# ABSTRACT

Today's telecommunications technology continues to evolve, one of which is on a wireless network that has experienced rapid growth over the last two decades. This development has led to the scarcity of spectrum, since many of the main spectrum has been licensed for a particular application. However, according to recent measurements of wireless spectrum, licensed spectrum was not utilized. Therefore, cognitive radio technology developed with spectrum sensing function to detect unused spectrum and then can be used for other users to be more efficient and effective.

In this final project simulation and analysis of cognitive radio technology uses energy detection method in Matlab R2011b. Signal Orthogonal Frequency Division Multiplexing (OFDM) is used as a signal of the primary user (PU) and then transmitted over Rayleigh channels were added Additive White Gaussian Noise (AWGN).

In this final project analyzes the influence of throughput performance of sensing scheduling that is used in secondary user (SU) in detecting the primary spectrum. the results showed that the longer sensing time at the sensing scheduling made throughput become smaller because time for data transmission decreased. This can be seen in sensing scheduling with 15 ms intervals which produces an average throughput of 6.995572 bits/ms, while the average throughput that is generated upon sensing scheduling with a time lag of 200 ms is equal to 113.6951 bits/ms.

**Keyword :** *cognitive radio, sensing spectrum¸ sensing  scheduling, Matlab, Throughput*.