

## **ABSTRACT**

The heart is a vital organ in the human body. The heart have function to circulate blood throughout the body. Volume of blood in an organ of the body will vary due to pumping of blood by the heart. There are many ways to analyze the condition of the heart a person. One of them using Photoplethysmograph. Photoplethysmograph is a device that can detect changes in blood volume. The data of Photoplethysmograph can be used to determine the health condition of a person.

In this Final Assignment a has made Photoplethysmograph embedded wireless LAN-based on computer. That is a tool to monitor changes in blood volume and display the graph changes. This system can be used to monitor the heart using wireless transmission.

Photoplethysmograph consists of sensor, amplifier, LPF, ADC, microcontroller, serial data communication, wireless LAN 802.11b, and the computer as a receiver and viewer data. Sensor consists of red LED and Photo resistor (LDR) is placed on the finger. The signal emitted LED accepted by LDR. Signals received LDR changes according to changes in blood volume, because the signal received amplitude is very small and contain noise will need to be strengthened and filtered. Analog signals are converted into digital signals by ADC. And then, data is sent serially by the microcontroller and transmitted wirelessly to a computer. In the computer data will be presented in the form of graphs and numbers.

After testing, the digital PPG has realized can work well in show the signal graphs, clean signal from noise, counting heartbeats per minute, and the system is realtime.

Key word : Photoplethysmograph, embedded wireless LAN.