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OBJECT DETECTION AND CHARACTER RECOGNIZATION FOR BLIND PEOPLE.

Prof . Sneha Farkade[1],Vaishnavi Wangane[2], Payal Takalkar[3], Trupti Jamdade[4] , Sohel Mujawar[5]

[12345] Department of Computer Science Engineering

[12345] GS Moze College Of Engineering Balewadi,pune Maharashtra,India

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ABSTRACT –

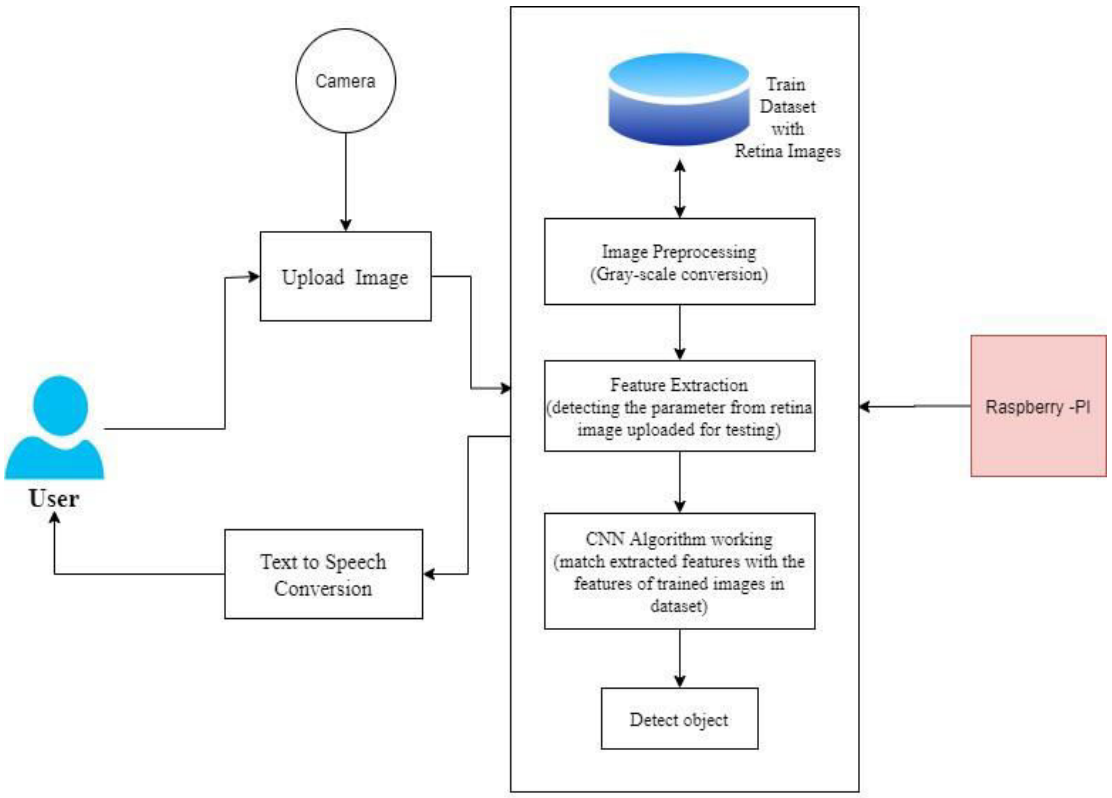
In this paper, we investigate fully unsupervised common object discovery, inspired by the recent success of supervised and weakly supervised common object discovery. In general, object co-localization allows the simultaneous positioning of objects belonging to the same class through multiple images. Conventional object detection/localization usually involves object instance bounding box annotations or, at the very least, image-level labels to indicate the presence/absence of objects in an image. Without knowledge of the total number of common objects, this unsupervised object discovery problem is represented as a sub-graph mining problem from a weighted graph of object proposals, where nodes represent object proposals and edges represent similarities between neighboring proposals. Concurrently, positive images and common objects are discovered by building sub graphs of closely associated nodes, each of which represents a distinct object pattern. The human language is limited to spoken and written language. As a result, visually impaired individuals can be compelled to collect data through their voices. Visually impaired individuals would be able to comprehend the text found within the captured image with the assistance of this project.

Key Word: OCR, CNN, Blind, Feature Extraction.

1.INTRODUCTION

When our brain is confronted with an image, it almost immediately recognizes the objects contained inside. A machine, on the other hand, requires a significant amount of time and training data to recognize these items. Recent hardware and deep learning advances, on the other hand, have made the field of computer vision more accessible and intuitive. We're still looking for ways to create a 'detection' or ‘recognition' system that can match the accuracy of a person. Weakly Controlled Object Localization (WSOL) has recently attracted a lot of attention. Its aim is to recognize common objects in photographs by indicating their presence or absence with annotations. This project, which generates the same type of output as WSOL but includes annotation of object presence/absence, focuses on discovering and localizing common objects in real-world images at the same time.The aim of the project is to bring together cutting-edge object detection techniques with real-time performance. Object detection systems that rely on additional computer vision techniques to supplement the deep learning-based approach face a major challenge, resulting in sluggish and inefficient performance. In this project, we use deep learning to solve the problem of object detection from beginning to end.

2.IMPLEMENTATION



System

Modules:

Pre-processing: - *The goal is to In this module, the machine will process the input. The data-set will be* trained by the *prepossessing* computer, which will remove the noisy parts of the input. after which you can resize the data-set

Segmentation: *It entails segmenting a visual input to make image analysis easier. We can split the image* up into segments in which we can do further processing if we want to remove or identify something from the rest of the image, such as detecting an object from a context. This is referred to as segmentation. Segments are made up of sets of pixels, or "super-pixels," that represent objects or parts of objects.

Feature Extraction: *Points, edges, and artifacts are all examples of image structures that can be used as* functions. Feature extraction is the method of reducing the number of features in a dataset by reusing previously used ones (and then discarding the original features). The original set of features should then be capable of summarizing the vast majority of the data contained in the new reduced set of features. Feature extraction starts with measured data and generates derived values (features) that are intended to be insightful and non-redundant, thus promoting learning and generalization processes and, in some cases, resulting in more precise human interpretations. The extraction of features and the reduction of measurements are inextricably related.

Classification: *CNNs are used for image detection and recognition due to their high precision. In a* classification convolutional neural network, each set of neurons analyses a specific region or "feature" of the image in a three-dimensional structure. A CNN's neurons are divided into groups that each concentrate on a different aspect of the picture. The algorithm examines smaller sections of the images. The end result is a probabilistic vector predicting the likelihood of each feature in the image belonging to a class or category.

3.ALGORITHM:

Convolutional Neural Network (CNN): Convolutional neural networks, or CNNs, are a form of deep learning neural network. In a nutshell, CNN is a machine learning algorithm that can analyses an input image and assign significance (learnable weights and biases) to different aspects/objects while also distinguishing between them. CNN collects data by removing attributes from images. The following elements make up each CNN:

1. Use a gray scale image as the input layer.

2. The output layer, which can be either binary or multi-classed. Secret layers include convolutional layers, ReLU (rectified linear unit) layers,

3. Pooling layers, and a

4. Fully connected Neural Network. Artificial Neural Networks (ANNs), which are made up of multiple neurons, are incapable of extracting features from photos. The convolutional and pooling layer combinations come into play at this stage. Similarly, classification is impossible with the convolutional and pooling layers, necessitating the use of a fully connected Neural Network. Let's take a closer look at each of these segments before delving further into the definitions.

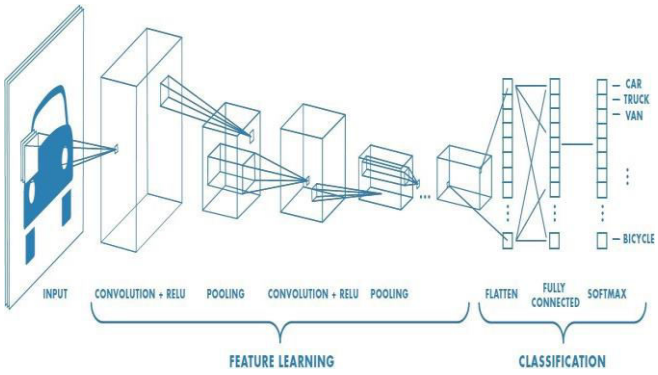


Fig -1: Figure

4. CONCLUSIONS

We propose a method for identifying and locating common objects in photographs taken in the wild. As is the case with the majority of previous methods, this one is based on the premise that each positive image contains a single entity. The two models are then optimized using a constrained sub-graph mining algorithm inspired by min-cut/max-flow algorithms. We can recognize and detect the target by properly utilizing neural networks. To view images and obtain high-level information, image enhancement, motion detection, object tracking, and behavior comprehension analysis have all been studied. We examined and addressed different methods for detecting moving objects in video surveillance in this paper.

ACKNOWLEDGEMENT

We are inspired by the new plan. We must use the Scale invariant function transform to match