Non Invasive Blood Glucose Level Detection

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Abstract:
This paper describes a non-invasive technique to efficiently monitor blood glucose level without puncturing the skin. About 500 million individuals worldwide and 50 milli... **View more**

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Abstract:
This paper describes a non-invasive technique to efficiently monitor blood glucose level without puncturing the skin. About 500 million individuals worldwide and 50 million people in India suffer from this rapidly expanding condition. Through physical activity, a healthy diet and medication, all diabetes-related issues can be lowered. The present intrusive procedure is uncomfortable and unpleasant because users must prick their finger to draw blood for the daily monitoring of blood glucose concentration; as a result, it is not suggested for lifelong use. Due to the lack of glucose measurement machines and the high cost of the procedures, people who live in rural areas and are economically underprivileged do not have access to facilities for routinely checking their blood sugar levels. The 940 nm wavelength has been found to be more accurate at detecting glucose levels. Employing near-infrared spectroscopy, the light passes through the skin which interacts with the chemical constituents of the illuminated tissue to partially absorb and disperse the light. Before reaching optical detectors, light that is not absorbed will be reflected out of the tissue or transmitted through it. So this paper proposes an alternate non-invasive method which is based on the scattering property of the skin.

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Diabetes mellitus occurs when the body's glucose levels vary outside of the usual range of less than 140 mg/dl. It is the condition in which the body is unable to create insulin or utilise that which is produced. The condition affects 285 million people worldwide according to research. Diabetes can lead to gangrene, kidney failure, heart failure, clouded vision and amputations down the road. Diabetes can also result in serious ailments like hypoglycemia coma, poor memory and severe neuropathy [1].

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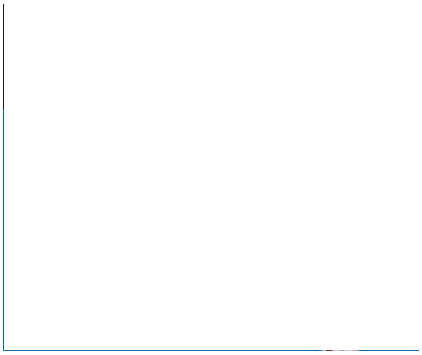

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