Road Accident Automated Recovery Process

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Abstract:
Road accidents are one of the major causes of human death. In this project, we have investigated a practical and novel method of road accident automated recovery process which can real-time monitor. The image processing and machine learning techniques are employed in surveillance system of power substation. The video surveillance system automatically detecting the car number with sending mail to certain authorities and taking care of first aids. If the car number are found with the accident detection, his/her license plate (LP) number is recognized to initiate further actions such as deduction of penalty amount from one’s account linked with the vehicle license and Aadhar number by the traffic police and the legal authority.

Keywords: CNN algorithm, Image processing, Image acquisition, Image segmentation.

I. INTRODUCTION

Accident prediction is one of the key problems in traffic control and guidance system as well as the important functions of intelligent transportation system (ITS). The fast expansion in machine learning new methods and in the appearance of new data sources makes it possible to evaluate and forecast accident conditions in smart cities more quickly and accurately. Accident estimation and prediction system has the ability to reach destination immediately and deaths taking place due to road accident.

In this paper, the existing accident prediction methods for smart cities are provided in detail and the problems and challenges of the prediction models are analyzed in depth. Based on the analysis of the existing short-term accident detection flow forecasting methods, the possible development trend of short-term accident detections approaches in the future is pointed out.

A metropolitan area is densely populated urban core area and is surrounded by less populated territories, sharing industry, housing, and infrastructure. It consists of urban areas, satellite cities, rural areas and towns, and these are socio-economically tied to the urban core, and are typically measured by commuting patterns of commuters. The rapid development, urbanization, national and international trades in a metropolitan area leads to increase in the accidents, demands, freight flows and frequency of vehicles. The increase of these factors results in growing of frequency of traffic jams, accidents and fatalities and they lead to significant recurring delay in a metropolitan area. Most of the time these factors depend on the type of place and periods of time. Therefore, in a metropolitan area accident is an unbearable event for commuters and wastes their precious time and burns money in the form of fuel.

Hence, in near future most of the metropolitan areas will become less attractive to business and new residents. The growing metropolitan areas are facing challenges, such as accidents, analysis and sharing, traffic density and travel time predictions on routes, to improve the accident detection these challenges heavily impact on daily routine activities and economic losses. Some of these are achieved by using prediction models and they provide more accurate and realistic accident information than the more recently estimated information.

Short term methods, such as k-nearest neighbor (KNN), artificial neural network (ANN), time series analysis (TSA) and support vector regression (SVR) data mining and deep learning techniques are used for Accident analysis, prediction and management. These methods may suffer from several drawbacks, including adaptability during dynamic changes in road conditions and new structures, low computing speed and more processing time. These drawbacks have motivated us to re-examine the analysis, sharing, monitoring, prediction and management of resources, traffic and travel time using emergent intelligence (EI) technique in a metropolitan area. Because the EI technique adapts to dynamic behaviour in distributed environments and is the best choice for dynamic accident recovery management system, which also improves the traffic efficiency, reduces waiting time and under-utilization of resources (like number of vehicles, amount of fuel, parking space, etc.)

II. RELATED WORKS

1. Intelligent video surveillance system that automatically detecting car number

In this paper we can improve the rules and regulations for the car drive Automated analysis is used to find Car accident detection. This article presents an intelligent video surveillance system for automatically detecting the Car Number with sending mail. If the car number are found with accident detection, his/her license plate (LP) number is recognised to initiate further actions such as deduction of penalty amount from one’s account linked with the vehicle license and Aadhar Number (Applicable to Indian Scenario) by the traffic police and the legal authority

2. Digital sound level meter to detect loud noises and identifying accidents

In this paper we use a Digital sound level meter a easy to use instrument that can measure and monitor the sound level pressure in a wide variety of industrial environments.
source of loud noises can be quickly identified and isolated so corrective measures can be taken to reduce or eliminate the problem. Measures sound level range from 80db-100db. when we measure noise levels with a sound level meter, we measure the intensity of noise called decibel units (db), a sound meter uses a display with a decibel range and resolution to approximate to the ear’s dynamic range, usually the upper range rather than the quiet part.

3. Optical Character Recognition (OCR) to extract the alphanumeric of the number plate

In this paper we use an optical character recognition in which the systems commonly use infrared lighting to allow the camera to take the picture at any time of day or night. Then optical character recognition (OCR) to extract the alphanumeric of the license plate. Optical character recognition is the electronic or mechanical conversion of images of typed, handwritten or printed text into machine-encoded text whether from a scanned document, a photo of a document, a scene-photo for example the text on signs and billboards in a landscape photo.

Optical Character Recognition (OCR) used for reading license plate. A computer that finds the license plate on the vehicle must recognize the characters on the license plate. Includes a frame grabber that recognizes when to “snap” the image. There is an increasing effort by the states to design license plates to specifically reflect infrared light in the near-infrared spectrum and be easily recognizable to the OCR (optical character recognition) function of these systems.

III. PROPOSED SYSTEM

In this paper we can improve the rules and regulations for the car drive. Automated analysis is used to find Car accident detection. So that, the victims get an immediate first aid help, by this possibility of deaths can be reduced to a drastic level. This article presents an intelligent video surveillance system for automatically detecting the Car Number with sending mail. If the car number are found with accident detection, his/her license plate (LP) number is recognised to initiate further actions such as deduction of penalty amount from one's account linked with the vehicle license and Aadhar Number (Applicable to Indian Scenario) by the traffic police and the legal authority.

MODULE 1: CLASSIFICATION OF MOVABLE OBJECTS

The surveillance camera that capture the movable objects from the traffic road. And it uploads to the database which is already created to store the video files for the further uses based on the needs of the system admin. It uploads the video from the camera and stores the video in the database. Admin uses the multiple functions to be done in the class.

MODULE 2 SEGMENTATION

Segmentation means to divide the frames into parts, or segments, which are definable, accessible, actionable, and profitable and have a growth potential. In other words, a company would find it impossible to target the entire market, because of time, cost and effort restrictions. Once the person-Car pair is obtained, the person images is given as input to accident detection model. While testing the accident detection model, some false detections were observed. So, the person image was cropped to get only top-fourth portion of image. They detected accident as recognition technology that uses YOLOV3. As the rider Car Number and accident detection in case 1, bounding box is created, no further processing is necessary. Since in case 2, rider is not Car Number and accident detection, no bounding box is created.

MODULE 3: RECOGNITION OF CHARACTERS

Automatic number-plate recognition is a technology that uses optical character recognition on images to read vehicle registration plates to create vehicle location data. Video Relay Interpreting (VRI) is used by police forces around the world for law enforcement purposes, including to check if a vehicle is registered or licensed. Video Relay Interpreting (VRI) can be
used to store the images captured by the cameras as well as the text from the license plate, with some configurable to store a photograph of the driver. Systems commonly use infrared lighting to allow the camera to take the picture at any time of day or night. Then optical character recognition (OCR) to extract the alphanumeric of the license plate.

IV. FLOW DIAGRAM

V. CONCLUSION

These methods are efficient to detect accidents using both hardware and software methods which provide good results. Most of the discussed methods also provide the driver with the option of turning off the alarm in cases where the accident is not serious or false detections of an accident. Previous methods are either mostly dependent on some hardware like sensors that have to be present in the car or require a smart phone to be present within the car. While the use of such hardware can prove to be a more cost-efficient approach it has the drawback of being destroyed in the accident and hence giving spurious or no readings at all. Hence, an approach that does not depend on any hardware device or sensor that is associated with the car is required for the detection of traffic accidents.

VI. REFERENCES


