



IoT based Time Successive Semi Automated Vehicle Monitoring System

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ABSTRACT

IOT fundamentals and its applied applications that will be of worth to storage capability in the cloud computing. Avoiding time exceeds and securing, monitoring, maintaining the original details like (RC BOOK, INSURANCE, TAX and etc.)Of vehicle are the major issues and challenges in the RTO and traffic maintenance security level. My project is developed for the purpose of reducing time and effective security system in the field of vehicle handling process by the Government. In this work, I have decided to do interlinking between the image processing outputs to the cloud computing documents belonging to the relevant vehicle documents.

Keywords

IoT with cloud computing, image segmentation and cloud upload database.

1. INTRODUCTION

Vehicle document maintenance plays a major challenges and causing issues by the people. RTO certificates like “RC book, Tax, License, Insurance, Fume Test, and Road Tax” DIP focuses on developing a computer system that is able to perform processing on an image. The system input is a digital image and the system process that image using efficient algorithms, and gives an image as an output.

Internet of Things (IoT) describes an emerging trend where a large number of embedded devices (things) are connected to the Internet. These connected devices communicate with people and other things and often provide sensor data to cloud storage and cloud computing resources where the data is processed and analyzed to gain important insights. Cheap cloud computing power and increased device connectivity is enabling this trend.

Deep learning models can achieve state-of-the-art accuracy in object classification, sometimes exceeding human-level performance. We train models using a large set of labeled data and neural network architectures that contain many layers, usually including some convolution layers. Training these models is extremely computationally intensive and we can usually accelerate training by using a high specification GPU.

2. RELATED WORKS

RTO vehicle checking is a olden technology in india that uses verification of vehicles by the document verification with the manual script. With the spoil of original documents, the documents related to the vehicle can be scanned and updated the cloud with respective cloud bucket.. Vehicle number extraction is used by police forces around the world for law

enforcement purposes, including checking if the vehicle is registered or unregistered. It can also used for electronic toll collection on pay-per-use roads and as a method of cataloguing the movements of traffic, for example by highways agencies. The camera may be used to picking the number plate and shows the verification for the hardcopy of the vehicle documents. Systems commonly use infrared lighting to allow the camera to take the picture at any time of day or night. RTO vehicle handling technology must take into account plate variations from place to place.

3. LITRATURE SURVEY

Background of this paper a novel number plate segmentation algorithm is proposed, which can be further expanded to do character segmentation and recognition. Methods Analysis: The scope of this research is to segment vehicle number plate from the captured vehicle image. To accomplish this task image gray conversion is used as it translates any color image into black and white image.

The image segmentation process is carried based on the statistical formula mentioned in that base paper. The rgb2gray image is deeply processed to remove unwanted place and exactly segment vehicle number plate.

The survey algorithm provides overall accuracy of ~87.67% with the average processing time of 134ms for 250 images captured during timings in day and night. The system works well in different illumination conditions. Our proposed method will be the developed for the purpose of reducing time and effective security system in the field of vehicle handling process by the Government. In this work, I have decided to do interlinking between the image processing outputs to the cloud computing documents belonging to the relevant vehicle documents.

4. ARCHITECTURE DESCRIPTION

1. Cloud Computing (Using Google Cloud Storage).
 2. Pre Processing and Edge Detection
 3. Morphological and Character Segmentation
 4. Optical Character Recognition
 5. Interlinking Between Matlab and Cloud Storage.
1. Image acquisition is the process of capturing or loading the image from the drive. The principal objective of image enhancement is to process a given image so that the result is more suitable than the original image for a specific application.

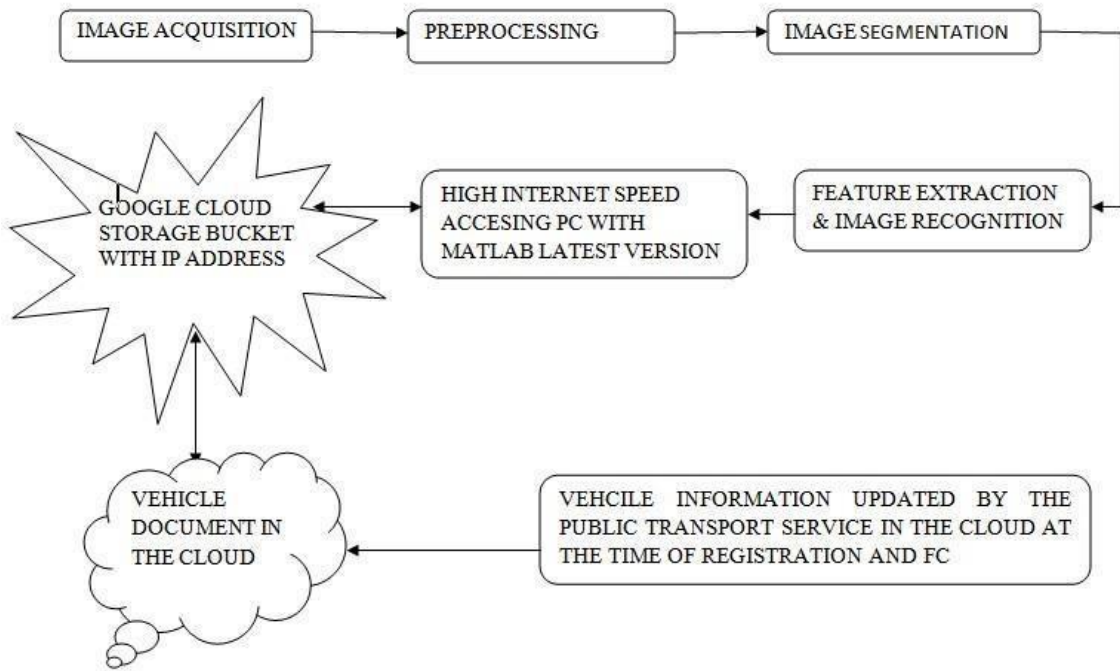


Fig.1. Block diagram

2. **Grayscale** image nothing but the conversion color image into white and black carries intensity information. Images can also known as black-and-white or monochrome, are exposed of shades of gray, varying from black is weakest intensity to white at strongest intensity.

3. The erosion operator takes two pieces of data as inputs. First is the image which is to be eroded. The second is a set of coordinate points known as a structuring element it is this structuring element that determines the precise effect of the erosion on the input image. Figure 5 shows eroded output for from grayscale output.

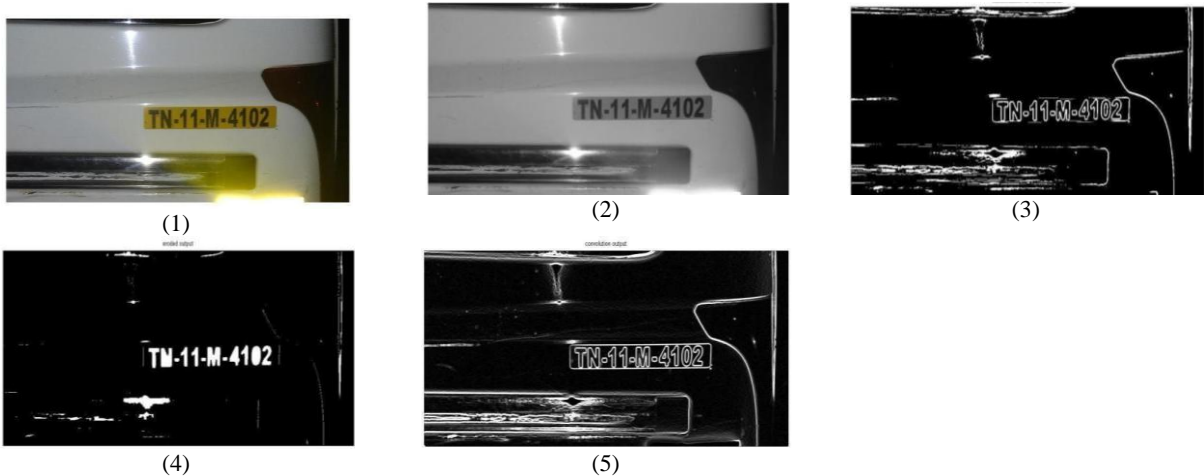
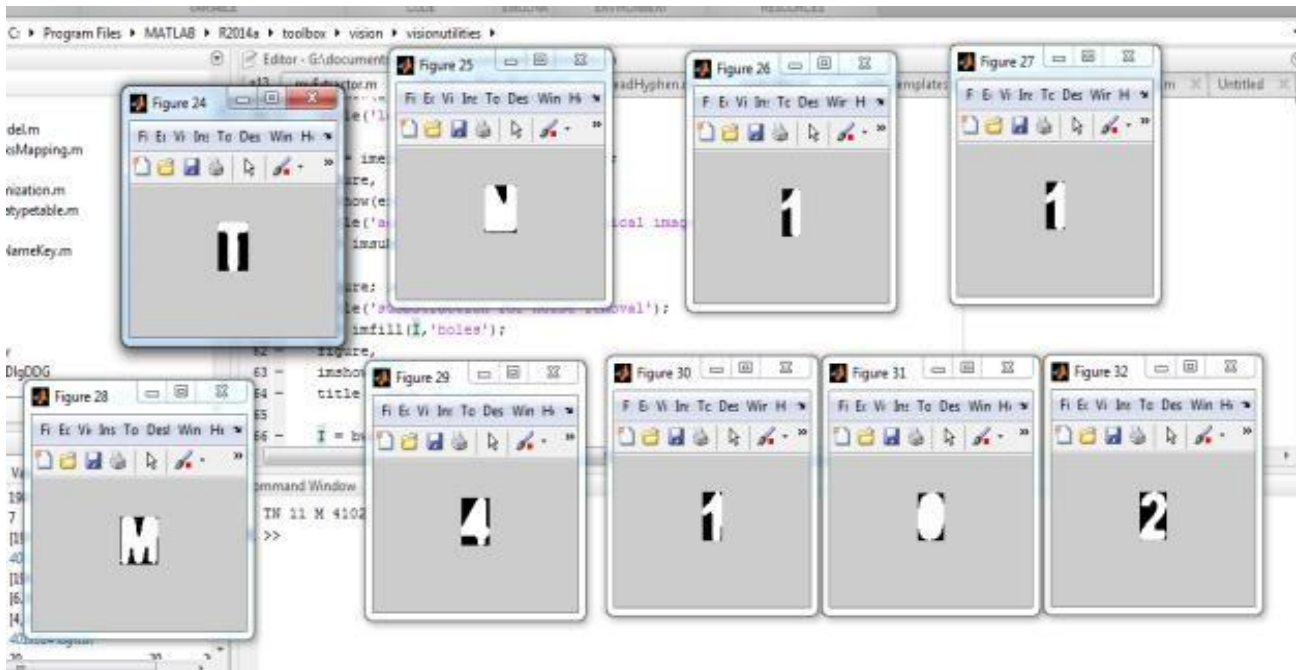


Fig.2. (1) Image Acquisition, (2) RGB to Gray conversion, (3) erosion process, (4) Convolution output, (5) Subtracted output

4. Convolution is about a common purpose filter effect for vehicle images. Mathematical matrix. It works by determining the value of a central pixel by adding the weighted values of all its neighbors together.

5. The noise is subtracted selectively from the selected pixel of the adaptive neighborhood, and the process is repeated at every pixel in the image.

6. **Optical Character Recognition** is the conversion of images from captured characters into displayed number which will be used for displaying characters in a clear manner. Even though the image can be eroded, by using subtraction of noise removal for the clear image. It will extract the image by comparing templates saved the Matlab documents folder



(6) Character recognition

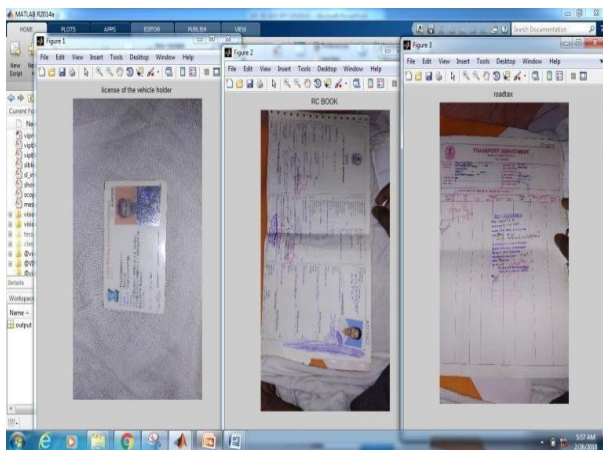


Fig.3. Vehicle Database Extracted from Cloud

5. RESELT AND DISCUSSION

In this paper, the IoT based semi automatic number plate recognition system using vehicle license plate is introduced. The system utilizes image processing techniques for recognizing the vehicle from the database stored in the computer by user. The system works agreeably for wide variation of conditions and distinctive sorts of vehicle number. With the help of the cloud storage, the documents related to the vehicle can be stored and viewed by the interlinking of Matlab output to the cloud storage bucket. The system is actualized and executed in Matlab and performance is tried on genuine images.

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