ABSTRACT

The agribusiness sector is the largest economic sector and the most important part of Indonesia's national economy, but the agribusiness sector is starting to experience threats in fulfilling human food needs. Fulfillment of food faced several challenges including increasing population, which means increasing food demand, urbanization resulting in declining farmer numbers and dietary changes, limited resources (land and water), changes Climate and waste of food. This is in accordance with the data issued by the United Nations which is the fulfillment of food needs of approximately 9.6 billion people in the world in 2050 (UN-DESA, 2009). Along with that, agricultural land area also decreased due to the transfer of agricultural land function. Farmbot can increase agricultural production to solve human food needs because it can manage crops within 24 hours without stopping. Farmbot is an agricultural robot that can plant seeds with regular, watering crops and monitoring crop growth. Farmbot can be controlled through an app interface that allows remote access from any location on any Internet-connected device. In this study, it will create an automation system that can plant seeds, watering agricultural crops by controlling water production, monitoring plant conditions, plant databases by using applications and designing algorithms to detect crops and weeds. In addition there will be other options that can measure the soil humidity for watering scheduling as a watering parameter. To implement this feature can work using robotic hand with CNC (Computer Numeric Control) motion system which will be controlled by Arduino and Raspberry Pi. The following are procedures for implementing agricultural automation with IoT (Internet of Things) applications, seedlings with the help of seeders that will be stored in plant databases, watering tan and direct monitoring by users who use camera.

Keywords: IoT, Farmbot*, Internet of Things, Precision Agriculture, Automation.*