

ABSTRACT

Body temperature and heart rate are important aspects and determining factors in monitoring human health. The development of technology to create efficient smart devices by utilizing mirrors, which are common household items used every day. This study aims to design an electronic health system and build a smart mirror prototype that can detect body temperature and heart rate. Daily activity monitoring is processed in real-time using a Raspberry Pi microcontroller with photoplethysmography. The device and system in this research integrate an MLX90614 sensor for non-contact body temperature measurement, an XD-58C sensor for heart rate measurement, and programming. Body temperature measurements are taken by placing a finger approximately 2 cm from the sensor, while heart rate is detected by placing a finger directly on the sensor. Measurement results can be viewed on an LCD screen with body temperature accuracy up to 80% and heart rate measurement accuracy of 95%. The mirror design used in this study has the potential to be used as a simple health monitoring tool for daily activities.

Keywords: Body temperature and heart rate, Smart Mirror, MLX90614 sensor, XD-58C sensor, Raspberry Pi