Project Weekly Report

Topic : - Evaluate Performance of Faster-RCNN and its variants in case of small object detection

Group Name: Tech Trio

Project Definition: 1

Group Member's names:- Kaushik Gohil, Richa Saraiya, Parth Mevada

Progress :-

◊ **Last Week:** We developed the M2F2-RCNN model, and most of the coding part is completed. However, we faced issues with overlapping bounding boxes and a complex output. To resolve this, we are working on applying Non-Maximum Suppression (NMS). Additionally, we are using a Convolutional Block Attention Module (CBAM) to reduce background noise and improve feature clarity. For CFINet, we started implementing the model using coarse region proposals and cascades. But we are currently unable to save the model due to some technical issues. We are also working on reducing its computational complexity and improving its performance. Throughout the week, we continued refining our code, learning relevant syntaxes, and correcting errors by aligning our implementation with standard model architectures.

◊ **This Week:** We successfully implemented Libra RCNN and obtained the output. We worked further on CFINet, but faced issues saving the model. Alongside this, we set up PANet by installing required libraries and importing code via Git Bash. We spent time organizing model files, setting proper paths, and resolving environment issues. We also explored multiple versions of model architectures to better understand their working. Additional effort went into improving the model pipeline, testing different configurations, and making code more modular for future use. Overall, this week was focused on strengthening model setup, resolving bugs, and preparing for evaluation.

◊ **Next Week:** We will start working on evaluating the models using standard performance metrics such as accuracy, precision, recall, and mean Average Precision (mAP). This will help us compare the models effectively and decide on the best-performing one.