ABSTRACT

A radio transmitter and radar is a device that can be used to know the position, shape, and direction of the movement of an object that is detected in the way the use of electromagnetic wave methods in radio frequencies. Radar consists of several components among the others: transmitter antenna, receiver, signal processing and data processing. A continuum wave radar type is that of continuous wave (CW). A cw radar system with a continuous signal is often used to detect the movement of a target or object (moving a target) and can be used to measure the speed of a target. Doppler radar is specifically designed to observe physical phenomena from a surrounding environment such as the doppler spectral frequency of a moving target or observing environmental phenomena in general, the design of a simple cw radar system that does not require too high power to transmit a signal could be a more personal value for this type of radar.

Radio detection software was applied to develop radar technology. Software on SMS has a function in place of hardware used as a mixer, filter, modulator/ demator and so on. The technology from the brother could therefore simplify the design of a radar system with cheaper cost. Implementation of your technology one of them is the universal peripheral radio software (USRP). USRP that underlies the functions of such hardware as the transmitter and the receiver and provides wide bandwidth. The operating system to be used for the cw radar implementation is the gnu radio software that functions to process radio signals.

A cw radar test system is done with the frequency specs of the transmitter antennas 2.1 GHZ, where a number of 12 times of stationary objects and motion objects drop at a distance of 1 meters and 3 meters of different objects, the distance used to detect objects from transmitter antennas to movement objects 1 meters long and 3 meters long, the transmitter output differs from the receiver's output. According to these tests, they can be picked up by a shift in signals by a fraction of a frequency sent by a transmitter antenna and a signal received by the receiver antenna. This method is called the complete fasa detection, and this discrepancy is used by its data values by using matlab software to determine the full extent of the occurrence of any event of falling off objects.

Keywords: Radio Detection and Ranging (RADAR), Software Defined Radio (SDR), Continuous Wave (CW), GNU Radio, USRP.