

## **ABSTRACT**

*In the air there are lots of electromagnetic sources that spread freely. Different types of transmitters such as WiFi transmitter, cell phone base station, TV transmitter stations, radar satellite, are source of electromagnetic waves with different output power. These electromagnetic waves can be utilised as a source of alternative electrical energy by utilizing the radiation result from the transmitter to provide renewable energy.*

*In this final task will design the wideband microstrip antenna which integrated with a rectifier circuit for energy harvesting. The method of design that will be used in this final task is DGS (Defected Ground Structure), as one method to increase the gain and get a band that fits with the antenna specifications so that is able to capture maximum electromagnetic signals in the air, i.e. in the form AC (Alternating Current) which is then converted to DC and later can be measured into a voltage.*

*From the simulation result obtained bandwidth of 2070.1 MHz with frequency range 1343.8 MHz – 3413.9 MHz. The obtained gain is 2.621 dB with omnidirectional radiation pattern, and linier polarization. The realizaed, antenna has a bandwidth of 1814 MHz which can work on frequency band of 1637 Mhz - 3451 Mhz. The obtained gain is 2.379 dB with omnidirectional radiation pattern, ellips polarization*

**Keyword: Rectifier, Microstrip Antenna, Wideband, DGS, Energy Harvesting**