

## ABSTRACT

Automatic Soil Drip Irrigation System is the best solution for irrigation problems. This automatic soil drip irrigation system using arduino uno as microcontroller that connected to capacitive soil moisture sensor that can send information in the form of a signal to the relay to turn on and turn off the water pump. For the calibration process of the capacitive soil moisture sensor using the gravimetric method, which measures 10 plastic containers containing 200g of each soil that has been dried for 24 hours, then each container will be given a different amount of water from 0 to 200 mL. Then the results of the calibration are in the form of VWC and SMV limits in the form of voltage which are plotted using the 5 trendline approach. The closest trendline is the trendline polynomial approach chosen with the equation  $y = 0.8337x^2 - 1.6087x + 1.628$  and the SMV limit is 2.7. If A VWC is smaller than 2.7 which indicates the soil is getting dry, then the LCD will display the message "Too dry, pump on", then the green LED on the relay will light up and the relay will turn on the water pump. And if the VWC is greater than 2.7 indicates that the soil is wet, then the LCD will display the message "Too wet, the pump is off", then red led on relay will turn on and the relay will automatically turn off the water pump.

*Keyword: Arduino Uno, Capacitive Soil Moisture Sensor, Microcontroller, Gravimetric Method*