

# **DESIGN AND CONSTRUCTION OF PULSE OXYMETER USING PHOTOPLETHYSMOGRAPH REFLECTANCE METHOD BASED ON NODEMCU**

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## **ABSTRACT**

*Oxygen levels in the body play an important role in the health of our bodies to keep our bodies fit and not weak. In some diseases, the value of oxygen levels in the blood or oxygen saturation can be used to monitor the condition of the body. Oxygen saturation is the amount of hemoglobin that carries oxygen in the blood. The importance of checking and knowing normal oxygen levels in the blood is to maintain the ability of organs and body tissues to function normally. One of the tools used to diagnose oxygen in the blood is a pulse oximeter. The pulse oximeter used is mostly a pulse oximeter using the PPG transmittance method. Therefore, this study aims to design a pulse oximeter with the PPG reflectance method using the MAX30100 sensor, NodeMCU ESP8266, then to achieve an accuracy level above 95% in measuring oxygen saturation and heart rate. The results achieved by the tool succeeded in achieving the goal, namely by touching the level of accuracy of 99.24% for oxygen saturation and 95.77% for heart rate.*

**Keywords:** PPG, Pulse, Oxymeter, Oxygen, Reflectance