

## ABSTRACT

*Wireless Sensor Network (WSN) is a collection of various sensor nodes in a network capable of sharing information via wireless media. The type of antenna used is considered as one of the main factors affecting WSN performance. In general, the antenna used for WSN node communication is an omnidirectional antenna with a transmit pattern in the direction of 360°. However, the omnidirectional antenna does not fulfill several factors needed by WSN, such as a small gain so that the range is limited. So that the directional antenna is recommended to overcome this.*

*In this final project, the design and realization of a directional microstrip antenna for WSN communication at a frequency of 2.4 GHz is carried out. The microstrip antenna used has a yagi-uda patch shape so that the radiation pattern produced is directional with high gain and uses the meander line miniaturization method which aims to make the antenna have smaller dimensions.*

*The design of this directional microstrip antenna has dimensions of 60 mm x 58 mm, this value is the result of a 20% reduction in size from the initial dimensions of 76 mm x 70 mm. S11 simulation results are -32.82 dB, bandwidth is 210 MHz, with a gain of 7.452 dBi. While the measurement results of S11 are -22.156 dB, bandwidth is 190 MHz, with a gain of 6.014 dBi. The radiation pattern of this antenna is directional which works at a frequency of 2.4 GHz for WSN communication.*

**Kata Kunci:** *Directional, Microstrip Yagi Uda, Miniaturization, Wireless Sensor Network*