

## ABSTRACT

Heart disease is a dangerous disease that plays a major role as the number one cause of death in the world and is still a threat today. This is because the signs of heart disease cannot be seen directly, but by performing an examination using an electrocardiograph (ECG).

Today's IoT (Internet of Things) technology is far developed so that it can be used to carry out remote health monitoring. Therefore, in this final project the author makes an IoT-based heart rate monitoring tool by utilizing an android application. This tool is designed using ESP32 microcontroller and AD8232 ECG sensor. The results of the patient data output are presented through an android application in the form of a simple but effective user interface so that it is easy to understand and can be carried out practically anywhere and by anyone.

The sensor accuracy obtained in this test has the highest average accuracy of 97.53%. Meanwhile, for the Quality of Service test, the end-to-end throughput in the morning was obtained with an average of 127.6 kbps. Throughput end-to-end at night with an average of 138.43 kbps. End-to-end delay in the morning with an average of 217.55 ms and end-to-end delay in the evening of 177.16 ms. Based on the application functionality questionnaire that has been made by the author, 3 correspondents agree that the android application that has been made runs as desired and has quite complete features. So that the three correspondents are interested in using applications that have been made in the future.

**Keywords:** Internet of Things, Android Application, AD8232, Heart Disease