

ABSTRACT

BED EBV and CO measuring instruments are the tools used to monitor the condition of preoperative patients. The Estimation Blood Volume (EBV) is a calculation to determine the approximate volume of blood in the human body and CO is the amount of blood volume pumped by the heart per minute the calculation of EBV used uses weight, height and gender. CO calculations utilize BPM multiplied by standard Stroke Volume. In this section the author discusses oxygen saturation in the blood using different wavelengths of red LED light and infrared captured by the photodiode. The author also discusses BPM to monitor minute heart rates. The design of this measuring instrument uses MAX30100 sensor, Arduino Mega , Arduino Nano and TFT LCD. Data from the MAX30100 sensor enters the Arduino minimum system, then is processed to produce a percentage of SpO₂ values which are then displayed on the TFT LCD. In the module, the data displayed can be stored and displayed again so that patient data can be traced. Testing is done by comparing the module with a standard measuring instrument that produces the biggest error of 2.80% on BPM and 0.69% on SpO₂.

Keyword : SpO₂, BPM, EBV, CO, MAX30100