

ABSTRACT

Radio Detection and Ranging (Radar) technology has become a great interest in various fields, including the medical monitoring. Continuous Wave (CW) radar is one of commonly used technique to detect Doppler effect from a single moving target. Human respiratory can be identified by the periodic chest wall movement, which is potentially detected by using Doppler radar shift. This thesis proposes Doppler radar system for human vital sign respiratory. A method for processing the Doppler radar output to obtain respiration information is required for better accurate result in human respiratory rate.

This thesis is to develop a method to extract respiratory information from Doppler radar output signal. The simulation is performed to investigate the ability of the proposed method in detecting the human respiration parameter such as respiration rate and respiration amplitude. In this thesis, the Single-Tone Doppler radar operating at 10 GHz is studied and is proposed for detecting human respiration. The experimental investigation is performed by computer simulation and CW radar module of HB100.

The results are capable of extracting the human respiration parameters. This thesis is to provide a post-processing method contribution in developing Doppler radar for non-contacting measurement devices for human respiratory. The proposed post-processing method is to provide contribution in developing Doppler radar for non-contacting measurement devices for human respiratory.

Keywords: Doppler effect, radar system, small displacement, respiration.