

## **ABSTRACT**

*Quickly development in wireless communication promises service voice, data and interactive video every where and every time .System communication has high mobility that required mobility sevices such as WLAN technology and Global Positioning System (GPS).*

*At this final project is realized and analyzed the dimensions and position of the segmentation of perturbation for WLAN and GPS applications. The antenna is simulated by Ansoft HFSS software 11. Simulated microstrip patch rectangular has five conditions for the first condition without perturbation and another conditions with a perturbation at frequencies 1500 MHz and 2441 MHz, where the position of the perturbation is different and then the realization of antenna at frequency of 2441 MHz without perturbation and the perturbation, because it has a value of axial ratio close to circular.*

*Based on simulation results for conditions without perturbation with resonance frequency at 2441 MHz, the antenna has a VSWR 1.1071, bandwidth is 39 MHz and gain is 2.499 dBi gain, when the above left the perturbation and the under right perturbation (P4) with resonant frequency at 2441 MHz with, the antenna has a VSWR 1.1327, bandwidth is 85 MHz and gain is 1.19 dBi . While the results of measurements, with perturbation frequency at 2441 MHz has VSWR  $\leq 1.5$ , bandwidth is 94 MHz from 2.4 MHz until 2.494 MHz and gain is 1.286 dBi, for without perturbation has VSWR  $\leq 1.5$ , bandwidth is 32 MHz from 2.427 MHz until 2.459 MHz and gain is 2.192 dBi . For both conditions without and with perturbation has unidirectional radiation pattern, while the polarization of the conditions with and without perturbation perturbation circular ellipse.*

**Key words: Microstrip, Rectangular, Perturbation, GPS WiMAX**