

## ABSTRACT

*Irrigation of tomato plants is an important factors in the process of plant growth in maintaining fertility. But, improper water supply will make tomato plant growth less than optimal. Like rotten plants, when there is a lack of irrigation and bacteria attack when they are over watering. To solve the existing problems, a tomato plant irrigation system is needed by looking at the level of soil moisture and soil temperature of the plant. In this final project research designed a system to control irrigation applied to tomato plants using a soil moisture sensor and a soil temperature sensor and Arduino as a control system. Through Artificial Intelligence, it is expected to be able to classify which values will make the pump start to irrigate and make the pump stop to stop watering with the method used, namely the Artificial Neural Network. To measure soil moisture the sensor will be planted in the soil and then will read the moisture content. The ideal soil moisture for tomato plants ranges from 60-80%. In addition to the humidity factor, soil temperature in plants has an effect on the growth process. The soil temperature sensor will also be planted in the soil at a depth of 5 cm. Tomato plants thrive at 24-28 ° C. In this study, it was found that the FC-28 soil moisture sensor and the DS18B20 waterproof temperature sensor were able to detect the moisture and soil temperature needed by the system to irrigate tomato plants. The detected moisture value for irrigating plants was <60% while for soil temperature was > 28 ° C. With the ANN method used in the system has an accuracy of 90%.*

**Keywords :** *Tomato, FC-28 Soil Moisture Sensor, DS18B20 Waterproof Soil Temperature Sensor, Pump, Artificial Intelligence, Artificial Neural Network.*