

## ABSTRACT

Nowadays, the rapid development of science has encouraged the creation of begitu many technologies that are beneficial to human life, one of which is *the Internet of Things* (IoT). IoT technology has also been widely applied in various sectors of human life as well as the universe, one of which is in the treatment of vaname shrimp or known as smart sistam on ponds.

Smart systems are used for monitoring. *monitoring* is used to monitor the value of the sensor that is used and connected to the system. In this smart system use ESP32S as a microcontrolle and several sensors, namely pH Meter, Total dissolved solids (TDS) DS18B20 (temperature) to monitoring ecosystem around shrimp *ponds and* use applications to monitor sensor values.

The results *of monitoring* connected to firebase are then displayed using Apatis application based on android installed on smartphone. From the results shown, users can see values from an ideal acidity level of 6-7,5, temperature values in the range of 22°C - 25 °C, as well as oxygen level detectors with an ideal range of 0-9990 ppm all sensors connected in *real time*. Then the QoS test results will be calculated using Wireshark, then the best *delay rate* is at 5 meters without obstruction with an average value of 92 ms and the worst value at 20 meters of 449 ms. For throughput, the best value is at 5 meters without obstruction with an average value obtained of 6530 bytes / s, while the worst is at 20 meters with a barrier and an average value of 2025 bytes / s. and for packet loss *the best* is at 0% at 5 m and for the worst conditions are at 6,1%.

Keywords :*Internet Of Things, Monitoring, Total Dissolve Solids, Apatis, Realtime, firebase.*