

Accepted Manuscript

Non-invasive and wearable early fever detection system for young children

M.D.P. Garcia-Souto, P. Dabnichki

PII: S0263-2241(17)30523-7

DOI: <http://dx.doi.org/10.1016/j.measurement.2017.08.025>

Reference: MEASUR 4923

To appear in: *Measurement*

Received Date: 18 May 2017

Revised Date: 4 August 2017

Accepted Date: 15 August 2017



Please cite this article as: M.D.P. Garcia-Souto, P. Dabnichki, Non-invasive and wearable early fever detection system for young children, *Measurement* (2017), doi: <http://dx.doi.org/10.1016/j.measurement.2017.08.025>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Non-invasive and wearable early fever detection system for young children

MDP Garcia-Souto^{1,2} and P Dabnichki^{1,3}

¹School of Engineering and Materials Science, Queen Mary, University of London
Mile End road, London E1 4NS, UK

²Present address: Medical Physics and Biomedical Engineering, University College London
Malet Place Engineering Building - Gower Street, London WC1E 6BT, UK

³Present address: School of Engineering, RMIT University
124 La Trobe St, Melbourne VIC 3000, Australia

Corresponding address: p.garciasouto@ucl.ac.uk

Abstract

Fever in young children is taken seriously by healthcare professionals as it indicates an underlying infection which can be life-threatening. Core body temperature can be accurately measured using traditional techniques, but these are not suitable for non-invasive monitoring during normal life. This study investigates the possibility of fever monitoring in children under 2 years of age in a non-clinical setting based on various local skin temperatures. Various system designs are presented, i.e. single vs multi-sensor systems, and a set of sensors either localized or distributed across the body. The probability of positive fever identification on feverish children ranges from ~40% to 77% using 1 and 5 sensors respectively, while the detected false positives are a 10%. We conclude that a continuous and non-invasive fever monitoring in children under 2 years is possible by the propose method, providing a suitable solution for early fever detection and alert.

Keywords

Child; fever; core temperature; skin temperature; sensor.

Download English Version:

<https://daneshyari.com/en/article/7122004>

Download Persian Version:

<https://daneshyari.com/article/7122004>

[Daneshyari.com](https://daneshyari.com)