ABSTRACT

Heart disease is the number one cause of death in the world based on data compiled by the World Health Organization (WHO). This disease cannot be seen directly and humans cannot control their heart rate, thus causing a high mortality rate in this disease. Electrocardiograph is a tool to record information of heart conditions by measuring the electrical activity, but to check with this tool must be under control of experts, and this tool is not integreted with IoT. IoT (Internet of Things) is a new reality that completely changes everyday life, so that enables healthcare services to provide remote disease diagnosis and monitoring. In this final project, a prototype IoT-based heart rate monitoring system is designed using the AD8232 sensor and a website so that it can make it easier to check and monitor heart rate conditions remotely. The sensor has average accuracy of 97.54% in test 1 on respondent 1, 95,54% and 94,94% in test 1 and 2 on respondent 2, In addition to sensor accuracy testing, QoS testing (delay and throughput) is also carried out to determine the quality of the network used by the tool. The average delay and throughput results obtained are 101.3 ms and 6.76 kbps between 17:30 - 19:00, while between 00:30 -01:30 are 82.67 ms and 7.84 kbps. There is difference in the system output when data is sent to the database, it happens because the sensor reading process fastly and becomes not optimal due to the addition of a fairly complicated process for sending each sensor data reading to the database.The website can display BPM data, descriptions of conditions (normal/abnormal), and graphs of the last 10 data based on the results of the last inspection in the MySQL database in real time. Although the system designed is not adequate to be applied directly to monitoring the condition of the heart rate, the tool was designed is already integrated with IoT, so that heart rate monitoring can be done remotely as long as it is connected to the internet.

Keywords : *Internet of Things*, AD8232, *Healthcare, Health Rate*