

## ABSTRACT

The manual drinking water filling system is one of the factors that causes the development of small bottled drinking water (AMDK) industries. Currently, the filling of water does not match the volume of the packaging and it takes a long time for the filling process. Because the water filling process is still done manually, so the amount of production produced is still very small.

In this final project, a drinking water filling automation system has been designed. Using the Programmable Logic Controller (PLC) method as a system controller in the process of filling drinking water and a Waterflow Sensor that will detect the speed and capacity of the water flow that enters the bottle. From these sensors, information will be obtained through the LCD in the form of time and the volume of water that enters the bottle in real time. And in the process of filling it will be displayed by the Human Machine Interface (HMI). The drinking water filling automation system has been able to achieve a measurement accuracy of 96% for 250ml bottles, 93% for 330ml bottles, and 93% for 600ml bottles. The use of the Waterflow sensor with  $k = 5.75$  was able to get a fairly stable filling time for each bottle with an average time of about 3.594 seconds for 250ml bottles, 4.6 seconds for 330ml bottles, 7.415 seconds for 600ml bottles. With an average error volume that goes into the 250ml bottle is 3%, the 330ml bottle is 7%, and the 600ml bottle is 4%. As well as the time required for the process of filling bottled drinking water as a whole for 250 ml bottles is 107.83 seconds, 330 ml bottles is 138.09 seconds and 600 ml bottles is 222.46 seconds.

**Keyword :** *Automation, PLC, Water Flow, real time, HMI*