

## Abstract

Theft that occurs in addition to causing material damage also causes loss of life and even mentally. Most burglaries occur because of mistakes the people themselves who are less cautious. Preventive measures have been undertaken by the community. Nevertheless, there still remains the theft that occurred around the community. A system that can monitor the state of the house or the room it is necessary to be made. The ability of the system is a must-have system can tell the state of a room or place in real time to the users of the system. The existence of WSN technology (Wireless Sensor Network) can be used as an alternative technology used to build the system.

The use of motion sensors in the room with a security system using WSN technology with IEEE 802.15.4 standard can provide valid information, despite the relatively small size of the data, so that data can be sent quickly from the sensor node to the server, then forwarded to the smartphone with the Android platform.

Based on the results of tests performed, the optimal distance sensors are used to detect motion that is as far as eight feet. The use XBee S1 is more efficient than WiFi because smaller power consumption and delay is still below the maximum allowable limit, which is 100 ms. Average delay from the sensor node to the server of 10.95 ms is acceptable because it is still below the maximum allowable limit, which is 100 ms. Delay values from the sensor nodes to the end user meets standard because they are still below the maximum allowable limit, which is 400 ms.

**Keywords:** Wireless Sensor Network, room security system, IEEE 802.15.4, motion sensor, Android