

ABSTRACT

The seed of the plant is used for the purposes and the development of farmer and has the function of agronomist. During this time the farmer in the Indonesia plant the seeds by using conventional method that requires a lot of energy and the operator as well as non-ergonomic. Plant the seeds in manual still contained errors or inaccuracies, such as disproportionate seed position. Then the author thought to make tools for planting the seed that precision and automatically to replace the work of the plant that had been done manually with the help of a machine. It's been a lot of cultivated crops that use other media, with a diversity of techniques such as hydroponic cultivation planting on rockwool.

In this final project designed a 3 axis CNC router simple microcontroller based motor driver and ATmega2560 A3967 combined with three motor Nema 17 stepper. Input the distance between seeds of plants are made with size CM (Centi meters), then the distance information is treated and processed by an Arduino Mega 2560. Then the Arduino Mega 2560 will send the command to the driver stepper. After that the driver will send a command to the stepper motors to do movement and will produce seeds that were in the container, the next will be in the rockwool sequentially and presentable, then the seeds of plants has been ready to be cultivated.

Microcontroller based CNC machine was successfully created with broad areas of work length 42cm x width 20.5cm, using the power of 44 Watts, the level of accuracy of the manual movement reach 97,86%, an average accuracy of 98,30% and 98% accuracy rate of planting. Which served as the seed planter tools automatically on soil or rockwool. This tool is expected to facilitate the planting of seeds that were previously done manually into a more presentable with the help of technology.

Key Words: CNC, Seed Planting Equipment, Microcontroller