

EMPLOYEE HEALTH LEGACY

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Abstract: Occupational health surveillance is the systematic and continuous monitoring of worker's health in relation to workplace hazards. This paper presents the design, implementation and test of a system with the capability to measure multiple physiological signals, such as pulse, temperature and energy and the software used here is raspberry pi. This health monitoring system can predict malfunction in the vital signs. The objective is to monitor employee's health, to support employee's family and to avoid unnecessary medical leave. It involves continuous collection and evaluation of several vital signs and smart medical emergency detection which is connected to a medical centre where it notifies nearest hospitals in case of emergencies. Such surveillance of hazards eliminates the need to wait for disease to occur before taking steps for prevention. The overall goal of health surveillance measures is the continuous improvement of safety and health at workplaces and the protection of workers' health. The positive results of a health surveillance action can also reassure employees and employers concerning their good practices and health and safety culture.

Keywords: IoT, GPS, Raspberry Pi, surveillance, Emergency.

I. INTRODUCTION

In these recent years IoT grasped the most of industrial area specially automation and control. Biomedical is one of recent trend to provide better health care. Not only in hospitals but also the personal health caring facilities are opened by the IoT technology. Occupational health surveillance is the systematic and continuous monitoring of worker's health in relation to workplace hazards. So having a smart system various parameters are observed that consumes power, cost and increase efficiency. In developing countries there is lack of resources and management to reach out the problems of individuals. A common man cannot afford the expensive and daily check-up for his health. For this purpose various systems which give easy and assured caring unit have been developed.

II. RASPBERRY PI

The Raspberry Pi is a minimal effort, Visa measured PC that attachments into a PC screen or television, and utilizations a standard console and mouse. It is a competent little gadget that empowers individuals of any age to investigate registering, and to figure out how to program in dialects like Scratch and Python. It can do all that you'd anticipate that a personal computer should do, from perusing the web and playing top quality video, to making spreadsheets, word-preparing, and messing around.

Likewise, the Raspberry Pi can communicate with the outside world, and has been utilized in a wide exhibit of computerized creator ventures, from music machines and parent finders to climate stations and tweeting perch rooms with infra-red cameras. We need to see the Raspberry Pi being utilized by children everywhere throughout the world to figure out how to program and see how PCs work.



Fig. 1. Raspberry Pi Outlook

III. GPS

The Worldwide Situating Framework (GPS), initially NAVSTAR GPS is a satellite-based radio navigation framework possessed by the US government and worked by the US Air Force. It is a worldwide route satellite framework (GNSS) that gives geolocation and time data to a GPS recipient anyplace on or close to the Earth where there is an unhindered viewable pathway to at least four GPS satellites. Snags, for example, mountains and structures hinder the generally feeble GPS signals.

The GPS doesn't require the client to transmit any information, and it works freely of any telephonic or web gathering, however these advances can improve the helpfulness of the GPS situating data. The GPS gives basic situating abilities to military, common, and business clients around the globe. The US government made the framework, looks after it, and makes it unreservedly open to anybody with a GPS collector.



Fig. 2. GPS Module Outlook

IV. GSM

GSM is a versatile correspondence modem; it represents worldwide framework for portable correspondence (GSM). The possibility of GSM was created at Chime Research centers in 1970. It is generally utilized versatile correspondence framework on the planet. GSM is an open and advanced cell innovation utilized for transmitting portable voice and information administrations works at the 850MHz, 900MHz, 1800MHz and 1900MHz recurrence groups.

GSM framework was created as a computerized framework utilizing time division various access (TDMA) strategy for correspondence reason. A GSM digitizes and decreases the information, at that point sends it down through a channel with two unique surges of customer information, each in its own specific schedule opening. The computerized framework has a capacity to convey 64 kbps to 120 Mbps of information rates.



Fig. 3. GSM Module Outlook

GSM modem appropriately interfaced to the MC through the level shifter IC Max232. The SIM card mounted GSM modem after getting digit direction by SMS from any mobile phone send that information to the MC through sequential correspondence. While the program is executed, the GSM modem gets order 'STOP' to build up a yield at the MC, the contact purpose of which

are utilized to cripple the start switch. The direction so sent by the client depends on an insinuation gotten by him through the GSM modem 'ALERT' a modified message in particular if the info is driven low. The total activity is shown over 16×2 LCD display.

V. GLUCOMETER SENSOR

A little glucose-detecting gadget called a "sensor" is embedded simply under the skin (subcutaneous tissue). It's fundamentally the same as inclusion of an insulin siphon catheter. Sensors are ordinarily embedded in the stomach or upper butt cheek territory, and tape is utilized to hold them set up.

The sensor estimates the degree of glucose in the interstitial (liquid encompassing the phone) at regular intervals and changes it into an electrical sign. The sign speaks to the measure of sugar in the blood. A little transmitter joins to the sensor. It sends a sign to an insulin siphon or a pager-sized gadget called a "screen" that you connect to a belt or the waistline of your jeans.

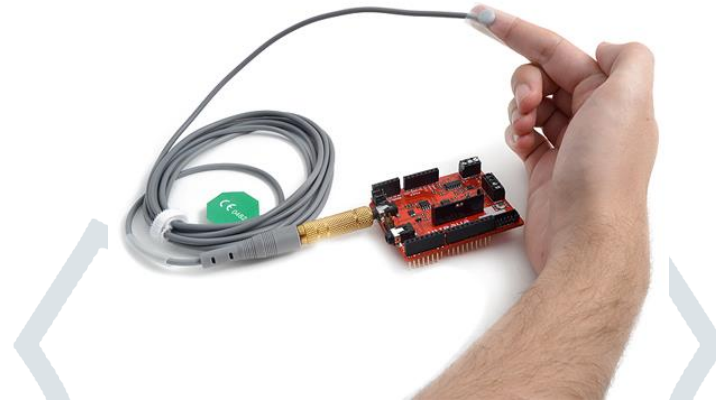


Fig. 4. Glucometer Sensor

The framework consequently records a normal glucose esteem at regular intervals for as long as 72 hours. Consequences of a few finger stick blood glucose readings taken with your glucose meter at various occasions every day are gone into the screen for adjustment. Following 3 days, the sensor is evacuated and the data put away in the CGM is downloaded into a PC. You and your diabetes teacher would then be able to audit your glucose levels in connection to different information gathered and make any fundamental changes in your diabetes the executives plan. The data will be exhibited as diagrams or outlines that can help uncover examples of glucose vacillations.

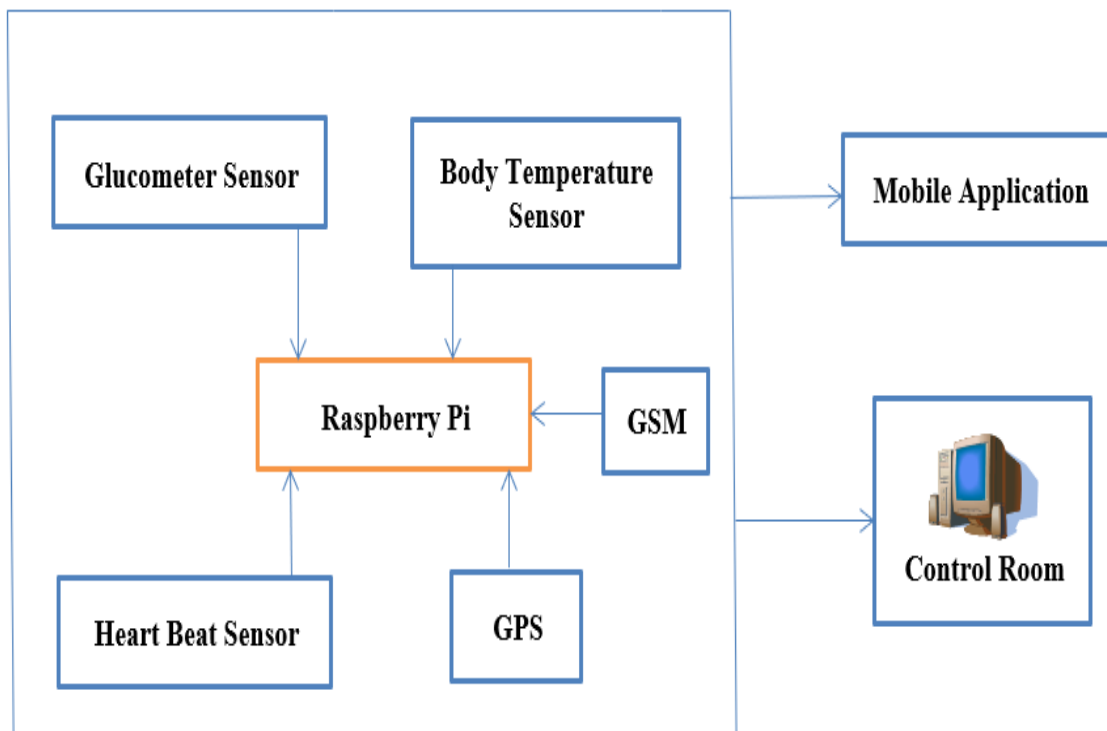
VI. EXISTING SYSTEM

As a platform of a watch, aiming at monitoring bionomic parameters, several functions were required. This watch will monitor Time, Steps and Heart rate and to meet daily needs. After successful pairing of the devices by means of Bluetooth to the mobile application, bracelet immediately starts to calculate and analyses our movements, sleep, etc. By clicking on to the bracelet, the number of steps passed and heart beat rate can be indicated. It has the following disadvantages such as Sudden Malfunction, Problems with display and Synchronization error. These disadvantages could be overcome by the proposed system.



Fig. 5. Existing System Diagram

VII. METHODOLOGY



This health monitoring system can predict malfunction in the vital signs. It involves continuous collection and evaluation of several vital signs and smart medical emergency detection which is connected to a medical centre where it notifies nearest hospitals in case of emergencies. If notification not responded, the system will send exact GPS co-ordinates of the victim to the hospital, so that the employee can be provided with the ambulance services. During normal days, the health parameters will be monitored at the control room or by the manager through a mobile application which had been developed in order to note the parameters and also can help have a documentation of those health records. Eventually this results in organization growth.

VIII. CONCLUSION

As a foundation of a watch, targeting checking bionomic parameters, a few capacities were required. This watch will screen Time, Steps and Heart rate and to address day by day issues. After effective matching of the gadgets by methods for Bluetooth to the portable application, wristband promptly begins to ascertain and investigations our developments, rest, and so forth. By tapping on to the arm ornament, the quantity of steps passed and heart beat rate can be shown. It has the accompanying weaknesses, for example, Sudden Malfunction, Problems with presentation and Synchronization blunder. These burdens could be overwhelmed by the proposed framework.

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