ABSTRACT

Biomedical technology today plays an important role in the development of medical processes in the medical world. Its application to remote glucose monitoring, endoscopy, and deep brain stimulation in a patient's body is clear evidence. The device inserted in the patient's body is a sensor, a platform such as an Arduino or Node MCU, and a WiFi module.

This system is in charge of transmitting data or information to the doctor when approaching the patient's room. Delivery is done via the reference wifi module, ESP8266. This will greatly help with efficiency of time when checking and diagnosing. However this process is supported by antenna modules that has a high transmit power. Meanwhile according to the reference the existing antenna of ESP8266 wifi module has a gain of 2.00 dBi which means it needs to be increased further to have a longer range.

In this Final Project, a wearable antenna using a rectangular patch with an initial dimension of 41.82 x 41.83 mm^2 is designed and realized with copper foil tape thickness of 0.06 mm and polyester as a substrate thickness of 2.85 mm which has the same dimensions as the ground plane that is 90 x 90 mm^2.

Through this research, the simulation results of wearable antenna characteristics with a return loss of -13.89 dB, VSWR's value of 1.44, gain's value 6.953 dBi, directivity's value 7.931 dBi, efficiency (η) -0.977 dB, and SAR value of 1.16 W/kg.

***Keywords**: Wearable Antenna, Wifi, gain, SAR.*