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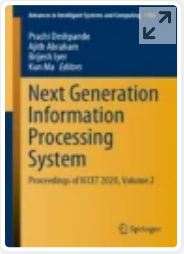

Next Generation Information Processing System pp 73–81

Probability Analysis of Vehicular Traffic at City Intersection

Jyoti Motilal Sapkale, Vijay D. Chaudhari, H. V. Dhande & A. J. Patil

Conference paper | First Online: 14 June 2020

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Abstract

Nowadays, congestion in traffic is a serious issue all over the world. The traffic congestion is caused because of large red light delays. The delay of the respective light is coded hardly in the traffic light and also it is not dependent on traffic density. The existing system varies the particular light delay time by taking the vehicle count using IR sensors which has several disadvantages. This project presents the system based on raspberry pi. It includes a high-resolution camera. It captures images of vehicles. It performs the blob detection of a vehicle. It gives a separate count of vehicles and people too. This

recorded vehicle count data is used in the future to analyze traffic conditions at respective traffic lights connected to the system. For appropriate analysis, the raspberry pi will work on the information to send correct signal into the LED lights. However, to solve the problem of emergency vehicles stuck in the overcrowded roads, a portable controller device is designed. The system will give the vehicle count by the deep neural technique. After vehicle detection and its count, the system will apply conditional probability to glow the green signal for a specific time period on a particular side according to the vehicle count.

Keywords

Traffic control **Raspberry pi** **Image processing**

Vehicle counting **Python**

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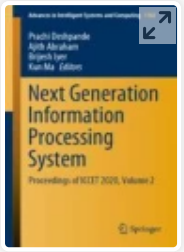

Next Generation Information Processing System pp 325–334

Automation in Hydroponics Farming Ecosystem

Jagruti Kishor Wagh, Rajendra V. Patil, Anil D. Vishwakarma & Vijay D. Chaudhari

Conference paper | First Online: 14 June 2020

418 Accesses

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Abstract

Hydroponics means growing plants without soil. As the quality of production in farming is decreases day by day, everyone demands nutrient rich food, but this demand cannot be fulfilled by using our traditional farming method. This method undergoes many problems. Some of them are availability of land and labor; another one is increased use of fertilizers which can affect quality of crop that in turn can affect the ability of soil fertilization. With poor soil fertility, the farmer can face many problems. He did not get production in huge quantity also the crop we will get is not nutrient rich. Other problems in traditional

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Keywords

Smart farming **Hydroponics** **IOT**

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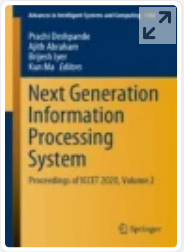

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Prioritized ViU Departure at Traffic Intersection Using Internet of Things

Vijay D. Chaudhari & Anil J. Patil

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Abstract

If the emergency vehicles such as police van, ambulances, fire extinguishing pumps get stuck in extremely busy traffic, may cause loss of estate along with property as well as human lives. Traffic congestion may be root reason behind a series of significant issues. The continuous increase in vehicle traffic in every urban area can cause drastic traffic congestion at intersections. Most of the traffic signals seem fixed green light glow sequence and is determined without taking into consideration the presence of the vehicle-in-urgency into account puts adverse impact on the economy as well as on human lives. Inefficient traffic regulation system leads

to loss of lives due to ViU get stuck in heavy traffic. In emergency situations, when any ambulance could thoroughly break the wall of road traffic congestion and taking out the patient safely to the destination will be a great surprise, isn't it? Here we have tried to implement dynamic traffic signaling. We proposed timing difference method to give priority when two ViUs are arriving at the same time. The system can able to give priority to one of the ViU (e.g., ambulance or fire brigade) arrived at the same time at lanes of an intersection.

Keywords

Priority **Traffic intersection** **Traffic density**

Vehicle-in-Urgency **Internet of Things**

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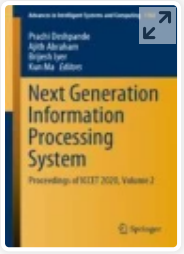

Next Generation Information Processing System pp 65–72

IoT Capable Mechanism for Crowd Analysis

Kanchan R. Mangrule ✉, H. T. Ingale, S. K. Chaudhari & Anil J. Patil

Conference paper | First Online: 14 June 2020

362 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1162)

Abstract

This paper describes a crowd analysis of different activities using surveillance videos is an important topic for communal security. This paper also describes the detection of dangerous crowds if the weapon is present in the crowd. In our study, we are using raspberry pi 3 board for the development of a system that consists of ARMv8 CPU that detects the human heads and provides a count of humans in the region using Open CV-Python. The direction of the movement of the person can be achieved by human tracking. Generally, there are three different stages algorithm for computer-based crowd

analysis, (1) people counting, (2) people tracking, and (3) crowd behavior analysis. This project is made for security purposes where there is a possibility of a dangerous crowd, for example, mall, railway station, shopping center. In our method, we are used CNN to trained dangerous weapons and DNN used for human detection. This method not only detects the direction of the crowd but also detects if the crowd is dangerous or not. In this method, also count the total number of human and it also gives confidence score that means, in how many percents it is related to original people. In this way, we could have prevented many deaths and injuries.

Keywords

Video surveillance **Crowd density**

Dangerous weapon detection **Crowd tracking**

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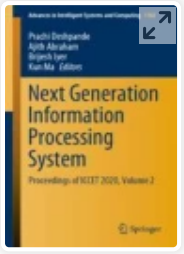

Next Generation Information Processing System pp 73–81

Probability Analysis of Vehicular Traffic at City Intersection

Jyoti Motilal Sapkale, Vijay D. Chaudhari, H. V. Dhande & A. J. Patil

Conference paper | First Online: 14 June 2020

364 Accesses

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Abstract

Nowadays, congestion in traffic is a serious issue all over the world. The traffic congestion is caused because of large red light delays. The delay of the respective light is coded hardly in the traffic light and also it is not dependent on traffic density. The existing system varies the particular light delay time by taking the vehicle count using IR sensors which has several disadvantages. This project presents the system based on raspberry pi. It includes a high-resolution camera. It captures images of vehicles. It performs the blob detection of a vehicle. It gives a separate count of vehicles and people too. This

recorded vehicle count data is used in the future to analyze traffic conditions at respective traffic lights connected to the system. For appropriate analysis, the raspberry pi will work on the information to send correct signal into the LED lights. However, to solve the problem of emergency vehicles stuck in the overcrowded roads, a portable controller device is designed. The system will give the vehicle count by the deep neural technique. After vehicle detection and its count, the system will apply conditional probability to glow the green signal for a specific time period on a particular side according to the vehicle count.

Keywords

Traffic control **Raspberry pi** **Image processing**

Vehicle counting **Python**

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