

## **ABSTRACT**

*Development of telecommunications technology increasingly varied greatly affect the impact that the frequency spectrum allocation needs. Frequency spectrum is a finite resource. Because of the limitations, cognitive radio technology was coming as one solution of the limitation. Cognitive radio is a technology that can optimize the use of the frequency spectrum according to the needs of technology used.*

*In the final project was designed and realized microstrip antenna as an antenna that will be used in the application of cognitive radio with working frequency at 2.35 GHz and 2.6 GHz. The antenna consists of two antennas, sensing antenna as a scanner the spectrum and reconfigurable antenna as an antenna communicating with the switch on the antenna structure so that can reconfigure the frequency as needed. The main focus in this final project is a study of the antenna can sense the frequency and antenna that can work in two a given frequency with switches on the antenna structure.*

*In the final stage, it was concluded that the antenna was designed work as an antenna cognitive radio, because of can perform on two main functions of sensing and reconfigurable frequency. Antennas are designed to work with frequency 1.2 GHz until 3 GHz with  $VSWR \leq 2$  for sensing antenna and has a working frequency of 2.6 GHz and 2.35 GHz for the reconfigurable antenna with  $VSWR \leq 2$ .*

*Keyword: reconfigurable antenna, microstrip, patch, frequency*