Animal Detection for Road Safety

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Problem Statement

- Wildlife-vehicle accidents result in substantial personal, environmental and economic losses, including human injuries, fatalities, loss of wildlife, and vehicle damage.
- When driving on the highway, wild and domestic animals pause dangers to road users. In most cases when the drivers notice an animal on their path, it will be too late to stop the vehicle in time to avoid an accident.
- So we are proposing a solution to this problem using deep learning approach

Idea Explaination

- developing an animal detection system that gives warning to the drivers and thus enabling them to take precautionary measures.
- We will be basically training a dataset containing both night images and day time images of different animals both wild and domestic.
- We will be using yolov5 for training the model and saved model will be used along with raspberry pi4 to detect the animals via camera.

Tech stack

- Python
- Pytorch
- Raspberry PI 4
- Camera
- PIR motion detector sensor module

OBJECT DETECTION

Using yolov5 Number of instances of the images will be found out

PROCESSING RESULTS

Computing the confidence of the instances and generating useful information regarding the animals
Eg: If there are 20 instances of such animals then the user will be alerted with high danger warning also according to wilderness of the animal an alternative route will be recommended

SHARING REAL TIME INFERENCES

Machine to machine network module will be used. The vehicles entering geographical coordinates, closer to the coordinates of the camera module that will be detecting, will get the notifications regarding the
Traffic discussed earlier

Snaps of predictions

Challenges

- Obtaining huge dataset for object detection to happen seamlessly.
- Integrating every element of the system.
- Real time IOT result processing.