ABSTRACT

The heart is one of the vital organs in the human body which has the main function of pumping and flowing blood throughout the body. Most victims of sudden cardiac arrest are due to abnormal heart rhythms (arrhythmias) which are closely related to tachycardia and bradycardia. Therefore, it is important to know the frequency of the heartbeat. The frequency of the heartbeat can be affected by several factors such as activity in the part of the brainstem which is the heart control center and hormonal changes. Normal heart rate in children aged 5-12 years is 80-120 Beats per Minute (BPM) while for adolescents/adults over 12 years is 60-100 BPM. However, in certain cases, abnormal heart rate rhythms may occur. The medical device used to check the rhythm of the heartbeat is Electrocardiography (ECG). ECG can only be found in a hospital or health clinic. This is the problem of some people who want to know the condition of the rhythm of the heartbeat, especially the elderly, that the incidence of heart disease is suffered by the elderly (elderly), especially those aged over 65 years, which should be of concern to health workers. A tool is needed that can calculate the frequency of heartbeats in real time, efficiently, and serve as an early warning if the condition of the rhythm and heart rate is abnormal. Wireless bracelets can be used to determine the frequency of heartbeats periodically which will be displayed on the OLED and the website. Relatives of wireless wristband users can also monitor through the website as long as they get username and password access. The workings of this prototype start with the XD-58C sensor located on the user's wrist. Information from the XD-58C sensor will be received by the ESP8266 Wemos D1 Mini, which is assisted by a power supply, namely a lithium polymer (Li-Po) battery. Information obtained from the XD-58C sensor is sent using the ESP8266 Wemos D1 Mini which will send data to the MySQL database. The results of QoS testing are also needed in this study to determine the speed of information received by OLED and websites. In the QoS test, the average throughput is 1593.3 bps and the average delay is less than 2 s.

Keywords: ESP8266 Wemos D1 Mini, OLED, Wireless Bracelet, XD-58C Sensor