

ABSTRACT

Indonesia is a maritime country with vast territorial waters. The current condition of Indonesian waters can contribute significantly to economic growth, create jobs, and support environmental sustainability. Fishermen are one of the jobs that involve waters, especially the sea, in the process of finding fish to be distributed to the community. However, new challenges arise for fishermen, namely constraints in providing emergency information to coastal officers due to no signal in the middle of the sea or blank spots. With these problems, this Final Project Research proposes a solution to develop a panic button feature to improve the safety of fishermen at sea. This system will be designed to send emergency signals using LoRaWAN technology that allows long distance data transmission with low power consumption. The LoRaWAN architecture will use a frequency that complies with Indonesian standards and does not impact other communication frequencies. In this research, the methodology used includes system design, prototype development, and field testing. System design includes hardware integration consisting of panic button, LoRaWAN module, and GPS device for ship location tracking. Prototype development is carried out by simulating emergency conditions and signal transmission through the LoRaWAN network and continued with tool testing to verify the performance of the system specifications in various sea conditions and distances. System performance analysis includes aspects of signal transmission speed, effective range, and accuracy of the transmitted GPS location.

Keywords: Fisherman, Internet of Things, LoRaWAN, Panic button, Waters.