ABSTRACT

Passive radar is electronic equipment that receives all electromagnetic waves emitted by the target and does not emit electromagnetic waves. The principle of passive radar consists of three receiving apparatus (receiver) at a certain distance by using Time Difference of Arrival (TDOA) for determining the position, distance, speed, and direction of detected target. In order to identify a signal detected, a processor is needed. The results of identifying detected signals are used to determine the types of threats that might be caused, so that anticipation is taken to overcome them.

In the Final Project, developed passive radar system to identify detected signals guided by radio frequency (RF) signals to the display. In this research, a prototype object will be made that will be used as the target media and display the display in three dimensions with geolocation relations and the desired geolocation calculation with a maximum distance of 10 m. The test scenario is done by changing the distance, taking time interval and seeing the errors in distance difference obtained.

In this study, distance parameters between objects and receivers were measured from a distance of 1 m to 10 m, with the aim of knowing the performance of the system, and the best results were obtained at a distance of 10 m because the range of coordinates could be more precise. The parameter testing uses TDOA to get the position of coordinates of the object and the station gets a percentage error of distance difference of 8.136%. Systems that have been made are able to work according to a distance of 10 m. The range of time intervals from taking this system is 0.5 seconds - 2.5 seconds.

Keywords : Passive Radar, Electronic Support Measure (ESM), Time Difference of Arrival (TDOA)