

## ABSTRACT

Heart is one of the most vital organs for human. Therefore, monitoring the health condition of the heart is needed. There are some methods to monitor someone heart, one of them is photoplethysmograph (PPG). PPG is a graph that can detect the change of blood volume. Then the result could be used to know the health condition of someone heart.

This final project will make a mobile application to analyze the received data from PPG device. The application will display the volume change and the graph. Data will be transferred from PPG device to the mobile device through a wireless connection. On the mobile device, data will be processed until they can be well read and saved as data for further heart condition analyzing. WLAN is better than bluetooth for mobile monitoring. The PPG device can be directly connected to a database server through the existing LAN while bluetooth using different communication protocol.

At the end of this Final Assignment produced Photoplethysmograph monitoring system using WLAN and JME as the programming language. The system also has a centralized computer for data storage which is built using Apache, PHP, and MySQL. After system being tested, the result is 1.98 of standard deviation compared to manual calculation. It means the system has minimum of error variations so it can be concluded that the system is working well.

Keywords : *Photoplethysmograph* (PPG), Wireless Local Area Network (WLAN), Local Area Network (LAN), Database Server, Java Virtual Machine (JVM).