ABSTRACT

Aerial mapping is a research and tracking of an area. Aerial mapping can be done using Unmanned Aerial Vehicle (UAV) and used to represent the observed area to a digital map. Aerial map generally unable to directly identify an object because it has to wait until the UAV land.

Aerial mapping will better be done in real-time process. Real time aerial mapping process in this research use Raspberry Pi 2 to detect an object on the area of havoc with Histogram of Oriented Gradient (HOG) as human detection method. Besides of detecting an object, Raspberry Pi also doing calculation to determine the coordinate of the detected object. Raspberry Pi collect coordinate data from the GPS ublox NEO M8 that connected through serial communication UART. Then Raspberry Pi send the detected object picture along with the coordinate to GUI through Telemetry 3DR module.

In this final project Raspberry Pi capable of doing real time aerial mapping. The accuracy of the object detector system at 90% when flying at 10 meter high. Error rate for determining the object coordinate from the GPS at 0.55 meter latitude and at 0.39 longitude.

Keyword : Raspberry Pi, HOG, Aerial Mapping, UAV