ABSTRACT

Artificial Intelligence is a rapidly growing technology. It has a tremendous impact on society by increasing efficiency in people's lives. Object detection is one of the widely used Artificial Intelligence applications. The final project compares the computing performance of Android application system object detection when working independently and when working with Nvidia Jetson Nano which has TensorRT to assist the computing process. The communication between the android application and the Nvidia Jetson Nano is built with RTMP and RTSP as video sending protocols. This system is expected to be able to send video from the Android application to the Nvidia Jetson Nano and vice versa in real time for Object Detection integration. The comparison of the two systems will show whether the collaboration scheme with Nvidia Jetson nano designed in this final project is effective in helping the computing capabilities of Android devices.

The results of this design, the system has succeeded in helping the work of devices that use Nvidia Jetson Nano as a computing assistant server. The android devices Huawei Y7 Pro has an average FPS performance of 1.98 and an average computation speed of 180 ms. It improve significantly when working with the Nvidia Jetson Nano, the average FPS become 10 and average computing speed become 95 ms.

Keywords: Object Detection, Nvidia Jetson Nano, Android Studio, RTSP, RTMP, TensorRT