

## **ABSTRACT**

*A WLAN (Wireless Local Area Network) is a flexible data communication system implemented as an extension to, or as an alternative for, a wired LAN within a building or campus. Using electromagnetic waves, WLANs transmit and receive data over the air, minimizing the needs of wired connections. WLANs are typically designed to operate in portion of the spectrum of ISM (Industrial, Scientific and Medical) band where users do not require to purchase a radio operator's license.*

*Over the last seven years, WLAN has gained strong demand for the consumers' needs. In order to fulfill those needs, IEEE has produced a set of standards and specifications for WLAN under the title "IEEE 802.11" that defines the format and structure of those signals. This standard specified WLAN to work on frequency 2,4GHz (2.400 – 2.484MHz) and 5,2GHz (5.725 – 5.875MHz).*

*An ideal antenna expected to fulfill this standard have certain specifications such as: small size, low current consumption, low cost, have good matching, and have a uni-directional radiation pattern. There are many antennas which can fulfill these needs such as microstrip antenna (i.e. bowtie, equiangular spiral).*

*Based on these reasons, this final project reports the design of antenna microstrip bowtie for WLAN purpose, which is simulated by AnSoft HFSS, so that this antenna will have best performance in frequency 2,4GHz (2.400 – 2.484MHz). Afterwards, an antenna with optimum performance is implemented and be observed its performance at 2.400 – 2.484MHz.*

*The expected results from this final project are: the simulated and implemented antenna work in frequency 2,4GHz (2.400 – 2.484MHz) and have uni-directional radiation pattern; gain over 1,5dB; input impedance equal to 50Ω; and VSWR under 1,5.*

*Keywords : WLAN, ISM, Microstrip bowtie antenna, AnSoft HFSS 9.2*