Prototype Submission Phase

TEAM NAME and MEMBER DETAILS

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THEME: **Pothole severity classification via computer vision**

PROBLEM STATEMENT

- The Kingdom of Saudi Arabia has been keen to raise the efficiency of cities and achieve the highest standards for the city. Visual Pollution is one of the most important elements to be eliminated. Visual Pollution leads to psychological problems, including tension, stress and anxiety, and also leads to physical problems that harm human health, up to colon disease and age-related diseases (hypertension, diabetes and heart).

SOLUTION

- The YOLO algorithm is one of the most important algorithms used in the field of computer vision, as it is able to classify the objects inside a specific image (human, fruit, car...) in addition to determining the location of these objects inside the image (Object detection).The YOLO algorithm is an acronym for (You Only Look Once); That is, it requires only one pass (forward propagation) through the neural network and is bypass to detect multiple objects within an image, so that the image is divided into regions and the bounding box and probabilities are predicted for each region.

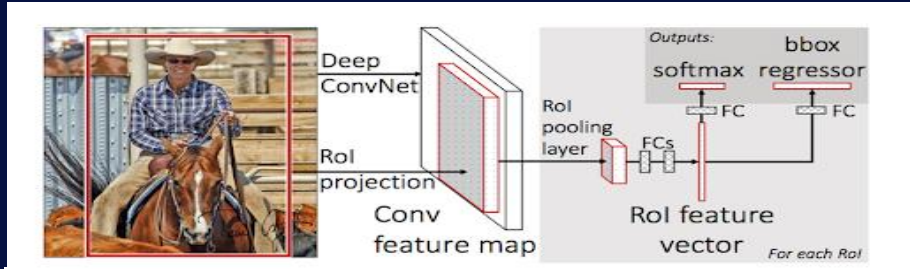
- Prior to YOLO, the domain was dominated by the Fast R-CNN (Fast R-CNN) two-stage object detection architecture, whereby region-based classifiers were used to select regions and then passed to a more complex classifier to determine the type of object.Although this method produces accurate results with high mean average precision, it is resource intensive and requires many iterations to run.

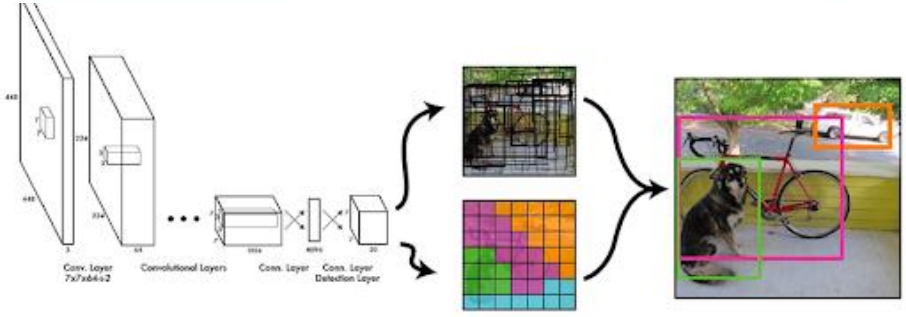
METHODOLOGY

Algorithm: YOLO v5
Dataset:

- https://universe.roboflow.com/projetoyolo/potholes-qmvip/dataset/1

- Algorithm Architecture Diagram:





WORKING PROTOTYPE

Video Link:

https://youtu.be/D4iXf2YY2zI

link for demo:

https://colab.research.google.com/drive/1oX6Y--jtI2YEKhubRszfIko_CTIlgzz9

Attachments