

ABSTRACT

NAVIGATION SYSTEM ON UNMANNED SURFACE VEHICLE TO MONITOR WATER AREA CONDITION

By

MUHAMMAD JERRY JELIANDRA SUJA

Water area, especially river, has an important role for human life. To prevent the damage to that area, it is better if we do the monitoring and measurement periodically to some of parameters that can give a sign or early warning against abnormality that occurs in this area, so we can accurately and quickly anticipate.

From this idea, we created an Unmanned Surface Vehicle that is intended to facilitate monitoring process in water area. *USV* that we are use is electric *USV* equipped with APM 2.5 firmware arduover as an autopilot system. Autopilot system on *USV* covered with Auto mode, Manual mode, Guided mode and Hold mode. Before *USV* take the mission, every sensors in this *USV* are being tested. Then *USV* can take the water area mission by making 6 mission with different *waypoints* location, so that *USV* can go towards desired *waypoints*.

Average error radius obtained from missions is 2.2 meter every *waypoints*. This *USV* also equipped with FPV system so that monitoring process can easily done by looking at the camera mounted on the *USV*.

Keywords: Water Area, Roboat, Unmanned Surface Vehicle (*USV*), APM 2.5, FPV System