ABSTRACT

Radio detection and ranging or radar is a system whose role is to find out, measure distances, altitudes, and map objects that are around radar monitoring. Basically, radar has 3 uses, namely for *detection*, *tracking*, and *image*. In the detection process on the radar, it has a detection error, namely a *false alarm.* In *false alarms*, radar expends energy that is useless for detection, so in this study it is useful to make *false alarms constant.*

In this study, the design and calculation of radar detection will be carried out using the *constant threshold* method based on the Xethru X4M03 UWB Radar. To carry out this experiment, it will be tested using the existing noise. In the end will know the probability of detection of a radar and also the probability of false detection of a radar. And later how much influence *noise has* on the probability of detection of a radar.

In this study, the detection probability values were 0.89, 0.95, 0.97, 0.99, 1 before the *noise*. After the addition of *stationary noise, the* detection probability obtained is not much different from before the addition of noise. When *noise is* added at the time of detection it will produce an SNR value. The SNR value obtained is directly proportional to the detection probability. When the detection probability is greater, the SNR value obtained will also be better.

Keywords: *Radar Detection, Threshold Constant, UWB radar, False Alarm, Xethru X4M03*