ABSTRACT

Location Based Services (LBS) is an innovation in the telecommunications engineering which capable to provide the services and the informations in accordance with the geographical location and coordinates of its user. In order to meet the proper services and informations that provided, so it requires a good accuracy level of determining the user's position. In determining the user's position, there are a variety of methods that can be used, such as: RSS, AOA, TOA, EOTD, GPS, and A-GPS.

A-GPS is a method of determining the user's position by using satellites. Therefore, in the signal propagation from the satellites to the user, there will be time delay due to the atmosphere (ionosphere and troposphere). In the final, the research is conducted to determine the performance of position determination using A-GPS method. Besides that, this is also to find out the influence of satellites spread and user's velocity to the performance and accuracy of A-GPS in determining the user's position.

The results of this research indicate that the satellites spread and user's velocity affect the level of positioning accuracy. Satellites spread has a significant influence. The average error when the satellites are adjacent, can achieve 6,9276 meters, whereas when the satellites spread are scattered, the average error in the determination of user position can be reduced up to 32,40%, which the average error is equal to 4,6825 meters. Whereas the influence of the user's velocity is not significant, which the difference of the average error when the user isn't moving (0 km/h) and when the user is moving with a speed of 100 km/h only amounted to 1,7531 meters.

Keywords : LBS (*Location Based Services*), GIS (*Geographic Information System*), A-GPS (*Assisted Global Positioning System*), *Mobile tracking*.