

## ABSTRACT

### DESIGNING MICROCONTROLLER-BASED WATER CIRCULATION REGULATOR AND WATER PH AND TEMPERATURE MONITOR FOR SHRIMP FARMING

By

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Shrimp farming is one of the farming systems that need a high discipline. The health and growth of shrimp is strongly influenced by several factors i.e., the temperature, the pH, the water level, and the scheduled water circulation. Related to SOP, the shrimp preservation is needed to monitor and control properly. The problem statement of this research was that there was no control and no monitoring on the farm conditions. To solve this problem, a microcontroller-based automation device for regulating the water circulation, monitoring the pH, and controlling the temperature was designed. This automatic tool was used to control and monitor the shrimp farming related to SOP. This tool used 2 systems i.e., the scheduled water circulation system and the water pH and temperature monitoring and controlling system. The scheduled water circulation system used the Arduino Mega 2560. The ultrasonic sensors were used as the altitude gauges. The solenoids were used as the place of disposing and containing water. The pump was used as water filler. The RTC was used as schedulers. Controlling the water temperature and monitoring pH was done through the Arduino Uno R3 so that the temperature and pH sensors were able to control the mill as a temperature regulator. The pH and temperature values were displayed continuously on LCD 16x2 to provide information for farmers in real time

**Keywords:** Monitoring, Control, Arduino, Automation, Scheduled, DS18B20, RTC, Ultrasonik, pH, Motor, LCD, Solenoid

