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Novel Internet based Patient Monitoring and Diagnosis System using IoT and Sensors

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***Abstract:** In today's medical system, IoT uses different types of sensors that help elderly people to make use of modern medical healthcare services anywhere, any time. In today's health care management system, the IoT technology brings together many medical facilities for both doctors and patients. All patient vital data's can be monitored and tracked by the physicians. IoT helps to create a smart transfer method between physician and patient. This project aims to design and demonstrate an innovative web based remote healthcare diagnostic system that provides vital medical data and live video images of a patient situated in rural area accessible to a health professional available elsewhere in urban centres resulting in better diagnosis and treatment of that patient.*

***Keywords:** Temperature Sensors, Medical service, Temperature measurement, Biomedical monitoring, Sensor systems*

I. INTRODUCTION

The Internet of Things (IoT) is a system consisting of computers, machines, objects or even human that has a unique identication number and can also transfer information over the network without man-machine interaction or even man-man interaction. [1] The thing in IOT can be anything like a bio chip, a sensor on an animal, etc. provided with an IP address which has the capability to transfer data over the network. Typically, IoT offers high connectivity of devices, systems, and services that goes beyond machine-to-machine (M2M) communications and covers a variety of protocols, domains, and applications.Health monitoring system is an ongoing research topic among both psychologists and engineers.

Different platform like Microcontrollers are used to design the system based on this performance. Different biomedical sensors like temperature sensor, heart rate sensor, blood pressure sensor are used for monitoring the health condition which is integrated on single system on chip.

If any varied change takes place it is notified. This notification would help to take an appropriate action at an instance of a time. This would save patients from the future health problem which would arise. This would also help patient's concern doctor to take an appropriate action at proper time.

II. LITERATURE SURVEY:[1-45]

Sl No.	Title of the Paper	Authors	Month & Year	Observations
1	IOT based patient health monitoring system	Rakshith Bahu H V Prof Latha S	June 2017	WBAN tod &Sensors
2	Patient health monitoring system using IOT and Adriano	Sudha V Shaziya Bhanu A Poojitha M Nilofer Taj	2018	IOT,Arduino board, Android, Sensors, He
3	IOT based patient monitoring system using ESP8266 and arduino	Rishab jain	September 2018	Arduino Uno, ESP8266 Wi-Fi module, LM 35 temperature sensor, push button, 10k resistor, Male-Female wires, bread board
4	IOT patient Health Monitoring system	ahmed Abdulkadir Ibrahim Wang Zhuopeng	January 2018	LM 35,AVR at mega328 Micro Controller, Heart beat Sensor, Temperature sensor, blood pressure, ESP8266 Wi-Fi module, IOT cloud

5	IOT based health monitoring systems	Naina Gupta, Hera Saeed, Sanjana Jha, Manisha Chahande and Sujata Pandey	2017	Health monitoring system, GSM,smartphones,Bluetooth,sweat sensor
6	IOT based E-health Monitoring System Using ECG signal	Maryem Neyja Shahid Mumtaz kazi Mohammed Saidul Huq Sherif Adeshina Busari Jonathan Rodriguez Zhenyu Zhou	2017	ElectroCardioGram, Cardio Vascular Disease, Hidden Markov Model
7	Building an IOT aware Healthcare Monitoring System	Freddy Jimenez and Romina Torres	2015	IOT, wireless sensor network, health care
8	Smart health care monitoring system with IOT	Siriwan Kajornkasirat Napat chanapai Benjawan Hnusuwan	2018	Recommender system, Health record, Data mining, Applications, web Applications,Health monitoring
9	Health monitoring system based on IOT	Krishna CS Nalini sampath	2017	Raspberry pi board, Arduino Uno board, Temperature Sensor, Pulse oximeter, IOT, cloud computing
10	IOT based Health monitoring System Using Android App	Ranjeeth Kumar Rajath Maheshwari Amit Aggarwal M. Shanmugasundaram Sundar S	October 2017	Body sensor network, IOT, health care, andriod application
11	Health monitoring and Management Using IOT sensing with cloud based processing	Moeen Hassanalieragh Alex page Tolga Soyata Gaurav sharma Mehmet Aktas Gonzalo Mateos Burak kantarel Silvana Andreescu	2015	Remote health monitoring, IOT, visualization, analytics
12	Healthcare monitoring System using IOT	Swaleha Shaikh Vidya Chitre	2017	raspeberry pi, monitoring system, sensor, IOT, cloud
13	Chronic Health patient Monitoring System Using IOT	Senthil Kumar T Soundarya Rai B Ms Zumyla shanaz S Raja	March 2018	ADC converter, Raspberry pi, Wi-fi, IOT, health monitoring process
14	Health monitoring system by using IOT	M Saranya R preethi M Rupasri Dr S Veena	March 2018	IOT,security,tools
15	Health monitoring system using internet of things	Himadri Nath Saha Supratim Auddy Subrata pal Shubbam kumar Shivesh Pandey Rocky Singh Amrendra kumar singh Priyanshu sharan Debmalya Gosh Sanhitha Saha	2017	Health monitoring, Heart beat, blood pressure, Pulse rate, doctor

16	Health care monitoring sytem in IOT by using RFID	Sarfraz Fayaz Khan	2017	RFID, body sensor, remote monitoring,mobile agent,smart health care, IOT
17	Smart health monitoring System using Sensors	Mr Suhas Pindiproli Mr Harshal Marathe Ms Shubhada palase Prof Pavan kulkarni	December 2017	ElectroCardio gram, Soc, rpi, firebase, IOT, android
18	IOT based system for remote patient Monitoring	Alexandra Archip Nicolae Botezatu Elena Serban Paul Corneliu Herghegiu Andrei Zala	2016	Embeddes systems, IOT, E-health, Restful web services, remote patient monitoring
19	Patient Health Monitoring System using IOT	Rohith kumar dubey Sakshi mishra Shreya agarwal Ravi Sharma Nandita pradhan Vineeth Saran	May 2018	Raspberry pi board, health monitoring, ElectroCardio gram sensor, Blood pressure sensor, temperature sensor, mobile monitoring, putty, Import, IOT
20	IOT based patient health monitoring system	Dr Shiva Rama Krishnan Subhash Chand Gupta Tanupriya choudhury	June 2018	IOT,services,Applications,Technologies,Architectures,Atmega
21	IOT based based smart healthcare monitoring system for Rural/Isolated areas	A Yogaraj Mr Ezilarasan Dr. Anuoop R V CS Sivanthiram Sunil kumar Thakur	2017	Internet of things, Temperature sensor, Heartbeat sensor ECG sensor module, Wi-fi module
22	IOT based health monitoring system & challenges	M. Sathya S. Madhan K. Jayanthi	2018	Internt of things, health monitoring, medical devices, sensors
23	ECG based health care monotoring system using IOT	Shakthi Kaushal Riyaj kazi	March 2018	ElectroCardio Gram, healthcare system, Raspberry pi, IOT, blood pressure sensor
24	IOT based patient monitoring system	Prof vishal jagtap Priyanka Sarode Tejashri Sonawane Mayuri Toke	Jan-Feb 2018	Internet of things, Health care, patient monitoring
25	IOT based Healthcare system	Ms Shinde Sayali P Ms phalle vaibhavi N	Jan 2017	Internet of things, Surveillance, smart devices, smart healthcare

III. PROBLEM STATEMENT

The project Internet Based Patient Monitoring and Diagnosis System" is aiming to monitor the patients' health under various conditions such as people who are in rural areas and patients who are not in critical condition but need to timely monitor by doctor or family.

This project aims to design and demonstrate an innovative web based remote health care diagnostic system that provides vital medical data and live video images of a patient situated in rural area accessible to a health professional available elsewhere in urban centers resulting in better diagnosis and treatment of that patient. Various medical sensors are used to collect patient medical data sent to the monitoring station for interpretation

IV. METHODOLOGY OF PROPOSED SYSTEM:

A. The project aims to design and demonstrate an innovative web based remote healthcare diagnostic system that provides vital medical data of patient situated in rural areas accessible to a health professional available elsewhere in Urban centers resulting in better diagnosis and treatment of that patient

B. Blood Pressure: A digital blood pressure sensor is used to measure patient blood pressure. It consists of an inflatable cuff and an analog pressure sensor circuitry.

C. Pulse rate: Pulse rate is measured from the ECG signal

D. Body Temperature: An analog temperature sensor measures the body temperature

E. Body Position: A3-axis MEMS accelerator sensor measures the body position

F. Health monitoring system use for chronicle diseases patients who have daily checkup.

V. CONCLUSION

This project helps us in detecting the health condition of a person who are in rural areas where they need daily check-up's and know the heart beat rate and blood pressure ,body temperature and body position condition of the person.

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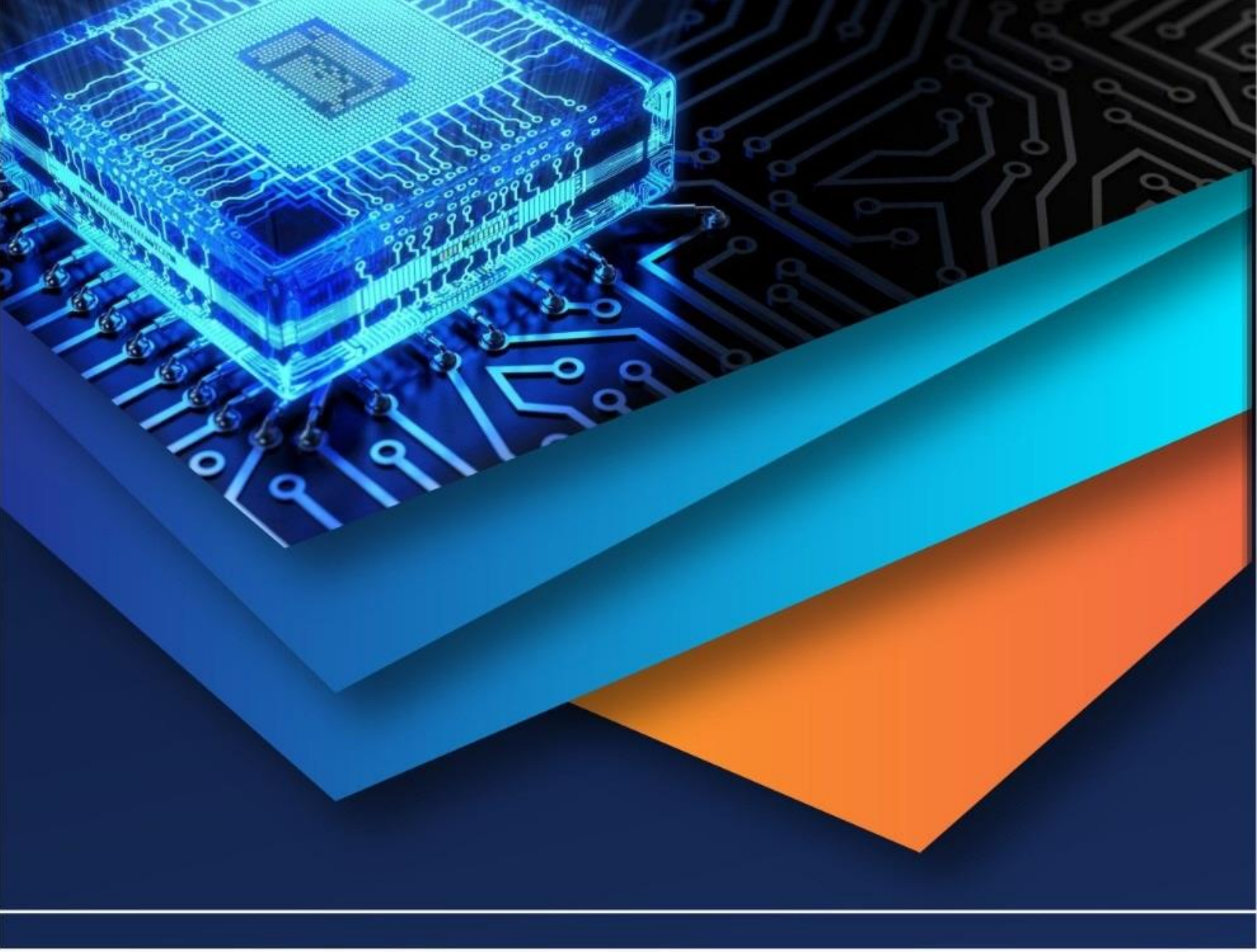

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