ABSTRACT

Disaster monitoring device is a system that sends short messages to provide early warning at the monitored locations. This system is supplied by a battery that is integrated with solar cells as a charging source. However, management of battery power usage is still needed, so that the system can work more optimally. In this study, a tsunami disaster monitoring system and a power consumption monitoring unit are designed for normal and emergency conditions. Normal condition occurs when a tsunami disaster is not detected and an emergency condition occurs when a tsunami disaster is detected. The implementation of the power management system is done by setting the data transmission interval, according to the observed conditions. The results showed that the data transmission interval in the tsunami disaster monitoring system can affect the power consumption of the system. The difference values between the minimum, maximum and average power consumption for normal and emergency conditions is 0.0245W, 1.451W, and 0.0581W, respectively. With the percentage of saving for the minimum, maximum and average power consumption between these conditions are 3.1695%, 40.4450%, and 6.2580%, respectively. Meanwhile, the battery life of 10,000 mAh with a power usage percentage of 80% in normal and emergency conditions is 84 hours and 78 hours, respectively. Based on these results, normal condition works 6 hours longer than emergency condition.

Keywords: Data Transmission Interval, Monitoring system, Power Consumption.