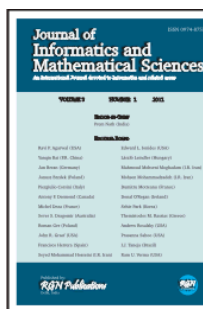




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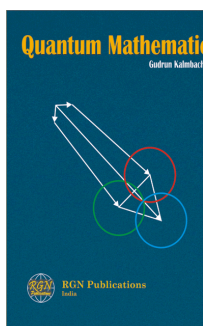
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Low Cost Real-Time Portable Pulse Oximeter with Wireless Network

T. V. Omotosho, C. E. Allison, S. A. Akinwumi

Abstract

To facilitate quicker detection of symptoms of cardiovascular and respiratory disorders, the use of smaller portable wireless sensors which consume less power is an essential requirement. Wireless pulse oximeter are convenient devices which aid to remotely monitor a patient's heart rate and blood oxygen saturation (SpO_2). The result of this study shows a developed portable, low cost device which can be used to measure the heart rate, and SpO_2 of an individual. To this end, a small pulse oximeter was developed; which used an elastic transmissive mode finger probe to measure the heart rate and SpO_2 . The device could successfully measure these vital signs and display on a LCD screen. The readings taken from individual for a period of one minute shows average heart rate of 75.6 bpm at zero offset and the average SpO_2 readings derived from the device was 98.7% at zero offset. The model designed is also rechargeable to make it more sustainable for use in rural areas where there is insufficient power supply. The prototype pulse oximeter designed is portable, consumes less power and capable of sending processed measured data to an online database via a WLAN network thereby satisfying the criteria for sustainable telemedicine. This device is therefore recommended for use in local hospitals and remote medical centre to aid easier detection and prevention of critical medical diseases.

Keywords

Pulse oximetry; Blood oxygen saturation; Heart rate; Telemedicine

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ABOUT THE AUTHORS

T. V. Omotosho
Department of Physics,
Covenant University, Ota,
Ogun state
Nigeria

C. E. Allison
Department of Physics,
Covenant University, Ota,
Ogun state
Nigeria

S. A. Akinwumi
Department of Physics,
Covenant University, Ota,
Ogun state
Nigeria

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