

## ABSTRACT

Communication technology that is commonly being used as of late/lately is cellular and local network or more well-known as Wireless Fidelity (Wi-Fi). In order to make cellular network works properly, there must be an antenna to operate. Antenna operates in certain frequency. For current cellular technology it has reached, fifth generation or 5G. Whereas in local network it has reached sixth generation that is Wireless Fidelity 6 (Wi-Fi6).

The reconfigurable antenna designed in this study worked at a frequency of 3.5 GHz for 5G cellular networks and 5 GHz for Wi-Fi. The antenna design in this study used a bow-tie model patch. The system of this reconfigurable antenna uses a pin diode switch in the simulation software. The diode pin will function as a resistor if it is in a forward-voltage condition. Meanwhile, when in reverse bias, the diode pin will function as a capacitor.

In fabrication, copper tape is used to replace the function of the diode pin. Antennas designed on software simulations are capable of functioning as reconfigurable antennas when using brick as copper tape. In fabrication, a return loss of -30.36102338 dB was obtained when the frequency was 3.5 GHz, but at a frequency of 5 GHz it experienced a resonant frequency shift to 4.92 GHz.

**Keywords:** *Microstrip Antenna, Reconfigurable Antenna, Bow-Tie Patch, Pin Diode, 5G, Wi-Fi 6.*