

ABSTRACT

Radar (Radio Detection And Ranging) is an object detection system that uses electromagnetic waves to identify the distance, direction or speed of both moving and stationary objects such as airplanes, ships, vehicles, and weather conditions. The radar system consists of parts of the transmitter and receiver which are located at the same location or can be separated. The transmitter will emit radio waves at a certain frequency and amount of power. There are two types of radar signals, namely pulse wave radar (Pulsed Radar) and continuous wave radar (Continuous Radar).

One of the developments in radio communication technology is Software-Defined Radio (SDR). The use of SDR is an important component to build an SDR architecture, which is a circuit, ADC / DAC for IF signals and the processor as hardware, and software to run radio functions on the other hand to reduce costs and complexity in design. The method used to detect the monitoring of the human respiratory system with a radar system is like using Pulse Modulation Continuous Wave and Frequency Modulation Continuous Wave.

The results obtained from the FMCW radar system are to detect small shifts, breath rate, and heart rate at a distance of 30 cm, 50 cm, and 90 cm, respectively. In addition, age affects the results that the older the age, the breath and heart rate obtained are lower. When the width of the chest cavity is flat, the delay value (ns) is high and if the chest cavity expands, the value of the delay is low.

Keywords : Radar, FMCW, SDR, *Chest Displacement*