

ABSTRACT

Unpredictable seasonal changes in Indonesia, especially during the transition period, have a significant impact on shrimp farming activities, particularly in terms of water quality, which is a key factor in successful harvests. Traditional methods commonly used by coastal communities in shrimp farming simplify the cultivation process, but they face challenges such as high shrimp mortality rates due to manual and inconsistent water quality monitoring. This results in reduced production yields and even crop failures. Therefore, effective water quality management is a crucial aspect as it directly impacts feed efficiency, growth, and shrimp survival rates. The water quality parameters monitored include temperature, turbidity, and salinity. Given the limitations of farmers in conducting continuous monitoring in ponds, a remote communication-based monitoring system is required. This study designs and builds a real-time, remote shrimp pond water quality monitoring system using energy-efficient and environmentally friendly LoRa technology. The purpose of this system is to facilitate farmers in remotely monitoring water quality conditions, thereby optimizing productivity and harvest yields.

Keywords: *Temperature, Turbidity, Salinity, LoRa*