ABSTRACT

Continuous Wave Radar or it can be called Doppler Radar has been widely applied in various fields by virtue of it is generally used to detect some movement of an object. One of the uses of Doppler radar is to detect small movements and is currently widely applied to detect hand gestures. Hand gestures are one of the non-verbal communication and become one of the important roles in the field of human computer interaction. The use of Dual Radar in hand gesture detection head for to increase the accuracy of the detection value in detecting small movements in hand gestures.

This final project discusses the effect of dual radar on the accuracy of detection values in hand gesture detection. In this study, experiment was done using two CDM324 modules which have a working frequency of 24 GHz which is connected to the Circuit Dale Heatherington and Arduino Mega2560. Processing of experimental data results was done using the python programmer.

The results of experiments for the Dual CW Radar system using the CDM324 microwave sensor showed that each gesture tested based on various scenarios resulted in a different response to the waveform of the output signal as well as the amplitude. The results of experiments at radar positions spaced 10cm produced output signals with the highest amplitude values ranging from 6 to 8Volt, at a position of 25cm apart outcome the highest amplitude values ranging from 4.5 to 8Volt, and at a position of 50cm outcome the highest amplitude values ranging from 3.2 to 6.7Volt with error values for each gesture ranging from 1 to 11%. Therefore, it can be concluded that each hand gesture has its own characteristics and can be distinguished through reflective waves due to changes in the frequency received due to the different movements of the hand gestures.

Keyword: Dual CW Radar, Doppler Radar, Hand Gesture Recognition