

Traffic Rule Violation Monitoring and Reporting System

Suresh Reddy Mavuru , Sasi Bhushan Karre

Abstract: In India Road mishaps are expanding step by step thus there is a need to plan a framework that permits identifying Vehicle moving in the Wrong Route. Physically checking is tedious errand. So to conquer this issue another proposed framework is planned which does not require any human capture. It will discover the vehicle which in Moving in the Wrong Rout and furthermore sends vehicle number to Vehicle client to decrease the opportunity of accidents. In the fundamental streets a portion of the people will picks the alternate way path as the single direction course, Due to this the mishaps may cause. This undertaking comprises of picture preparing for discover vehicle which in Moving in the Wrong Route and discover number plate. Utilizing GSM sent SMS to Control Room. The primary point of this venture is to identify the vehicles which are moving the other way.

Keywords: Open ALPR API, Tensor Flow, python, GSM modem.

I. INTRODUCTION

Traffic Management frameworks are introduced on traffic sign to check for vehicles defying the traffic guidelines. So as to mechanize these procedures and make them progressively powerful, a framework is required to effortlessly recognize a vehicle. In our undertaking we are distinguish the vehicle which in Moving in the Wrong Rout and furthermore send the vehicle number to Control Room. In view of that we can without much of a stretch recognize vehicles which is moving in the Wrong Rout? For that we are utilizing tensor stream target identification technique. In this we need to give predefine vehicle dataset. Classify the vehicles which are moving in the Wrong .For this we are utilizing Open ALPR This Open ALPR API extricates the tag information from an image. Using GSM sends a SMS to vehicle user.

II. RELATED WORK

Object Detection

Article Detection is the path toward finding authentic thing events like vehicle, blossoms, and individuals in still pictures or Videos. It considers the affirmation, repression, & revelation of different articles inside an image which gives us an inconceivably improved perception of an image all in all. It is typically used in applications, for instance, picture recuperation, security, perception, and pushed driver help structures (ADAS).

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Fig.1 :Object Detection

Object recognition Applications

- Facial detection:
- People Counting:
- Industrial Quality Check:
- Self-Driving Cars:

Object Detection Workflow



Fig.2. Object Detection Workflow diagram

Since you have comprehended the essential work process of Object Detection, how about we push forward in Object recognition Tutorial & comprehend what Tensor flow is& what are its segments?

What is Tensor Flow?

Tensor stream is Google's Open Source Machine Learning Framework for dataflow programming over a scope of errands

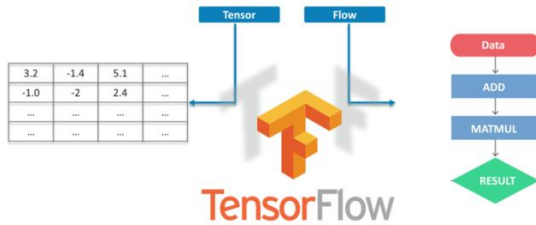


Fig.3. Tensor Flow diagram

In this way, without squandering whenever, we should perceive how we can execute Object Detection utilizing Tensor Flow.

Open ALPR

Open ALPR is an open source Automatic License Plate Recognition library written in C++ with ties in C#, Java, Node.js, and Python. The library investigates pictures and video streams to distinguish tags. The yield is the content portrayal of any tag characters. The product can be utilized from multiple points of view.

Cloud API

The Open ALPR Cloud API is an online administration that breaks down pictures for tags just as vehicle data, for example, make, model, and shading. The Cloud API administration is anything but difficult to incorporate into your application by means of an online REST administration. When you send picture information to the Open ALPR API, we process that information and return JSON information depicting the tag and vehicle. Look at the online demo:

<http://www.OpenALPR.com/demo-image.html>

Sign Up

When you're prepared to begin, agree to accept a record at <https://cloud.OpenALPR.com/> Once enlisted, you will consequently be allocated a free record with a set number of API credits every month. Each time you utilize the administration, you will utilize at least one API credits. You may enter your charge card data and overhaul your arrangement to get access to more credits every month.

Integration

Since the Open ALPR Cloud API is REST-based, it works with any programming language on any working framework.

III. PROPOSED SYSTEM

In this proposed work. The square graph shows the procedure of the total framework, which incorporates the distinguishing vehicle course, extraction of the vehicle number from the number plate and send to SMS with the assistance of GSM module to control station. Worldwide System for Mobile Communication is an office through which SMS (Short Message Service) can be sent. GSM modems are effectively accessible in market and can be worked with the utilization of AT directions. A raspberry Pi 3 is utilized for programming for the Computation of vehicle course, number plate extraction and SMS sending tasks and run these applications perfect with the application stage of python.

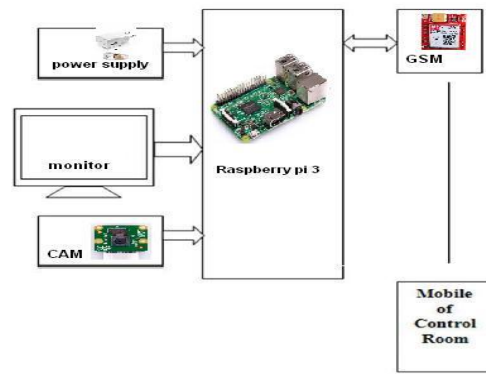


Fig.4. Block diagram

IV. IMPLEMENTATION

Algorithm for Proposed System

1. Input video from webcam.
2. finding vehicle Objects in video.
3. finding opposite vehicle in video.
4. Identify number plate area.
5. Number discovery.
6. Send that number SMS to control station

Finding opposite vehicle in video

In Given video stream, an item location model can recognize which of a known arrangement of articles may be available and give data about their situations inside the video. A contrary vehicle discovery model is prepared to distinguish the nearness and area of different classes of vehicles uncommon sided shape. When we hence give a picture to the model, it will yield a rundown of the vehicles it distinguishes, the area of a bouncing box that contains each article, and a score that demonstrates the certainty that identification was right.

Modules Used In Project

In our project totally we have 4 main blocks those are
 Power supply
 Raspberry pi 3
 pi camera
 GSM module

Power Supply Block

So as to work with any parts fundamental prerequisite is power supply. In this area there is a necessity of 5V managed DC power supply. This square proselytes 230V AC in to 5V DC

Raspberry pi 3 Model:

This blocked is utilized to control its interfacing gadgets (pi camera, GSM module, WIFI) as indicated by given code.

Pi camera:

This is utilized to catch video or picture

1. This camera is utilized to process the recordings. This is straightforwardly associated CSI port
2. The camera rating is 5mp.
3. This camera module is fit for 1080p video and pictures and this module is equipped for taking pictures and recordings nut not sound



GSM module:

SIM800L is a smaller than expected cell module in our undertaking it is utilized for sending SMS to control room

Circuit Description

Above figure demonstrates that the circuit chart of traffic rule infringement checking framework utilizing raspberry pi with SMS criticism .In this framework Raspberry pi 3 is the core of task and we have introduced Linux working framework some significant library and bundles have introduced (OpenCv, Open ALPR and tensorflow) to recognizing item and distinguish number plate. Raspberry pi is SoC gadget. Here we interface camera to Raspberry pi on a port where we interface camera.tha GSM module is associated with UART0 port of raspberry pi 3B.In this undertaking, DC power supply is utilized that provisions the consistent DC voltage to its heap. It gives DC intensity of 5v. It supports up to 2.5A of current which is bounty through the four USB ports on the board.

Circuit diagram

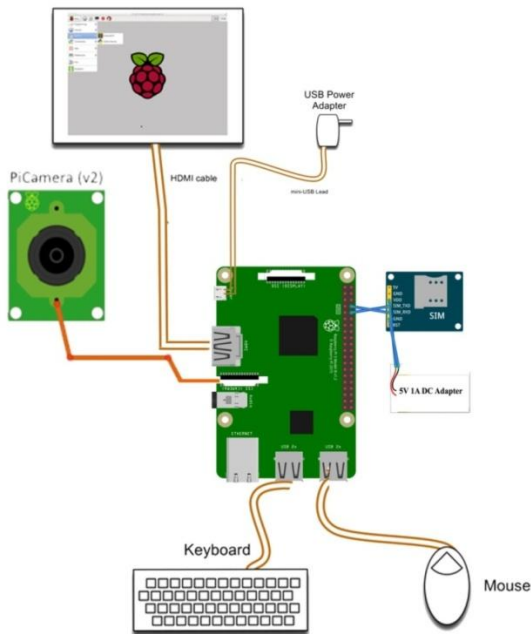


Fig.5.circuit diagram

V. RESULTS

Results have been confirmed by utilizing Raspberry pi, utilizing a cell phone. After perceives the vehicle that vehicle number plate the data is sent to vehicle user through GSM module. The venture has been tried utilizing recorded video the outcome demonstrated as follows.



Fig 6: hardware setup

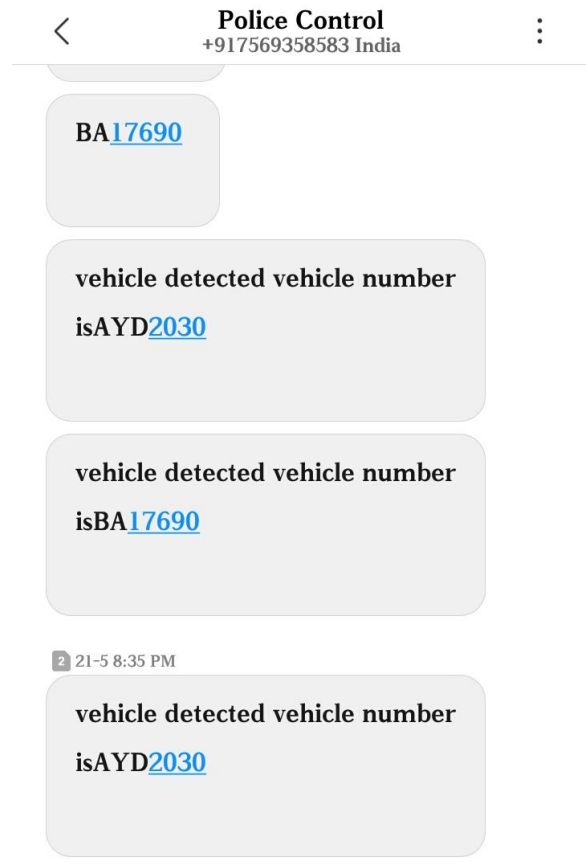


Fig 7: sent message to control room

VI. FUTURE SCOPE

We can structure the best of the frameworks by considering the favorable circumstances in all the innovation referenced previously. Innovation in talk about ought to be connected with "Web of things" where every one of the information can be shared among the RTO workplaces and appropriate punishment can be charged to the driver regardless of he moves anyplace in the nation.

VII. CONCLUSIONS

Here we made the work simpler by sending a SMS which isn't accessible in the presently existing framework utilized by traffic police. The proficiency of this framework is great and can support for long without disappointment. We can make 95% of progress rate in number plate identification i.e., we are capable concentrate the vast majority of vehicle number plate with no mistake, the a couple of vehicles which is fizzled in light of the fact that some of pictures have distinctive power, diverse text style type, clamor in picture and tilting and so forth.

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AUTHORS PROFILE



Suresh Reddy Mavuru was born on 27th april 1995 in A.P, INDIA. He received his B.Tech in 2016 in ECE from Sri Vahini Group of Institutions, Tiruvuru. Presently he is pursuing M.Tech Vlsi & Embedded Systems in Lakireddy Bali Reddy College of Engineering, Mylavaram, INDIA. His area of interest is image processing.



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