

**DESIGN AND ANALYSIS OF IOT BASED CAPACITY
CONTROL AND WATER QUALITY MONITORING SYSTEMS IN
SHRIMP TANK MANAGEMENT PROTOTYPE**

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ABSTRACT

One of the economic sectors and sources of foreign exchange for Indonesia is currently in the marine and fisheries sector, one of which is shrimp. The main problem that occurs in shrimp production failure is poor water quality during the rearing period. The impact if the pH is below 6 causes the shrimp skin to become soft and porous, whereas if it is above 9 the phytoplankton will grow more which can be detrimental. The ideal temperature for shrimp farming is 26-30 °C, if the temperature is below 26 °C the shrimp appetite decreases, while the temperature exceeds 30 °C the rate of chemical reactions spreads faster. This tool is designed with a water quality control and monitoring system based on the internet of things using the Blynk application. The monitoring system uses a pH analogue of 4502C as a measurement of pH levels, a DS18B20 sensor as a temperature measuring device, water capacity controls using a solenoid valve and a waterwheel using a smartphone-controlled DC motor. Test was carried out for 20 minutes and the average value of the pH 4502C sensor was 6,76 and the average error was 1,37 %. Average value of the DS18B20 temperature sensor is 29,36 °C and the average error is 2,62 %. This tool is able to raise and lower the temperature by 1 °C with an average time of 2,2 minutes. Percentage of success in testing the entire tool is 95 % and the percentage of failure is 5 %.

Keywords: *pH sensor, temperature sensor, motor DC, solenoid valve, Blynk.*