

## ABSTRACT

*Cattle is one of the potential food resources for meat and milk and has a high economic value, but the development of a cattle involves a lot of problems and challenges, one of them is a cattle abduction. The problem is faced by many cattle farmers who used a traditional method of protecting their cows, most of them are still using a manual security system, which is guarding the barns with human help. To overcome this problem, there needs to be an implementation of Wireless Sensor Network on the cattle security system. Wireless Sensor Network is a wireless network which consists node sensor that are equipped with communication devices*

*In this final project, there will be a parameter implementation of a security system on the cattle. This security parameter is using a TSAL infrared which carries a 38 KHz carrier frequency as transmitter and TSOP34838 sensor as a receiver. The sensor functions as a detector for whether there is a crime inside the barn, and the result will be received by an RF module and will be continued to the module server, which then will give a warning to the guard through LCD and 5 volt buzzer.*

*The device can detect an abduction act in a cattle with a 100% succession rate. The result of this design consists a best performance performed by IRTSAL6200 sensor and TSOP34838 reaches 30 meter distance with an illumination condition of 20 LUX and IR TSAL6200 sensor carried the 38 KHz carrier frequency and the longest distance that XBee could handle was 16 meter by using XBee XBP24-ACI-001 XBee-PRO ZigBee module chip antenna connection with XBP24-ACI-001 XBee-PRO ZigBee module chip antenna.*

Keywords: Wireless Sensor Network,, Microcontroller, IR TSAL6200, TSOP34838, LCD, Buzzer 5 Volts.