

ABSTRACT

The use of Radar devices in daily life has contributed to helping human life. Radar works by sending electromagnetic signals which are then reflected back by objects that are directly in front of the transmitter component. The reflected waves will then be captured by the receiver component which will then be forwarded and processed into data in the form of position, position, and movement of the object.

Radars in general have a limited scanning in one particular angle range, such a radar is called one-dimensional radar. Multidimensional radars with multiple antennas integrated within the module such as the phased array radar is capable on sensing the environment that is not limited to a specific range of angle. The main consideration of why multidimensional radar with several antennas is not preferred as the solution is because the price to procure multidimensional radar that is considerably higher compared to conventional one-dimensional radar.

Designing precise motion support to increase one-dimensional radar scanning range is one of the solutions that can be taken to solve the problem. The results of this motion support are expected to have the principle of expanding the scanning range, so that the work of a radar can be more effective and the portable property in the device, mainly for its indoor use can be maximized thus supporting the efficiency. The result of the integration of the radar with the rotary system shows that while the radar rotates at 5 RPM, the scanning accuracy rate is shown to be at 83.8%, 10 RPM at 63.9%, 20 RPM at 37% and 30 RPM at 34.5%.

Keywords: Dwell Time, Range, Radar, Receiver, Transmitter