ABSTRACT

The increase in public transportation services to meet transportation needs has led to a new problem in society: the lack of information about the presence of public transportation. From this issue, this research discusses the comparative analysis of the SIM 808 sensor device with the Ublox Neo-6m and SIM 800*L GPS* Module *devices in the GPS Tracking method for public transportation tracking applications. GPS Tracking is a system that determines, tracks, and monitors a location accurately through GPS satellites in the form of real-time coordinates on a digital map. In this system, two public transportation location monitoring devices are created with different GPS sensor devices but share the same database server. The first device uses the Arduino UNO microcontroller as a processor to process inputs from the SIM808* Module *as a GPS data receiver, supporting GPRS connectivity. The comparative device uses the Arduino UNO microcontroller connected to the GPS* Module *Ublox Neo-6m as a GPS data receiver and the SIM*800*L* Module *for GPRS connectivity. Data for each location is sent to the Thingspeak server. The position data of the two GPS Tracker devices can be accessed through an Android application, displaying each public transportation location on the user sIDE in the form of a real-time map and the movement position of public transportation. The comparison results of accuracy between the system with the SIM808* Module *show an average displacement of 4.87 meters, while for the system with the GPS* Module *Ublox Neo-6M, it is 3.63 meters. The testing of the system with the SIM808* Module *shows no loss, whereas the system with the GPS* Module *Ublox Neo-6M has a 7% loss. The system with the SIM808* Module *is faster by 26.86 second compared to the average delay of the system with the GPS* Module *Ublox Neo-6M.*

Keywords: *Arduino UNO, GPS Ublox Neo-6m, GPS Tracking, SIM808, SISM* 800*l*