ABSTRACT

The navigation control system of the ship shall have specifications to stabilize the dynamics of motion and position of the ship. This control system is useful for managing motion and ship position based on GPS coordinates (Global Positioning System) that has been determined. Designing System Position Control Autopilot is a big challenge ship navigation control system, because the waters have different characteristics with the mainland. So it requires a more complex system.

 In this final project will be discussed about ship position control based on longitude and latitude coordinates with PID control. Coordinates will be determined to control the position of the ship. It is intended that the ship can move autonomously and maintain the setpoint that has been set. The entire system will be implemented on a USV (Unmanned Surface Vehicle) prototype that is controlled with the laptop as a user interface, the communication system uses wireless with 433MHz frequency. The Neo6M-v2 GPS sensors and the HMC5883L compass will continue to provide the actual coordinate values of the ship for the process.

When controlled USV it will move with a speed of 3.8 m / min. From the experimental results of coordinate scenarios, then set one result of the most exact data that is on the experiment with an average compass error value of 2.13 and error distance to the setpoint of 1.69 meters

Key Words : *GPS, Longitude, Latitude, Autonomous, PID, Position Control, USV*