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## Biomedical Signal Processing and Control

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Review

## Prospects and limitations of non-invasive blood glucose monitoring using near-infrared spectroscopy

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## Abstract

**Diabetes** is a chronic metabolic disorder with a high occurrence of complications due to **blood glucose** level in the normal range. Most of the commercially available devices for glucose measurement are invasive or minimally invasive. Invasive devices used for blood glucose monitoring are inconvenient and painful whereas minimal invasive devices have limited time span and stability. Thus, there is a need of an economic, compact, painless and convenient non-invasive device which can promote frequent blood testing which help in control of blood glucose level. In this paper various methods of glucose monitoring are reviewed and overall emphasis is laid on the development of NIRS (near-infrared spectroscopy) based non-invasive glucose monitoring. The motivation of this review is to demonstrate the prospects, limitations and **technical challenges** for development of NIRS based non-invasive blood glucose **measurement system**.

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## Keywords

Diabetes; Blood glucose monitoring; Near-infrared spectroscopy; Non-invasive glucose monitoring

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