

## ABSTRACT

Support tools to assist paramedics measuring human blood pressure is still have little variation. Generally, design of human blood pressure measuring device used by paramedics consists of cuff, bulb / pump, gauge glass tube, valve on / off, and a tube of mercury.

In this final task have been designed an instrument to measure human blood pressure with the plethysmography method and using (PPG) which is an instrument that uses optical sensor. Signal received by plethysmography be amplified using the amplifier. Then signal has been amplified by the amplifier will be in filter to remove noise or unwanted signals. Once the signal is filtered by the LPF will be processed using a microcontroller ATmega 8. Hereafter devised interfacing and output for displaying the results of the blood pressure measurements that here will be displayed using the Android app. To make display in android application to use the Eclipse software. To test the accuracy of the tool, the tool used tensimeter comparison method that already exist in the market, namely by taking a sample by using both the tool and the results will be compared.

Based on testing, this blood pressure measurement tool in get accuracy values for systolic is 98.97% and 75.61% for diastolic values. Calculation of the value of Systolic, diastolic, and the equation obtained from the linear regression in this system is not a calculation and equations that have been fixed.

**Keyword** : Blood Pressure, Plethysmography, Photoplethysmography