Microcontroller generates the result.

[8]Priority Based Traffic Lights Controller Using Wireless Sensor Network the author implements Adaptive Traffic control System based on (WSN) wireless sensor Network. In that System Time manipulation Used for controlling Traffic Light. This System Control Traffic over Multiple intersections.

As such, it is becoming very crucial to device efficient, adaptive and cost-effective traffic control algorithms that facilitate and guarantee fast and smooth traffic flow that utilize new and versatile technologies. An excellent potential candidate to aid on achieving this objective is the Wireless Sensor Network (WSN). Many studies suggested the use of WSN technology for traffic control. In, a dynamic vehicle detection method and a signal control algorithm to control the

state of the signal light in a road intersection using the WSN technology was proposed.

In this paper, an intelligent traffic light control system based on WSN is presented. The system has the potential to revolutionize traffic surveillance and control technology because of its low cost and potential for large scale deployment.

3. PROPOSED SYSTEM

Traffic light controlling or optimization is a complex problem. Even for junctions there might be no obvious solution or critical to solved. With multiple junctions, the problem becomes even more complex, as the state of one light agree the flow of traffic towards many other traffic lights. The complication is the fact that flow of traffic frequently changes, depending on the time. The Density Based Signal Management in Traffic System track traffic density at junctions using Road Side Unit (RSU) and control the traffic signals Red &Green indication. The delay given for Red or Green Signal at a square will dynamically determine traffic density by communicating with the vehicles Road Side Unit (RSU). The uniqueness of our work is that the control is not just based on traffic density calculation but also priority. The Improved Priority Based Signal Management in Traffic system is capable enough to track multiple priority based vehicles. Vehicular Ad Hoc Network (VANET) is a network in which each node represents a vehicle equipped with wireless communication technology and can communicate with other nodes like other vehicles or Road Side Units (RSUs).
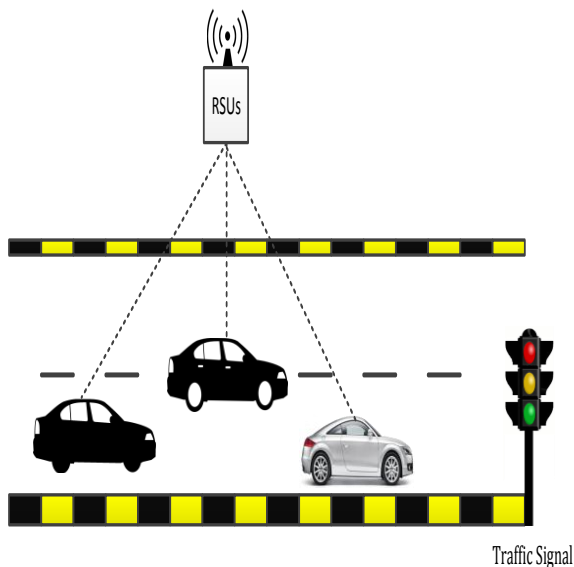

Fig 1: Roadside Units Communication with Vehicles

The main goal of VANET is to provide safety and comfort for passengers on road. A Road Side Units (RSUs) is an access points, used together with the vehicles, or collect count of the traffic from no of vehicles to allow information dissemination in the roads. The concern data can be used to create Priority Based Traffic Management Systems, which can automatically update traffic light delay.

Congestion in road traffic is a serious issue and timing of traffic light is pre-defined or fixed in the traffic light and it is independent on traffic density. Therefore optimizing traffic light control to overcome the traffic congestion on intersection increasing demand is arises. To overcome the problem of

traffic congestion at road intersection at the Priority Based Signal Management in Traffic System is introduced. Priority Based Signal Management in Traffic System will calculate the density of vehicle on the road for flow traffic smoothly without conjunction. The system also proposes the Priority Based traffic light signaling which help to assign the priority to the lanes with highest traffic density as per demand in order to control the traffic smoothly. Overcome the traffic jam problem. Reduces the delay. Avoid Conjunction on the road.

4. CONCLUSION

Density Based Signal Management in Traffic System show how the Traffic Light Signal control, including with the implement of Traffic Scheduling Algorithm which is used to gain information from the vehicle position and the speed. The acquired data from Road Side Units reschedule the traffic light timing according to the traffic condition for low or high density road traffic. If the density of the road traffic is high then Maximum density of traffic will allow maximum default timing for traffic lights. Minimum density of traffic will allow traffic with minimum timingfor traffic lights. If the traffic rate on both side is Equal or gap within traffic then according to arrival time traffic light signal set to minimized.

In the previous Reference [1] they collect information from the vehicle for scheduling traffic. In that system they aggregate vehicle in equal platoon. They decide the equal size platoon on each lane and the processing time is also equal. And schedule the traffic. If the platoon contains only one long vehicle and they schedule. The equal time is assign to platoon unnecessary the traffic is loaded and signal switch to the next and they wait for next turn. The high delay is produce between two platoons. For avoid the scheduling problem in our system we will not fixed the size or processing time of platoon or Vehicle length. Our System is adaptive System

In Reference [4] the System provides the delay not depends on traffic flow the delay depends on time. But in our system we provide delay depends on Traffic Density.

5. REFERANCE

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