ABSTRACT

Indonesia has tremendous land potential and is blessed with abundant natural wealth, especially in the agricultural sector with a land area of 10.41 million hectares by 2021. In carrying out farming activities, farmers still work traditionally. This causes farmers to be unable to do other work because they have to cultivate crops manually. It needs to be transformed from traditional farming to smart farming. The smart farming concept of using Information and Communication Technology (IT) to carry out the implementation process to achieve the goals set by agriculture. When using smart farming will take advantage of existing technology. This study aims to design an automatic seeding system on a rover using PID control and implement an automatic seedling rover in agriculture in order to create a mobile robot that can assist farmers in seeding.

The automatic seed sowing rover is a rover that works using a dc motor and a servo motor. DC motor controlled by PID control to drive rack and pinion gear to lower and lift the drill bit to make holes in the soil and servo motor to open seed tube for automatic sowing of seeds.

The result of this research is that the rover drills soil with a depth of up to 5 cm. The average depth accuracy is 96.44%, the average accuracy of the distance between holes is 95.03% and the average accuracy of the number of perforated seeds is 84%.. Differences in depth and distance between holes can occur due to uneven ground such as mounds, rocks and others.

Keywords: *Seed sowing, smart farming, mobile robot and PID control.*