**Drone detection using Deep Learning**

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**There has been a rapid increase in the usage of drones in the last few years, raising security concerns as these devices can invade sensitive spaces through the air. Computer vision is extensively used compared to other available solutions due to the small footprint of drones. Among these computer vision-based approaches, deep learning algorithms have proved maximally effective. This project deals with the design and development of a Deep Learning solution for drone detection, along with implementation on an embedded system. Various implementations are tested such as the Yolo object detection using OpenCV which distinguished birds and drones, Masked RCNN which places bounding boxes, and Object detection using Image Library which detects many drones individually. A 10 layered CNN along with Mobilenet V2 has been implemented with an accuracy of 0.9994, Validation accuracy – 0.9929. The precision, recall, f1-score for Bird and Drone being (1.00,0.99,0..99) and (0.99,1.00,0.99) respectively. These models were tested on the Jetson Nano hardware module. The real-time object detection has been achieved by implementing SSD- MobileNet V2 model on Jetson Nano interfaced with a Raspberry Pi Camera module, with the dataset manually prepared by sourcing images from Google, Kaggle and Pinterest. Future scope includes faster detection, increased range, differentiation between various kinds of drones, and counter-drone technologies.**