Optical Fiber and its Biomedical Applications: Focusing on Human Heart/pulse Rate Sensing

Abstract

This article focuses on the advantages that optical fiber sensors offer to the biomedical field, the basic working principles of optical fiber sensing, and discusses some examples of integrating different biological parameter fiber sensors on a single probe for Medical Applications. Here our main idea is to initially focus on the human heart pulse rate monitoring, which includes different Hb-O2 concentration measurements in one heart beat, using two infrared light sources, and 1mm diameter multimode plastic optical fiber as a probe, a photodiode with spectral sensitivity ranging from 300nm- 1100nm wavelength of light and an open source Arduino Uno R3 interface board for the processing of the incoming signals.

References

Optical Fiber and its Biomedical Applications: Focusing on Human Heart/pulse Rate Sensing


Index Terms

Computer Science

Wireless

Keywords
Fiber optical sensor  Heart rate  IR LED  Photodiode  Photoplethysmogram  PPG

Pulse oximeter.