

ABSTRACT

Central monitoring of the condition of patients with serious conditions that are carried out continuously and in real-time is very important. Some researchers have done the development of this device before, but it has some shortcomings, such as sending data still using cables, small parameters completeness, close distance delivery, and not yet be able to display the real-time and continuous condition of the patient. The aim of this research is the central system done wirelessly, with more parameters, longer distances delivery, and can monitor the real-time and continuous condition of the patient. This research contribution uses long-distance and real-time wireless delivery systems, which makes it easy to install. To make the shipment could be done in real-time and continue, then this research was used 2 transmitters and 2 receivers. This research was used the pre-experimental as the method. The electrocardiogram signal was obtained from tapping by Lead II tapping electrodes, and then it processed to get the heart rate value in the units of beats per minute. The tapping result in the form of heart signals will be processed using a microcontroller circuit. Then, the data will be sent to a monitor using wireless X-Bee Pro. Data displayed in the form of a heart signal and the patient's heart rate. In the measurement of BPM value, it was obtained error values in module 1 0.1388% for BPM 240 and 0.093% for BPM 180, in module 2 0.1388% for BPM 240 and 0.185% for BPM 180, the data can be sent well at the distance of 8 meters, 10 meters, and 25 meters with a barrier. The results of this study indicate that sending wirelessly can be done at a certain distance and in real-time. This research can be implemented in a central monitor in a hospital with more patients.

Keywords: *Electrocardiogram, X-Bee Pro , BPM*