

## ABSTRACT

*Agriculture is one of the most contributing sector in national economic of Indonesia. But the agriculture is not yet fully utilized because of the low usage of technology and the decrease of farmers. For that an implementation of new technology ideas is needed to fully utilize Indonesia's agriculture. Together with team members a mobile robot that is called Smart Agricultural Rover will be made with seed sowing and weeding abilities.*

*To be able to do seed sowing operation automatically a system that can move to a predefined location and make a stop every certain distance automatically is needed. In this study a navigation system based on coordinate points using GPS and compass will be designed. Fuzzy Logic Control System will be used to control the rover's movement with distance error and angle error as the inputs.*

*The result of the test that has been made was the rover was able to navigate towards the predefined location successfully. Furthermore, the rover can stop automatically at every distance with errors of 1,856 cm. The navigation test was done 5 times with 4 different coordinates. The first waypoint has an average distance error of 0,842 m, the second waypoint with the average error of 0,861 m, the third waypoint with the average error of 0,986 m, and the fourth waypoint with the average error of 0,814 m.*

**Keywords:** *GPS, Compass, Navigation System, Fuzzy Logic, Autonomous, Mobile Robot*