ABSTRACT

According to the findings of the INRIX survey, congestion often occurs in the largest cities in Indonesia. The number of people who use private vehicles rather than public transportation is one of the factors causing congestion. The bus *is one of the most widely used public transportation modes.* Buses *are often found in big cities in Indonesia as public transportation for traveling.* Buses *can be used to minimize congestion because they can carry many passengers at one time. However, there are still many people who do not want to use the* bus*. One factor is the frequent delays in* bus *arrivals, which lead to schedule uncertainty.*

Therefore, this study aims to create a system that can track GPS-based buses *placed on* buses*, create a notification system for distances and estimated arrival times of* buses *placed at stopping points, and measure the accuracy of the GPS module used. This system uses hardware, namely the Raspberry Pi as a microprosessor, the Neo-M8M module, and the L76x GPS Hat as a GPS module that is used, which is very important to run the tracking feature. The method used in this study uses the Haversine method. The Haversine method requires latitude, longitude, and the radius of the earth to measure distance. This method is used to measure the distance between the* bus *and the* bus *stop point. The Haversine method is also used to measure the accuracy of the GPS module used.*

Keywords: bus*, transportation, traffic jams, gps, tracking, congested*