

الإهداء

لهم جميعا

...

Acknowledgment

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Abstract

This project discusses the design and implementation of a device that improves the monitoring process in which the level of Glucose in blood in diabetics is measured, without the need to take an actual blood sample.

This is accomplished through an integrated system, which consists of: a smart phone application, the use of a technology known as the spectroscopy occlusion, an accurate controller to process and govern the output of the mentioned technology, finally, an electronic circuit connected to the phone through Bluetooth.

This is an advance approach, which is considered safe, painless and especially convenient when monitoring a diabetic's condition remotely.

The device in this project is at a low cost when compare to the more traditional methods used for the same purpose. The matching-level (efficiency) with the traditional method is acceptable.

By using smart phone technology that are currently available for most people that's allow the connection between all role players in the medication process and reduce the design and manufacturing costs

المستخلص

يناقش هذا البحث تصميم و تطبيق جهاز يحسن من عملية مراقبة مستوى الجلوكوز في الدم لمرضى السكري دون الحاجة الي أخذ عينات دم ، وشمل جميع الاطراف ذوي التأثير في العملية العلاجية .

وذلك عن طريق نظام متكامل يتكون من برنامج للهواتف الذكية ، وإستعمال تقنية (occlusion spectroscopy) لقياس زاوية التشتت للأشعة تحت الحمراء عندما تصطدم بجزيئات الجلوكوز ومعالجتها عن طريق متحكم دقيق لتحديد مستوى الجلوكوز في الدم ، ودائرة الكترونية موصلة ببرنامج في الهاتف الذكي عن طريق تقنية البلوتوث .

هذه الدراسة متطورة وآمنة وفعالة لمراقبة حالة المريض عن بعد من طرف الطبيب المعالج والأطراف ذوي التأثير في العملية العلاجية ، ويعتبر الجهاز المشمول بهذه الدراسة ذا تكلفة منخفضة مقارنة بالأجهزة التقليدية المستخدمة لقياس نسبة الجلوكوز في الدم . بلغت كفاءة الجهاز مستوى تطابق بنسبة مقبولة مقارنة بالطريقة التقليدية .

في هذا البحث تم الإستفادة من توفر الهواتف الذكية لدى معظم سكان العالم حاليا في ربط الأطراف ذوي الصلة بالعملية العلاجية وتقليل التكلفة الكلية لتصميم وتصنيع الجهاز .

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