



DESIGN & MONITOR HEALTH PARAMETER FOR REMOTELY LOCATED PATIENT

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Abstract: As we know in this pandemic situation social distancing is key to be safe. So, we have to keep safe distance in every situation whether it's working site or in providing service to people. For this situation most important service required by the people is medical. So, we have to make a module which help hospitals to provide implementation to this problem. By keeping this situation in mind project for hospital is going to design.

Basically, in this project we are going to measure and monitor the health parameter of patient like temperature, heartbeat, blood pressure, blood sugar level etc. Those sensed value will be either send directly to controller (Arduino) or will be added to GUI and then send to controller. Then this value will be sent over WIFI network and store in database so that those value can be access whenever patient has appointment by doctor's side system. By implementing this project no Doctor or patient will have direct interaction, to avoid spreading of dangerous virus. Advantage of this system is that Dr. can access patient health parameter at any time and can medicate his patient.

Index Terms – WIFI, Database, LM-35, Xbee, Bluetooth.

I. INTRODUCTION

In this paper most preferred method for monitoring the health parameter of remotely located patient in hospital is illustrated. Where in designing such system firstly sensing value from medical sensors is needed. The parameter like temperature, heartbeat, blood pressure etc. have to sensed. These values, we have to send to doctors' system.

These health parameters will be display on webpage according to patient id specified by doctor. For giving this project real time use database has to include so that health parameter can be accessed by doctor to do proper medication to patient depending on his health observed by its parameter.

II. REVIEW OF LITERATURE

These literature reviews are experimental work carried out by researcher on how to sense value by different biomedical sensor, how to connect those sensors to controlling unit and ho to display data which is sensed.

Shubha Majumder, Muhammad Asa, Rahman, Md. Sajedul Islam and Diponkar Ghosh: (2018) In this project temperature, heartbeat, blood pressure parameter are sensed where for temperature LM-35 is used, and to send data ethernet cable with GSM, Bluetooth is use to send data and Zigbee is use and heart of project. (1)

Binu P. K., Karun Thomas, Nithin P. Varghese (2017) In this project implementation values will be sensed by wearable biomedical sensor and alarming message is sent when abnormal values are sensed. Main focus is on providing security on transferred data. For providing security modified HIP-DEX protocol and a new key exchange scheme based on LEACH protocol is used. Sensed data is sent through gateway and cloud. (2)

Changzhan Gu, Jennifer A. Rice and Changzhi Li (2012) Wireless Smart Sensor Network for Structural Health monitoring is developed in this paper. Here dynamic monitoring of sensor is implemented using 2.4Ghz miniature interferometric radars which require low power and can powered by single battery. Also for monitoring micro-processor and ZigBee is used. (3)

Nitha V Panicker, Sukesh Kumar A (2015) In this project system is created for measuring Blood Pressure of elderly patient is developed by cuff based oscillometric wrist sensor after analyzing the reading appropriate message of elderly condition is send to personal computer with the help of Bluetooth. (4)

H. Mansor, M. H. A. Shukor, S. S. Meskam, N. Q. A. M. Rusli, and N. S. Zamery Here in this module Wireless Sensor Network is implemented. Various parameter are measured with help of Xbee 50mW wire antenna which has six input and can monitor at time they are body temperature saline level, drug serving, nurse check-in, food serving & patient motion. These data is sent to computer with the help of router. (5)

Abdul Saboor, Adeel Mustafa, Rizwan Ahmad, Ahmed Khan, Muhammad Haris, Rashid Hameed (2019) These paper give the analysis of different standard used in monitoring health parameter which include IEEE 802.15.6 Wireless Body Area Network

(WBAN), IEEE 802.15.4 Low-Rate Wireless Personal Area Network (LR-WPAN) and ETSI smartBAN. For the same standard comparison is mentioned based on some parameter like functionality, density, network type, energy efficiency and size. (6)

Awad Al-Zaben, and Ismail Arafat (2016) Writer in the study explain how packaging to sensor can affect the delay in response of any biomedical sensor he also gave the procedure to reduce that delay time with the result by using using extended Kalman filter (7)

R. A. Ramlee, M. A. Bin Othman, M. I. B. A. Aziz, and H. Asyrani bin Sulaiman (2014) In this paper heart rate is monitored with help of IR LED/sensor these sensed data is transmitted over network using Bluetooth and displayed on Graphical User Interface. As heart of module PIC 16F877A microcontroller is used. (8)

Rafiq Ahmad and Khaled N. Salama (2018) In this paper author gave various physical biomedical sensor in specific category they are radiant sensor, mechanical sensor, thermal sensor and mechanical sensor. Here in explaining each sensor they mentioned how sensor work and which parameter sensor work. (9)

Puvaneshwari S, & Vijayashaarathi S. (2016) The proposed method in this paper achieves the monitoring of oxygen saturation rate, pulse rate, temperature, blood pressure and heart rate, of the insensible heart patients by using SPO2 sensor, heart rate sensor, temperature sensor, pressure and pulse sensor and result are shown in nam window simulation (10)

Mrityunjaya D Hatagundi, Dr. G. Sadashivappa (2018). The main goal of this paper is to give information about research carried out in wireless biosensor and its application. This paper also show how research is going to integrate many sensor and electronic component as single unit and that to with low cost. This paper also gave future scope for devices which might be design with wireless medical devices which make use of GSM/CDMA. (11)

Kalyani V (2018) This paper discussed the problem while localization of any sensor node with respect to the anchor node. Localization is depend upon the length, distance between the node and angle between them to enhance the accuracy in wireless sensor network they use Range free Method and RSS measurement. (12)

III. CONCLUSION

The following conclusions were carried out by researchers

- 1) Using wireless sensor network or wireless sensor node for the application of medical application like health monitoring of patient can improve monitoring from remote location.
- 2) Using the technologies like Bluetooth, Zigbee the data can be sent over network within specific range so that data can accessed in that range in wireless network.
- 3) As we are sending readings over network that data has to be safe means we have to implement security so for that we can use EACH protocol while sensing data through gateway.
- 4) Instead of using traditional Structural Health Monitoring like accelerometer and linear variable differential transformer use of radar sensor can make the product small and with low cost.
- 5) Sensed data after sending over wireless network that data can be displayed on android app or website which can be accessed at any time i.e. real-time by making use of database.
- 6) We can use various wireless standard like IEEE 802.xx.x range can be increase to receive data in the module.
- 7) For the bio medical sensor casing to the sensor affect the performance so to reduce that delay time in response of filter Kalman Filter can be beneficial.
- 8) With implementing such health monitoring device in the hospitals, wearable sensor for sports person or elder person we can avoid the critical situation to occur and in time medical help can be provided.

IV. REFERENCES

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