

## ABSTRACT

Respiration is a sign of living creature. Furthermore, respiratory system takes a necessary role in order to maintain lives. When breathing process occurs, oxygen ( $O_2$ ) is changed into carbondioxide ( $CO_2$ ) by lungs as vital respiratory organ. Whole human cells indirectly are doing respiration when lungs organ is breathing. Thus, all activities can be done when lungs condition is stated healthy. Many factors that give influence to lungs condition are age, activity, and life style.

Lungs disfunction of many patients is diagnosed by paramedics along with many kinds of test to make sure how fatal the patient condition is, such as : spyrometry, gas diffusion test, residual volume measurement, and body plethismography. This final project stands on that idea of designing a tool that could measure lungs volume based on microcontroller known as respirometer. Lungs volume measurement is focused on tidal volume as static volume.

Respirometer based on microcontroller is designed with optocoupler sensor as interface to the body in order to get data, then that sensor is connected to microcontroller as data mining center, the result of the data is shown on LCD screen.

Keywords: Respirometer, Microcontroller, LCD, Tidal Volume