

IOT Enabled Intelligent Hand Gloves for Diabetic Patients Health Monitoring System

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Abstract – This is for specially monitoring the old age patient and informing doctors and needy people. In case of any abrupt changes in patient heart-rate or body temperature alert is sent about the patient using IOT, so proposing innovative project to dodge such sudden death rates by using patient health monitoring system that uses sensor technology and uses internet to communicate to loved ones in case of problem. This system uses temperature and heart-beat sensor for tracking patient health. Both the sensors are connected to the ESP32. As we know that Health has prime importance in life. This work will be useful for researchers and practitioners in the field, helping them to understand the use potential of IOT in medical domain and identification of major challenges in IOT. Without taking blood sample Glucose level can be detected in the blood by using IR sensor. Also this project aims at developing a sensor that is used to track the patient's heart-beat lively with the help of smart phone using IOT technology. This is used for check the Glucose level without taking blood sample and display which constantly check patient's heart-beat temperature and some parameters of the body with the help of wi-fi module.

Key Words: Heart-beat, IOT, IR sensor, diabetic patient, ESP32, Glucose level

INTRODUCTION:

This system shows patients temperature and heart-beat tracked live data with time stands over the internet. Improving the efficiency and quality of health care services in both hospitals and homes, has always been very important and challenging at the same time among the different diseases affecting the elderly people in particular, rheumatoid Arthritis. Main purpose of this project is that detect the glucose level from blood without taking blood sample. For detecting the Glucose we are using IR sensor. This project continuously monitors patient's health.

DESCRIPTION:

In this project we are using MX30100 for measuring the heartbeat and oxygen level of body. LM35 this sensor will be used for showing the temperature of the body.

Another sensor is using this system for our main purpose of the project is that IR Sensor for detecting the glucose level present in patient blood. By using IR Sensor we can detect glucose level without taken blood sample. This all Sensors are included inside the hand gloves by just wearing this hand gloves we can detect above mentioned things on display which is present on hand gloves. This module is connected with a software through internet. In case of critical condition of patient the module will be sent a message to the doctor and needy people. Then doctor will be taken immediately action on it. In this project we are using the IR sensor for detecting the Glucose level from the blood without taking blood sample of patient's body. The intended system consists of LEDs that emit 940 nm-wavelength signals. These optical impulses are sent through the fingertip and are picked up by a photo transistor next to the LED. By examining the variation in the received signal's strength that results from reflection, the amount of glucose in the blood can be calculated.

$I = I_0 10^{-Edc}$

I = light intensity

E = extinction coefficient

d = thickness

c = concentration

Absorption(A) = $-\log(I/I_0) = Edc$

A solution's concentration is inversely related to how much light it can absorb. This indicates that a light beam weakens as it travels through the solution. Either increasing concentration or distance through a solution causes light to attenuate.

3. CONCLUSIONS

The proposed system is implemented for wireless health monitoring of the patients. The proposed model allows the doctors to monitor patient's health from anywhere. The data is stored and can be visualized on the web server.

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