

## ABSTRACT

Wireless Sensor Network is used in some applications such as environmental monitoring, search and rescue missions, geographic routes and tracking. WSN can be a telemetry solution to ensure that the rescue communication system works properly and effectively. Although localization is not the primary purpose of the Wireless Sensor Network, sensory information is senseless when the location of the observed phenomenon is not known. Therefore, it is necessary to design a localization system that can estimate the position of the static nodes with the lowest possible position errors.

In this research will use localization method RSSI, the distance estimation method using the signal strength in the sensing to all nodes. Trilateration and Iterative Multilateration Algorithms are highly accurate localization range-based algorithms. The localization algorithm can estimate the coordinates of the unknown nodes based on the distance of the sensor from the position of the anchor node using the signal strength that has been sensed throughout the nodes. The performance of both algorithms is influenced by the comparison of the number of anchor and unknown number in the spread, the range of communication, and the deployment used.

From the simulation results, Iterative Multilateration algorithm tends to give an average position estimation accuracy of 93% while using the Trilateration algorithm of 81%. With PDR reaching 100% using Iterative Multilateration and 96% for Trilateration.

*Keywords: WSN, RSSI, Range Based, Trilateration, Iterative Multilateration*