Traffic light counter detection comparison using you only look oncev3 and you only look oncev5 for version 3 and 5

ABSTRACT

This project aims to develop a vision system that can detect traffic light counter and to recognise the numbers shown on it. The system used you only look once version 3 (YOLOv3) algorithm because of its robust performance and reliability and able to be implemented in Nvidia Jetson nano kit. A total of 2204 images consisting of numbers from 0-9 green and 0-9 red. Another 80% (1764) from the images are used for training and 20% (440) are used for testing. The results obtained from the training demonstrated Total precision=89%, Recall=99.2%, F1 score=70%, intersection over union (IoU)=70.49%, mean average precision (mAp)=87.89%, Accuracy=99.2% and the estimate total confidence rate for red and green are 98.4% and 99.3% respectively. The results were compared with the previous YOLOv5 algorithm, and the results are substantially close to each other as the YOLOv5 accuracy and recall at 97.5% and 97.5% respectively.