## *ABSTRACT*

*Wireless Power Transfer (WPT) is a rapidly growing technology with wide applications in a variety of fields, including home appliances, medical devices, and the Internet of Things (IoT). The implementation of WPT, particularly in IoT, is promising, but requires an in-depth understanding of technical aspects such as frequency, antenna, microstrip antenna, rectenna, electromagnetic wave analysis, and RF to DC conversion. Current computer engineering curricula often place less emphasis on these topics, making it difficult for students to fully understand the concepts.*

*This study aims to design and build a teaching aids consisting of microstrip rectangular antenna and Greinacher rectifier as a means of learning rectenna and RF-WPT. This tool is designed to work at a frequency of 500 MHz by using Handy Talky (HT) as a transmitter. The main success parameters to be achieved are the achievement of a positive antenna gain (>0 dB), VSWR ⑧ 2, and a return loss smaller than -10 dB at the working frequency. In addition, the effectiveness of teaching aids as a learning medium was evaluated by measuring the increase in student understanding through written and practical tests before and after the use of teaching aids.*

*The results of this study showed that the props designed successfully achieve antenna gain of -8.4 dBi, return loss of -9.5 dB, and VSWR of 1.9. Testing the effectiveness of this tool shows an increase in student understanding, which is measured through an increase in the average value from pre-test to post-test. It is also capable of powering LEDs at a distance of up to 50 cm from the HT, indicating that it can serve well as a learning tool on rectenna and RF-WPT.*



*Keywords : Wireless Power Transfer (WPT), Internet of Things (IoT), frequency, antenna, microstrip antenna, rectenna, electromagnetic wave, RF to DC, Greinacher Rectifier.*