MANTHAN

राष्ट्रीय सुरक्षा सर्वोपरि

Solution By: Code Poltergeists

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Idea Introduction

IDEA TITLE- BASELINE

Tech Stack
1. Python
2. Jupyter
3. Google Colab

Resources Used
1. openCV

Any Third Party API/Services used
1. Labellmg

IDEA-OUTCOME – HEADLINE-

The output of model is going to be an object detected on grid of images .It detect all the objects which are spread across grid of images and returns which object is at which grid number . And the problem statement is that to identify an object spread out across a grid of images . So the model suits the problem statement

Your Approach Towards Idea

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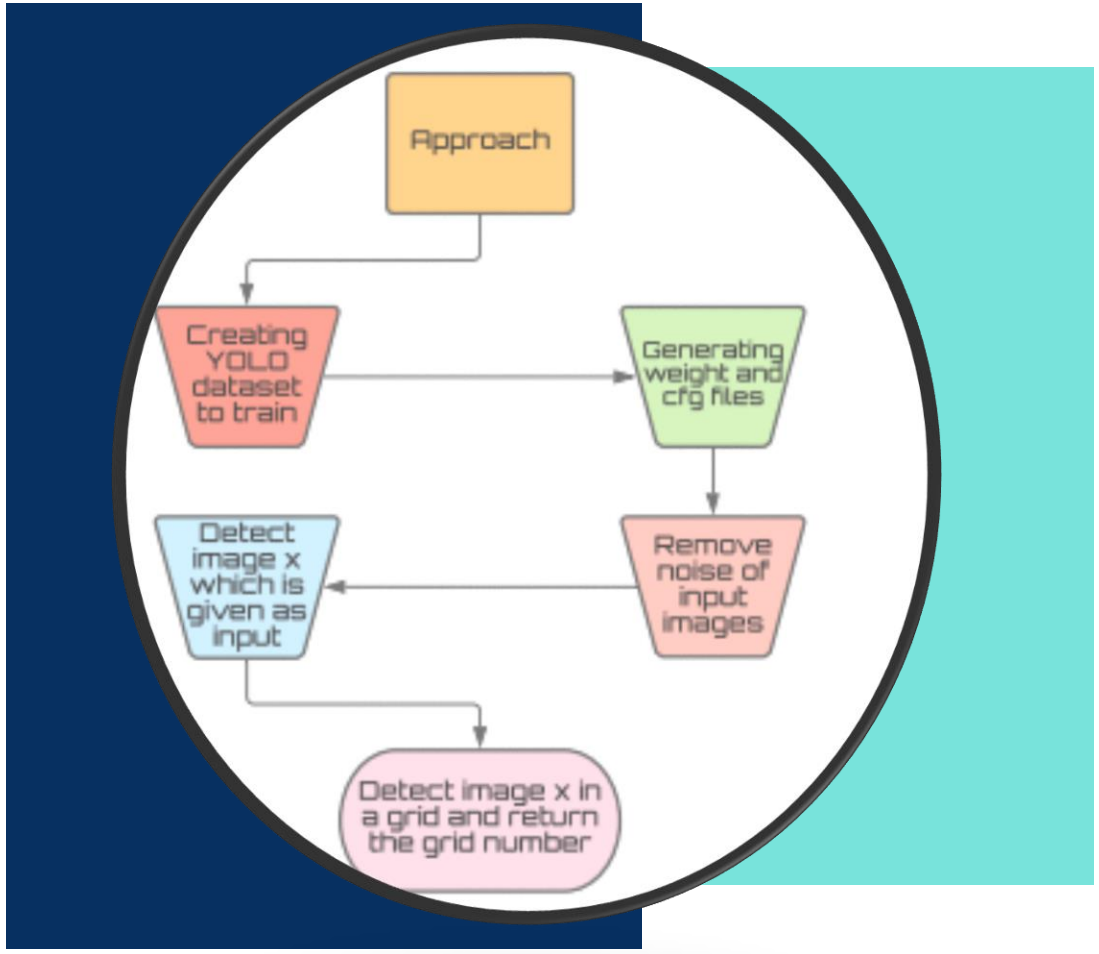

Write Your Approach in Brief below

Create a custom yolo dataset to train our model
Get the configuration and weight file
Train those files , Detect the object in input image
Detect the object given in grid of image and label them

We use deep learning neural network to deal with this problem . We use custom data set to train this model because we have to detect even when image is partially visible

Noise Reduction , Increased accuracy , Even when given low quality image this model must detect So we train a custom dataset with low resolution and perform pre-processing techniques

This algorithm can be further developed to detect object from video input

Team Slide

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Development Pipeline

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Proposed Development Plan in pointers

1. Creating yolo data set to train
2. Generating weight and cfg files
3. Remove noise
4. Detect image x which is given as input
5. Detect the image x in a grid and return the grid number

Step A

Documents To be prepared for installation and evaluation

1. Large yolo Datasets to train
2. Grid image
3. Install open-cv

Step B

Repository Link

The code we developed till now
LINK

https://github.com/Abhishek-Sai-14/object_detection/blob/main/object_detection.ipynb

Step C

Any Third Party API/Services used

. labellmg

Step D

Proposed UI and functional flow in pointers

1. Give input image which is to be detected
2. Give the grid image Having multiple objects
3. Return the grid number(s) where the object, or a portion of it, has been detected.

Step E

Vision of Innovation/Idea/Solution

1. Utilize the cv2.dnn.readNet function to read the yolo dataset
2. Remove the unwanted noise
3. Read the yolo network and Run a forward pass to compute the net output
4. Take only those scores from the image that are higher than 50%,
5. Determine the coordinates of the input image,
6. The NMSBoxes used to suppress weak, overlapping bounding boxes
7. Detect the error and remove it
8. Detect image x which is given as input
9. Detect the image x in a grid and return the grid number

It will take 15 days in conversion as a final product

- Accuracy
- Noise Reduction
- Custom Data set
- Detected objects are indexed

Even to detect an blurred or low resolution image in grid we train a custom dataset Remove the noise using preprocessing techniques