

ABSTRACT

This research aims to design and implement LoRa (Long Range) technology as a communication tool for Bagan Ikan Terapung in Terapung Village of Mawasangka Sub-district, Central Buton District, Southeast Sulawesi. Bagan Ikan Terapung is a common method used for fishing in this area. One of the main challenges faced is the limited communication access, which hampers coordination and supervision of fishing activities. The choice of LoRa technology is based on its ability to transmit data over long distances with low power consumption. In this design, each Bagan Ikan Terapung will be equipped with a LoRa communication module, enabling the exchange of information between the traps and a ground-based base station. The transmitted information includes the location of the Floating Fish Trap, presence status, weather conditions, as well as the quantity and types of fish caught. This design involves the development of both hardware and software components. The hardware comprises LoRa communication modules on each Bagan Ikan Terapung, while the software encompasses a data processing system and a user interface at the base station. This system is designed to transmit and receive real-time data, allowing fishermen and relevant stakeholders to monitor and manage fishing activities more efficiently. The research methodology employed includes literature review, needs analysis, system design, implementation, testing, and evaluation. The outcomes of this research are expected to enhance the effectiveness and sustainability of fishing activities in the Terapung Village, while offering potential application of LoRa technology for Bagan Ikan Terapung on a broader scale within the region and other fishing locations. The research output includes the creation of a prototype LoRa-based SOS Push Button communication system that connects three Bagan Ikan Terapung to a LoRa gateway on the coastline, along with the copyright for this communication system. After conducting tests of our tool in several locations, including the village of Cikoneng, Pangalengan Tea Plantation, and Rancabuaya Beach, we found quite satisfying results that strongly adhere to the standards set by the Terapung village community. This includes a distance coverage of 9.3 km. With the tool that we have designed and developed, the residents of Terapung Village in the Mawasangka District, Central Buton Regency, are greatly assisted in the maintenance and supervision of the floating fish traps owned by the community. This contributes to advancing and sustaining the economic income of the community there.

Keywords— IoT, GPS Tracker, LoRa, Emergency Button