ABSTRACT

The IEEE 802.11-2106 standard has created the Fine Time Measurement (FTM) protocol, to accurately measure the distance of a device from the Access Point (AP). The approximate accuracy of the device position can be measured from the known position of the AP. The Line of Sight (LoS) method will be used to improves distance estimation accuracy and ignores indoor multipath and Non Line of Sight (NLoS) signals.

In this final project, the author discusses the accuracy of the deviation of the estimated position results in the indoor positioning system. The method that will be used is 2-dimensional Multilateration. Then the estimation distance is added with Additive White Gaussian Noise (AWGN) noise as the error range to make the estimation calculation artificial. The Kalman Filter algorithm is used to reduce the error distance in the estimation results.

The result of this final project is that the deviation of the estimated position results with the average difference at coordinates x = 0.2956 m / 29.56 cm, and coordinates y = 0.6012 m or 60.12 cm. The accuracy of the deviation of the estimated position results obtained is good, which is below 1 meter.

Keywords: *IEEE 802.11-2016, WiFi FTM, Indoor positioning system, Kalman Filter*