ABSTRACT

CONTACTLESS REPIRATORY MONITORING SYSTEM USING MICROSOFT KINECT

BRILIANTO BAGUS DEWANTORO

Supervisors : ***Dr.Achmad Rizal, S.T., M.T.*** *and* ***Dien Rahmawati, S. Si., M.T.***

Breathing is one of the factors to determine a person's quality of life. The respiratory system or what is usually referred to as the respiratory system is closely related to daily activities, physical condition and lifestyle. Monitoring devices for the respiratory system usually use a spirometer. This device is usually used to measure the volume of air entering a person's lungs. The weakness of this tool is usually the air that enters through this tool through the mouth, sometimes there is often excessive or less air depending on each person's air suction, and still in physical contact with the object being observed.

Breathing apparatus attached to the body to get the respiration signal, which is obtained by the application. Therefore, this contactless breathing monitor has been supported by various applications. In this process, a tool used is Microsoft Kinect v.2, which is a technology that has been equipped with a 3D IR depth sensor, while this sensor can measure the height of an object and give very accurate results.

The results of the analysis of respiratory system monitoring output without contact using Microsoft Kinect v.2 with a depth sensor in it lasted for 60 seconds and each subject breathing will be calculated pulses which will be compared with a graph of the depth sensor data values. Based on data retrieval from 30 subjects, 17 of them had graph pulse differences and manual calculations. The system designed has an accuracy of 92.27% and a relative error of 7.73%.

Keywords : *Microsoft Kinect V.2, signal respiratory system.*