

ABSTRACT

In general, Radar or Radio Detection and Ranging is an electromagnetic wave system that is useful for measuring distances, answering and making maps of surrounding objects, for example aircraft navigation, weather information of an area and often applied to motorized vehicles. Measuring the distance from the sensor to the target is a basic concept of radar, a measure of that distance is obtained by measuring the time required for electromagnetic waves at the time of propagation, starting from the sensor to the target and returning to the sensor. Radar has an advantage over other navigation tools, radar doesn't require transmitter station as a transmitter. Radar has an electronic wave emission principle, it can emit short radio wave pulses which are emitted in a narrow band by directional antenna.

In this study, a multi-object radar detection simulation was carried out using Doppler processing both Moving Target Indication (MTI) and Pulse Doppler Processing (PDP), which later on the radar will find out the related objects. Multi-object here is a condition that is achieved when there is more than one object detected by a navigation radar.

The result of this research is a multiobject detection process using the Moving Target Indication (MTI) and Pulse Doppler Processing (PDP) methods as well as the matched-filter which is obtained from the predetermined data. So the aim of Doppler processing is to mitigate the clutter signal. Hope it can improving detection performance of moving targets even though there is a dominance of signals originating from stationary clutter.

Key Word : *Doppler Effects, Moving Target Indication, Pulse Doppler Processing, Signal Modeling*