

## **ABSTRACT**

In the medical world, there is a term Triage which is used to determine priority patients in the emergency room. To start the triage procedure, the medical expert will check vital signs (VTS) to identify health problems, make a diagnosis and then determine the medical action to be taken. Vital signs examination includes heart rate, respiration rate, SpO<sub>2</sub>, and blood pressure. Conventional medical devices used to perform 4 TTV checks are usually carried out separately through several tools to get the measurement values of heart rate, respiration rate, SpO<sub>2</sub>, and blood pressure.

The purpose of this paper is to create a tool that makes it easier to check vital signs (TTV) to get the measurement values of heart rate, respiration rate, SpO<sub>2</sub>, and blood pressure at one time and can be monitored. To get the TTV value in this study using signal processing method by utilizing PPG (Photoplethysmograph) signal to get the four TTV values.

The results of this study obtained interesting results that revealed that the accuracy of Vital Signs (VTS) measurements including heart rate, respiration rate, blood oxygen level (SpO<sub>2</sub>), and blood pressure reached an accuracy level exceeding 92%. The study revealed that the heart rate had a remarkable accuracy of 97%, the respiration rate had an accuracy of around 92.06%, while the oxygen level in the blood was measured with a high accuracy of 98.57%. Similarly, the measurement of systolic blood pressure reached an accuracy of 94.22%, and diastolic blood pressure reached 92.86%. These results indicate that the TTV measurement method used in this study is capable of providing good results.

Keywords: Vital Signs, Photoplethysmograph, Signal Processing, Monitoring.