

IMPLEMENTASI METODE HEVERSSINE TERHADAP GELANG TRACKER LORAWAN SEBAGAI KALKULASI JARAK ANTARA NODE-GATEWAY

Nama : Ahmad AfanMaulana

Nim : 160431100067

Program Studi : TeknikElektro

ABSTRAK

Metodeheversineadalahmetodeuntukmengkalkulasikanjarakdenganmenggunakankordinatatawaldankordinataakhir.Penerapanmetodeheversinedalamhalinidigunakanuntukmengakalkulasijarakantara node-gateway.LoRaadalah protocol yang digunakandalamkasus kali ini.DenganLoRaWANsemua node dapatberkomunikasidengan 1 gateway secarabersamaan.Untukmendapatkansebuahkinerja yang baikdarisebuahjaringanperludilakukanpengukuran parameter jaringan.RSSI (Receive Signal Strengt Indicator) merupakanalahsatu parameter jaringan yang menyatakankuatsinyal yang diterimasuatuperangkat radio.Padapercobaan kali inidilakukanmenggunakantopologi point-to-point dan mesh.

Percobaandilakukan di pusatkotadengansebagaipenempatan gateway dan 3 node yang berjalanmenjauhdenganberbagaiarah. Dalamhaliniantisetiap node akanmemilikiwarna yang berbeda, itusesuaidengankategorimasing-masing node. Kuninguntuk node yang berjarak<2 km dari gateway, merahdenganjarak<3 km danhitam>4 km.

Kata kunci :*heversine, Realtime Position, LoRaWAN, PHP, API*

IMPLEMENTATION OF HEVERSINE METHOD ON LORAWAN TRACKER BRACELETS AS NODE-GATEWAY DISTANCE CALCULATION

Name : Ahmad AfanMaulana

Number : 160431100067

Study Program : Electrical Engineering

ABSTRACT

The heversine method is a method for calculating distances using initial and final coordinates. The application of the heversine method in this case is used to calculate the distance between the node-gateway. LoRa is the protocol used in this case. With LoRaWAN all nodes can communicate with 1 gateway at the same time. To get a good performance from a network, it is necessary to measure network parameters. RSSI (Receive Signal Strength Indicator) is one of the network parameters that states the signal strength received by a radio device. In this experiment, a point-to-point and mesh topology was used.

The experiment was carried out in the city center by placing the gateway and 3 nodes running away in various directions. In this case later each node will have a different color, it corresponds to the category of each node. Yellow is for nodes <2 km from the gateway, red is for <3 km and black is >4 km.

Keywords: heversine, Realtime Position, LoRaWAN, PHP, API