

## ABSTRACT

Heart is one of the vital organs in the human body. Function of heart is circulate blood throughout the body. So, the heart is very important for human life. Many ways can be done to detect heart health conditions, such as observations on PPG and ECG signals.

PPG is used to measure blood volume changes in the body. PPG signal is the result of fluctuations in blood or air contained therein. Meanwhile, the ECG signal is a form of physiological signals generated by the electrical activity of heart muscles. By performing the processing of the PPG signal and ECG, a doctor can perform an analysis of the abnormalities that occur in heart. In general, a tool used to display the PPG and ECG signals located separately. So, on this final assignment is created a tool that displays the PPG and ECG signals on a single view. So the doctor will be easier to analyze interference with the heart.

To capture the PPG signal use LED and LDR then amplifying and filtering this output signal from LDR. Meanwhile, to capture the ECG signal using a transducer which is then the output will be amplified and filtered. After capturing PPG and ECG signals, they are fed into the microcontroller to be processed and displayed on the display. LCD and application programs on the PC used to display the signal. On display is created, it can display the PPG and ECG signals on a single view, so more easier in the analysis.

The result of this final assignment is accordance with plan. This tool can display PPG and ECG signals on single view and it is portable and integrated.

*Keywords: PPG, EKG, microcontroller, heart.*