

ABSTRACT

Refillable drinking depot industry was the one to fulfill the demand for drinking water. To anticipate water overflow issues on manual control of drinkable water refilling as, an alternate option that fit the need of current modern society, such as mobile phones equipment. The research objective is to design and build an automated system for refilling gallon or bottles of drinking water using the YF-S201 water flow sensor through the Arduino IoT Cloud Remote on a mobile phones. This study using an ESP32 microcontroller, an LCD to display status during the initialization of Arduino IoT Cloud with the ESP32 microcontroller, and Arduino IoT Remote to set the volume setpoint and monitor the volume when the system is active. The drinking water refilling system is operated using an on-off control method based on a specific setpoint using a relay and a water pump as actuators that transfer water from the source to the container or gallon. Tests were conducted on the entire refilling system by setting volume setpoints ranging from 1 Liter to 15 Liters. The test results show that the hardware system circuit with Arduino IoT Remote can connect well so that Arduino IoT Remote can control and monitor volume based on data from the water flow sensor. The water flow sensor has been tested by comparing volumes using a measuring cup, and an average measurement error of 3.72% was obtained.

Keywords: *drinking water refilling, on-off control, set-point, water flow sensor, Arduino IoT Cloud*