Automatic Traffic Control System

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Abstract- Robust associated reliable traffic TV is associate pressing have to be compelled to be compelled to be compelled to bolster traffic management and management. Vehicle flow detection looks to be a vital in TV. The traffic flow shows the traffic state in fixed amount and helps to manage and management significantly once there's a traffic jam. Throughout this project, we've Associate in nursing inclination to propose a traffic TV for vehicle reckoning. The projected formula consists of five steps: background subtraction, blob detection, blob analysis, blob pursuit and vehicle reckoning. A vehicle is sculptural as associate rectangular patch and classified via blob analysis. By analyzing the blob of vehicles, the pregnant choices unit of mensuration extracted. Pursuit moving targets is achieved by examination the extracted choices and activity very cheap distance between consecutive frame. The experimental results show that the projected system can give amount and useful information for traffic investigation

Keywords: - Image processing, Distributed System, Background Subtraction, Intelligent Systems.

1. INTRODUCTION

A development of an intelligent remote control system for street light and traffic signal control system needed because present traffic light controllers based on old microcontroller such as AT89C51 which has very less internal memory and no in-built ADC. These systems have limitation because will use the predefined program that does not have the flexibility of modification on real time application. The present traffic system have fixed time interval for green and red signal which does not provide the flexibility to the system and street lighting system public sector are design according to the old standards. The intelligent remote control system for street light and traffic signal control system consist of high-performance, low cost, low power. The system will able to deal two basic problems: i) Detection of traffic volume by using genetic algorithm ii) automatic control of street light using sensor. The traffic signal management is a very important facet in electronic equipment town traffic system. As we have a tendency to all glorious, traffic systems area unit time-varying, random system. thus lots of standard strategies for traffic signal management primarily based precise models fail to deal efficiently with the advanced and ranging traffic things. During all amongst in every of the most options of contemporary cities is that the permanent growth of population in a comparatively little space. The consequence of this truth is that the increase within the range of cars and additionally the requirement of movement and transport of individuals and product in urban town networks. Traffic congestion in main road networks is one amongst the most problems to be addressed by today's traffic management schemes. Automation combined with the increasing penetration of on-line communication, navigation, and advanced driver help systems can ultimately lead to intelligent vehicle main road systems (IVHS) that distribute intelligence between margin infrastructure and vehicles which above all on the long term are one amongst the foremost promising solutions to the traffic congestion drawback. During this paper, we have a tendency to gift a survey on traffic management and management frameworks for IVHS. First, we have a tendency to provide a short summary of the most presently used traffic management strategies for freeways. Next, we have a tendency to discuss IVHS based traffic management measures. Then, varied traffic management architectures for IVHS like PATH, Dolphin, Auto21 CDS, etc. are mentioned and a comparison of the varied frameworks is conferred. Finally, we have a tendency to sketch however existing traffic management methodologies may fit in Associate in Nursing IVHS-based traffic management set-up.

Fast transportation system and rapid transit system are nerves of economic development for nation. All developed nation have a well-developed transportation system with efficient traffic control on road in, rail, and air transportation of good, industrial products, manpower and machinery are the key factors which influence the industrial development of any country. Mismanagement and traffic congestion result in long waiting time loss of fuel and money. It is therefore utmost necessary to have a fast, economical and efficient traffic control system for nation development.

2. LITERATURE SURVEY:

In current system traffic get collected at particular places. Now days there are lack of traffic analysis which results into heavy traffic. Many time emergency services are trapped. We refer various papers.

The author Guo Mu [1] describes A camera-based rule for period of time durable stoplight detection and recognition was planned.

This rule is supposed chiefly for autonomous vehicles. Experiments show that our rule performs well in accurately investigating targets and in determinative the gap and time to those targets. However, the current methodology planned here can have some drawbacks. First, the maneuver performs well within the daytime but not additionally within the dead of night. The warning rate can increase within the dead of night as results of lots of light-weight interference. Whereas the maneuver can discover every circular traffic light and other people with arrows, exclusively the classical suspended, vertical traffic lights were detected. Detection and recognition of lots of types of traffic lights will meet an important house for future work.

Shu-Chung [2] proposed driver assistant system design supported image process techniques. A camera is mounted on the vehicle front window to sight the road lane markings and confirm the vehicle's position with regard to the lane lines. A changed approach is projected to accelerate the HT method during a computationally economical manner, thereby creating it appropriate for time period lane detection. The no heritable image sequences are analyzed and processed by the projected system that mechanically detects the lane lines. The experimental results show that the system works with success for lane line detection and lane departure prediction.

P.F. Alcantarilla [3] presents degree automatic road traffic management and looking system for daytime sequences using a B&W camera. Necessary road traffic data like mean speed, dimension and vehicles numeration are obtained practice laptop computer vision methods. Firstly, moving objects are extracted from the scene by suggests that of a frame-differencing algorithm and texture data supported grey scale intensity. However, shadows of moving objects belong to boot to the foreground. Shadows are far away from the foreground objects practice silk hat transformations and morphological operators. Finally, objects are tracked in AN extremely Kalman filtering technique, and parameters like position, dimensions, distance and speed of moving objects are measured. Then, per these parameters moving objects are classified as vehicles (trucks or cars) or nuisance artifacts. For results mental representation, a 3D model is projected onto vehicles among the image plane. Some experimental results practice real outside sequences of images ar shown. These results demonstrate the accuracy of the planned system to a lower place daytime interurban traffic conditions.

Rashid Hussian [4] proposed system involves use of Wireless sensing element network technology to sense presence of Traffic close to any circle or junction and so able to route the Traffic supported Traffic handiness or we will say density in want direction. this method doesn't need any system in vehicles therefore are often enforced in any Traffic system quite simply with less time and fewer pricey additionally. this method uses Wireless sensing element networks Technology to sense vehicles and a microcontroller based mostly routing formula programmed for wonderful Traffic management.

Ms Promila Sinhmar [5] proposed system records vehicle count in its memory at user predefined recording interval on real time basis. This recorded vehicle count information is utilized in future to research traffic condition at various traffic lights connected to the system. For acceptable analysis, the recorded information is downloaded to pc through communication between microcontroller and also the computer. Administrator sitting on laptop will command system (microcontroller) to transfer recorded information, update lightweight delays, erase memory, etc. therefore administrator on a central station laptop will access traffic conditions on Associate in Nursing approachable traffic lights and close roads to scale back traffic congestions to an extent. In future this technique is accustomed inform individuals regarding completely different places traffic condition.

In this system the traffic lights will be controlled mechanically. it's not needed to expressly set a time or amendment the traffic lightweight manually.. The planned algorithmic rule consists of five steps: background subtraction, blob detection, blob analysis, blob trailing and vehicle investigation. A vehicle is modeled as an oblong patch and classified via blob analysis. By analyzing the blob of vehicles, the purposeful options square measure extracted. trailing moving targets is achieved by comparison the extracted options and mensuration the minimal distance between consecutive frame. The experimental results show that the planned system will give real-time and helpful info for traffic police work

3. SYSTEM ARCHITECTURE

Vehicle flow detection seems to be a very important half in closed-circuit television. The traffic flow shows the traffic state in fixed amount and helps to manage and management particularly once there’s a traffic jam. During this project, we have a tendency to propose a traffic closed-circuit television for vehicle

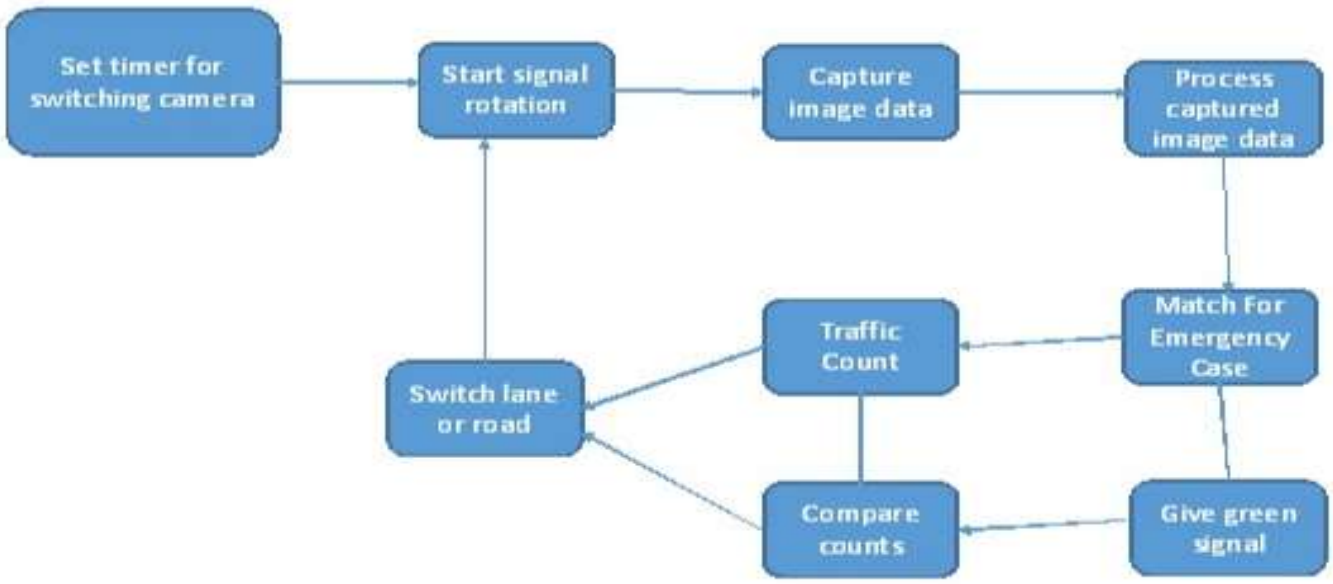

Figure 1: System Architecture

investigation. The planned algorithmic rule consists of five steps: background subtraction, blob detection, blob analysis, blob following and vehicle investigation. A vehicle is sculptured as an oblong patch and classified via blob analysis. By analyzing the blob of vehicles, the purposeful options square measure extracted. Following moving targets is achieved by scrutiny the extracted options and activity the lowest distance between consecutive frame.

4. PROPOSED ALGORITHM:

A. Set timer for switching camera
B. Start signal rotation
C. Capture image data
D. Process captured data
E. Match for traffic rules breaking
F. Send image to admin
G. Stop.

The above algorithm shown in Figure 2.

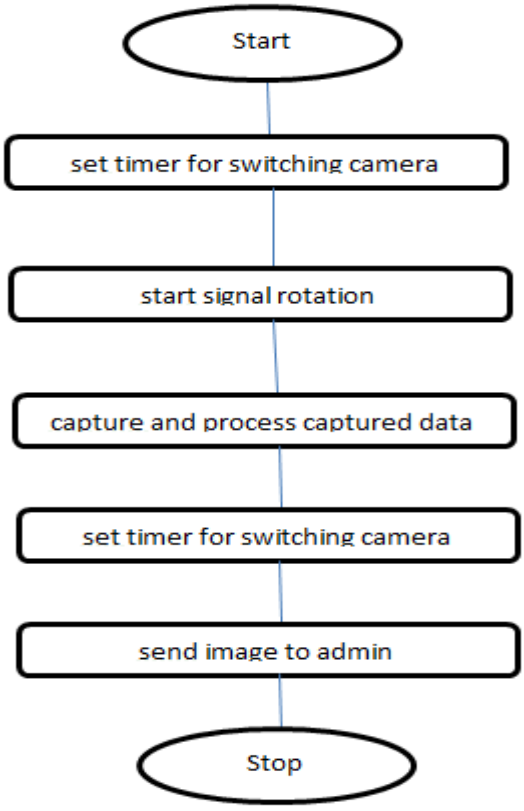

Figure 2: Algorithm

4. CONCLUSION

Thus in this we have made an analysis on Automatic Traffic Control Signal in which our motive is to reduce the traffic on road in peak hours and make a way for emergency situations. The method presented in this paper is simple and there is no need to use sensors that have been commonly used to detect traffic in the past. However, one of the most important disadvantages of this method is extreme sensitivity to light. For example, when installed in the road, changes in sun light potentially cause interference with the camera. This problem can be overcome by using specific filters during Image Processing or changes in Matlab code. With some improvements, this method can be used to detect road accidents and identify violations of the spiral movements of cars.

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