

ABSTRACT

Protecting tomato plants from the surrounding conditions is an important factor in the growth process of tomato plants. Because the ability of tomatoes to be able to produce fruit depends on the interaction between tomato growth and environmental conditions. One of the factors that can affect the quality of tomato growth is during erratic weather changes. Many tomato plants die from disease during these conditions. To solve the existing problem, a protection system with an automatic roof is needed to protect the tomato plants. In this final project research designed a roof drive system to protect tomato plants using the LDR sensor and the FC 37 rain sensor as detectors of light intensity and rainfall and arduino uno as a microcontroller system. Artificial neural network will classify whether the detected light and rainfall is good for tomato plants or not. The ideal light intensity for tomato plants is 10,000-30,000 lux while the ideal rainfall intensity is 100-200 mm / bulan. Then the results of the sensor detection will move the roof and lid open through the servo motor. In this study, it was found that the LDR sensor and the FC 37 rain sensor were able to detect light intensity and rainfall intensity needed by the system to protect tomato plants. The analog value of the LDR sensor detected during the movement of the roof covering is ≥ 361 or equivalent to 29900 lux. The analog value of the rain sensor detected when the roof closure movement is ≤ 396 or equivalent to 6.5 mm.

Keywords : *Tomatoes, Arduino Uno, LDR Sensor, FC 37 Rain Sensor, Servo Motor , Artificial Neural Network*