ABSTRACT

Respiration is a very important activity for living organism which is a gas exchange process happened in organism body. In human being, it is a process of taking oxygen from the air for oxidation need inside the body cells and also releasing carbon dioxide into the free air. Meanwhile, average respiration rate was an average amount of respiration in a minute, which is usually measured when someone was taking a rest by counting the frequency of chest up and down. The amount of respiration rate per minute is influenced by human's health condition. In a normal condition (when someone is taking a rest), the average respiration rate in a minute for the adult is 15-20 times a minute. If someone's respiration rate is over 25 times a minute or under 12 times a minute, we can say that his condition is abnormal.

In fact, there is a changing of chest pressure when someone was breathing so that we can make a device which is able to process the changing of chest pressure that we can count the average respiration rate in a minute. As detector of chest pressure changing, a piezoelectric that is attached on the chest is used. An AT89S52 microcontroller is used to count the respiration rate and LCD is used for displaying the result. By using this device, we expect that we could know someone's average respiration rate faster and easier.

This device can be applied for monitoring process of the patient's average respiration rate per minute on the Intensive Care Unit (ICU) so that we can check the patient's condition immediately that the medical action can be done faster.

Keyword: respiration rate, microcontroller, LCD