

Embedded Automated Vision for Double Parking Identification System

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Article Info

ABSTRACT

Keyword:

Smart city
Computer vision
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Embedded system application

The aim of this work is to assist the city administration issue which involve the traffic flow disruption in an urban area. One of the causes of traffic flow disruption is double parking; thus, in this work, an automated double parking identification and alert system was developed using embedded vision system and internet of things. A camera was utilized to acquire the image of a parking area, and the image was processed using Beaglebone Black processor. A computer vision algorithm was developed to process the image using background subtraction, region of interest identification, and color analysis. When a double parked vehicle is detected, the data was sent into the cloud automatically to alert the city administrator for further action. The developed system achieved 91% accuracy in detecting the traffic violation of double parking.

1. INTRODUCTION

In this modern era, the affordability of purchasing vehicles increases nowadays. It directly results in increasing number of vehicles and thus produces high volume of traffic in the urban area. An issue of illegal parking has become more apparent problem faced by the city administration as it is one of the reasons that lead to bottleneck on road and soon congestion. Before enforcing the law to solve this problem, detecting such violation has been a challenge by multiple parties, as the task of detection solely dependent on human operator for surveillance [1].