

ABSTRACT

Wireless Users Positioning is a technique for finding the position of a *user* based on data obtained from the wireless device user. GPS is a media that is able to track the user's position very well in *outdoor* environments. However, for *indoor* environments, this technology becomes ineffective because satellite signals are not strong enough to penetrate the *indoor* environment. Therefore needed a new solution for positioning the *user* in an *indoor* environment, one of the solution is to use *wireless LAN* technology.

In this final project, will be built an application that can determine the location of the user in an indoor environment by utilizing the wireless LAN technology. The method to be used is *Location Fingerprint* method with the help of the smoothing process to smooth variations in the value of RSS reading by different laptop devices. To assist data collection, Inverse Distance Weighted (IDW) interpolation method is also used. The analysis is done based on the effect of the *Reference Points* (RP) that are used, the number of *Access Points* (AP) that are used, the *Power Factor* at IDW, and the effect of smoothing value process.

The results show that more and more use of RP and AP, the accuracy of the system will be higher. *Power Factor* also plays a role in the accuracy of the system, so that should be regulated with the optimal value. The process of smoothing values also help in increasing the accuracy of determining the *user* location for the use of different types of laptops. The results of this final project give best value when the amount of RP that is used is 50, the number of APs used is 4, and the value of power factor in value of 2 (percentage validity = 91%, the average difference in distance = 1,64 m).

Keywords: *Wireless user positioning, Location Fingerprinting, Inverse Distance Weighted.*