

Intelligent Alert System Using Object Recognition based Video Surveillance

Ravi¹, Dr.J. Thangakumar², Dr.M.Sambath³, R.Hrushinika⁴, N.Shivani⁵, K.Prudhvi Kumar⁶

¹Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: sravi@hindustanuniv.ac.in

²Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: tkumar@hindustanuniv.ac.in

³Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: msambath@hindustanuniv.ac.in

⁴Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: rajahrushinika1@gmail.com

⁵Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: shivanireddy.n12@gmail.com

⁶Department of Computer Science and Engineering, Hindustan University, Rajiv Gandhi Salai, Padur, Chennai, Tamil Nadu, India. E-mail: prudhvikumarreddy143@gmail.com

ABSTRACT

Large information applications occupy a great deal of room in industry and examination. Among the more extensive instances of enormous information, the part of CCTV camera video web based is just about as significant as different sources like correspondence information, tangible information, horticultural information, clinical information, and information acquired from space research. Video checking assumes a significant part in huge unstructured information. CCTV cameras have been introduced on the whole zones where wellbeing is central. Manual checking appears to be dreary and tedious.

Security can be characterized in an assortment of circumstances with various terms, like data fraud, animosity, blast, and so on. In packed public places, the word security incorporates practically a wide range of unordinary occasions. Among them, discovering brutality is hard to do in light of the fact that it includes shared exercises. Because of the restrictions of genuine world, it is hard to investigate uncommon or strange exercises in packed video discussions. This article covers top to bottom examination that starts with object acknowledgment, development acknowledgment, swarm investigation, lastly the revelation of viciousness in a jam-packed region. The vast majority of the papers in this study depend on top to bottom understanding techniques. Calculations and models for an assortment of top to bottom learning strategies are similar.

The primary focal point of this examination is the utilization of inside and out learning innovation in getting precise estimations, exercises that occur between influenced individuals and enormous gatherings of individuals under an assortment of environments. This paper talks about top to bottom learning fire up advancements that are essential for an assortment of video examination strategies. Continuous preparing is additionally thought of, which is a significant uncertain issue. There are a few different ways to deal with these issues on the double. We have distinguished and summed up the known issues in the current frameworks. Moreover, the future pointer is to diminish the hindrances distinguished.

KEYWORDS

Video Surveillance, Living Space, CCTV Camera.

Introduction

Article acknowledgment is a PC visual innovation used to envision protests in photographs or recordings. Item acknowledgment is a critical part of inside

and out acquiring and AI abilities. At the point when individuals watch photographs or watch recordings, we can without much of a stretch discover individuals, things, scenes and survey subtleties.

Scope

Update the framework used to recognize different items in every video outline in the video observation framework and set off an alert when certain creatures enter the living space.

Domain

- Image processing is used to extract the images from video.
- Deep learning is used to train the system to identify a different object and to detect the objects.

Motivation

- In many applications there is a need for identification of objects in each frame in video surveillance system.
- With the help of this system different objects in each frame of the video is identified.

Literature Review

Transfer Learning-based Object Detection by Using Convolutional Neural Networks

Ms Bulbul Bamne, Ms Neha Shrivatava, Mr Lokesh Parashar, Mr Upendra Singh.

Electronic correspondence framework in July 2020.

It just discovers pictures. Man-made brainpower, voice acknowledgment, facial acknowledgment and different fields.

Salient Object Detection

Ali Borji, Ming- Ming Cheng, Huaizu Jiang and Jia Li IEEE 2015 picture utilization exchange Find some strong, inconspicuous, clear pictures, visual consideration, charming territories, objects, partition, interest, significance, eye developments.

A Review of Object Detection based on Deep Learning

Youzixiao Zhiqiang Tian, Jiachen Yu, Yinshu Zhang Shuai Liu Shaoyi Du Xuguang Lan Mixed media instruments and applications long term.

This is data about getting logos, getting recordings, getting text, discovering walkers, and getting clinical pictures.

Object Detection based on Deep Learning of Small Samples

Ce Li and Yachao Zhang, Yanyun Qu.

The tenth International Advanced Conference on Advanced Computing Intelligence.

Intended for use in robots like mice, consoles and cell phones.

An Efficient Approach for Object Detection and Tracking

B. Maga, Mr. K., Jayasakthi Velmurgan 2017 third International Science and Technology Engineering Conference.

This is done to check the presence of genuine articles.

Track to discover the course of the article.

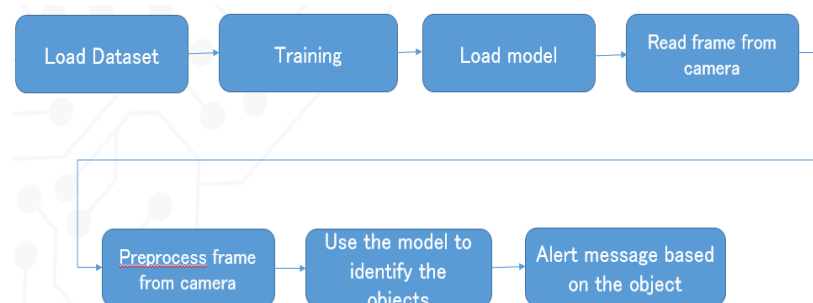
Proposed Method

- The pictures in the video are extricated utilizing picture preparing techniques.
- Recognition preparing is done through inside and out learning.
- Extract edges and use top to bottom perusing methodologies to distinguish things in each edge.

Module Description

- The pictures in the video are separated utilizing picture handling techniques.
- Recognition preparing is done through inside and out learning.
- Extract edges and use top to bottom perusing systems to recognize things in each edge.

System Architecture



Modules

- Dataset Loading:
Open images dataset is used.
- Training:
The images are trained using mobile net SSD mode
- Load model:
Mobile Net SSD model is used
 - Read Frame
Read the image from camera
 - Pre-process frame
Pre-process the frame
 - Apply the model for identification
 - Apply mobile net SSD model for identification of objects
 - Generating Alert message
Alert message is generated if there is any animal

Deep Neural Network – DNN

- Solve complex errands.
- As he takes in new data from the framework, he will figure out how to make a proper move for the new circumstance.
- When the assignment you are settling turns out to be more troublesome, learning will extend.
- Helps load pre-prepared models from DL outlines (for instance).
 - Tensorflow
 - Caffe
 - Darknet
 - Torch

MobileNet SSD (Single Shot Multibox Detector)

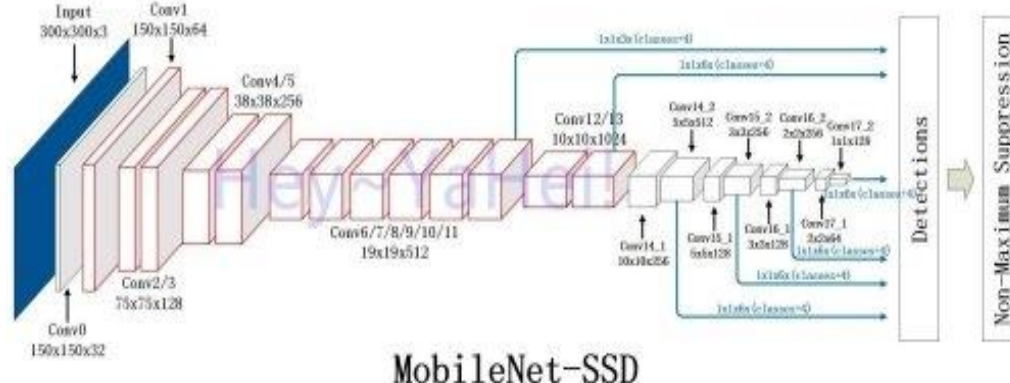
The MobileNet model depends on a cunning incorporated interface, which is a coordinated strategy. This incorporates the normal agreement, that is, profound conviction convolutions and 1×1 convolution, called point-wise convolution.

In MobileNets, canny profound convolution can utilize one channel for each establishment channel. Clear changes, and utilize the adaptability of 1×1 to join the aftereffects of insightful profundity goal.

Typical convolution can channel and incorporate the info bit by bit into another arrangement of results. The cunningly partitioned profundity isolates it into two layers-a different channel layer and a different layer. The impact of this decay is to extraordinarily lessen the measure of count and size of the model.

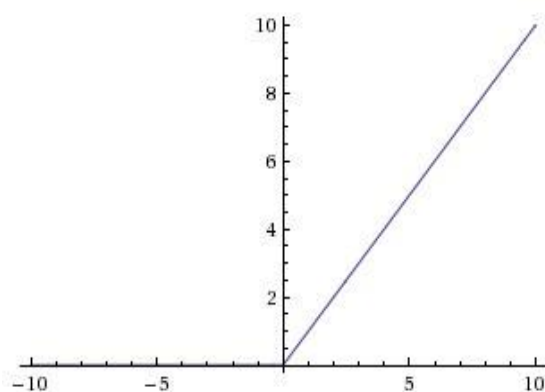
The SSD configuration is a solitary convolutional network that can figure out how to foresee the area of the intersection box and separate these territories immediately. Accordingly, SSDs can be prepared start to finish.

Mobilenet SSD Architecture



Relu

- Rectified direct unit is a training program that is broadly utilized in profound learning models.
- If any wrong information is discovered, the capacity will return 0, yet it will return that esteem with any reasonable worth x . Subsequently, it tends to be composed as $f(x) = \max(0, x)$.
- Compared with the customary actuation work, the ReLu capacity can accelerate the preparation speed of the profound neural organization, on the grounds that the ReLu assortment is a positive info.
- Since it is an ordinary profound neural organization, they don't have to invest additional energy to apply some unacceptable objective during the preparation stage.



Testing and Evaluation

- Testing camera module
 - The camera connected to laptop, usb camera and ipcamera will be tested.
- Testing the network for identification of animals
 - The network will be tested for identification of all types of animals

Conclusion

This project involves the identification of different objects in each frame of the video. This kind of object recognition in video surveillance systems is used in many applications.

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