International Journal of Scientific Research in Science and Technology
Print ISSN: 2395-6011 | Online ISSN: 2395-602X (www.ijsrst.com)
doi : https://doi.org/10.32628/IJSRST

To Design Novel Approach for IoT Based Patient Health Monitoring System Using Wearable Sensors

Shital S. Sambre[1], Dr. A. N. Thakare[2], Prof. A. D. Gotmare[3]

[1]Department of Computer Science and Engineering, BDCE, Sevagram, Wardha, Maharashtra, India

[2]Professor & HOD, Department of Computer Science and Engineering, BDCE, Sevagram, Wardha, Maharashtra, India

[3]Assistant Professor, Department of Computer Science and Engineering, BDCE, Sevagram, Wardha, Maharashtra, India

Article Info
Volume 8, Issue 2
Page Number : 456-460

Publication Issue
March-April-2021

Article History
Accepted : 01 April 2021
Published : 03 April 2021

ABSTRACT

Internet of Things (IoT) and cloud computing yield great benefits by providing remote and efficient services. The aim of the project entitled as "Novel approach for IoT based Patient Health Monitoring System Using Wearable Sensors" is to computerize the management of the former Hospital office to make simple, fast and affordable software. Work of data collection patient access information etc. The main function of the program is to register and maintain patient information and physician information and to obtain such information as required and to use this information by installing patient information, diagnostics information, while the program goes out to receive this information on screen. This system is used to monitor the patient's condition by a specialist remotely. And this program is used to locate a Covid-19 patient with neurological assistance.

Keywords : IoT (Internet of Things), Diagnosis, computer use, enroll, collection, expert, wearable

I. INTRODUCTION

Today, the use of technology to improve the quality of life has become quite common in today's society. When the technology is aimed at improving the Quality of Life (QoL), it is directed to the Internet of Things (IoT) [1]. To create a management plan for health facilities, we take care of patient registration, drug details and concerns such as queries and complaints. The project Hospital Management system includes patient registration, record keeping, and electronic payments at pharmacies, and laboratories. The software has a facility to provide unique id for all patients and automatically stores the details of all patients and staff. The remote specialist can monitor the patient condition anytime and anywhere by using sensors attached to the patient body. And this program helps to find Covid-19 patient.

II. PROPOSED SYSTEM

The Hospital Management System is designed for any hospital to replace their existing manual paper-based system. The new system is to control the information of patients. Room availability, staff and operating room schedules and patient invoices. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks.

2.1 Implementation Plan:

The main plan for the system developed is to mimic the existing system as it is in the proposed system.

2.2 Study of the Existing System

The existing system is very complex as every work is done manually. By using the present system, work is done manually. So, each and every work takes much time to complete. Whenever the doctor needs the information it is very difficult for the employee to search for that particular opno details and the drug information to be ordered. Every time we should search the records at the shelves.

2.3 The Proposed system

The present system has obvious problems, inhibiting growth and more usage of man power. The present system which has been proposed is very easy to work. The computerization of every department in the health center will reduce the work that is done manually. The man power is reduced to the maximum extent. The patients at the registration office are registered within no time, because every time there is no need search for the particular opno in the shelf's. The drugs information are maintained without any complexity and all the calculations are made automatically by this system there is no need for the calculations.

Advantages

1. A fast and more efficient service to all patients. As there are thousands of patients records; Searching process is an easy task.
2. Saving in staff time in entering and manipulating data.
3. Easy input, deletion and manipulation of lot, patients' details.
4. Simple correction of input errors and we can assess the calculations accurately.

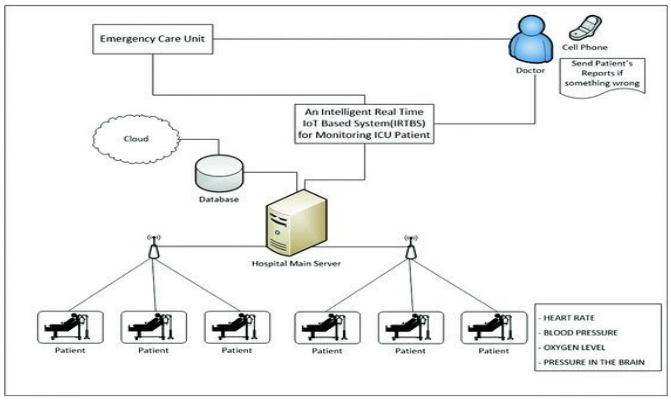

Fig.1 Block Diagram of Project

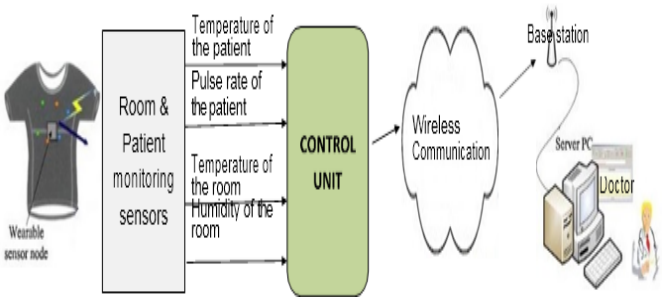

Fig.2 System Block Diagram (Journal of critical reviews 2020)

2.4 Objectives

1. To register patient, Nurse, Doctors and medicals in hospital system.
2. To monitor the patient condition Embedded technology will be use, and patients current condition monitor at doctor side.
3. To generate patient prescription and find the medicines for patient in medicals of that hospital premises the system will help for searching the medicine.

4. To detects the Covid-19 patient using temperature sensor and send their details to patient's relatives.

2.5 System Requirement:

- Software Requirement:

  Framework: Dot Net framework 4.5 Java Script Framework

  Technology: Dot Net (Desktop Technology) Android (Mobile Phone)

  Language : VB.Net, React Native (Java script)

  Database : MySQL 8.0

  Server : Apache Xampp Server

  IDE : Microsoft Visual Studio 2019

  Editor : Microsoft Visual Code

  OS : Windows 7, Windows 10

- Hardware Requirement:

  HDD : 160

  RAM : 2 GB

  Processor : Dual Core, Core 2 Due and higher version 2.20 ghz

- External Hardware:

Microcontroller: atmega328, Arduino Uno

Sensors : Pulse Rate Sensor, Temperature Sensor LM35, BP Sensor

Wires : Connectors, serial connector, adapter

III. FORMULATION

To design this system, I used the following materials:

- IoT (Internet of Things) : The Internet of Things (IoT) defines a network of materials – " embedded objects", software, and other technologies for the purpose of connecting and exchanging data with other devices & systems over the internet.
- WSN (Wireless Sensors Network) : Wireless sensors network (WSN) refers to a group of scattered and dedicated sensors for monitoring & recording the natural physical condition & organizing the data collected in a central location.
- Naive Bayes Algorithm: NB classifier are the collection of classification algorithm based on bayes theorem.

$$P(A|B) = P(B|A)\ P(A) / P(B)$$

- Pseudo Random Number Generator: Uses mathematical formulas to generate sequences of random numbers.

$$X_{n+1} = (aX_n + c) \bmod m$$

IV. RESULT

In a hospital health care monitoring system, it is necessary to constantly monitor the patient's physiological parameters. The project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. This system is also used to monitor the Covid-19 patient and inform the condition of Covid-19 patient to their relatives, an also it automatically recommend doctors list in the emergency condition.

4.1 Experimental Result

The following are the screenshots of the project, according to that the project flow:

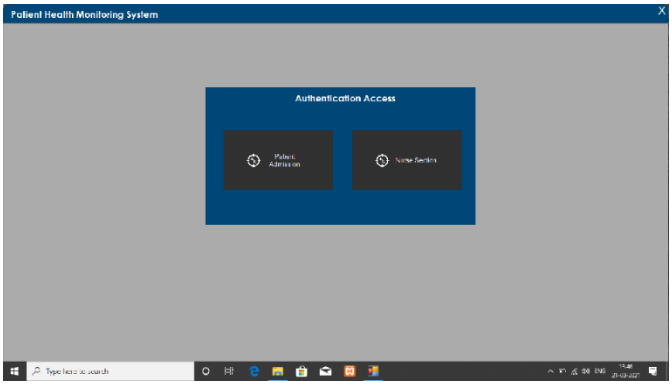

Fig 3. Main Page contain Admin section & Nurse section

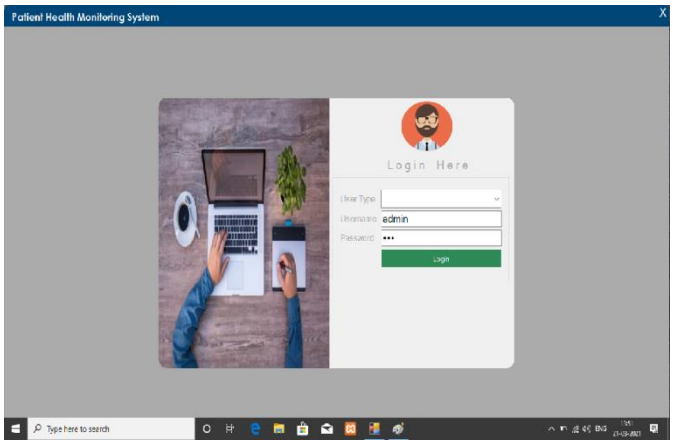

Fig 4. Login Page

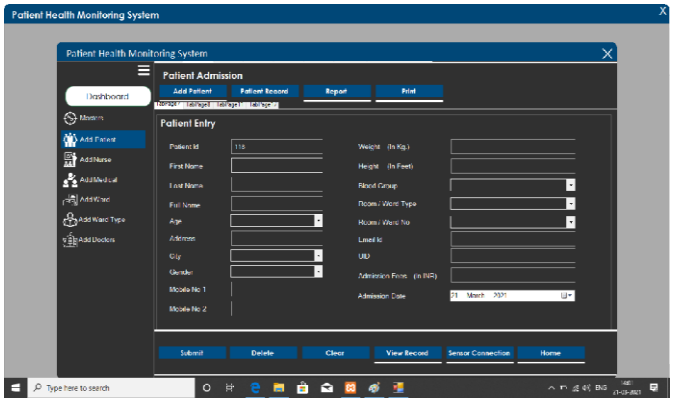

Fig 5. Patient Registration Page

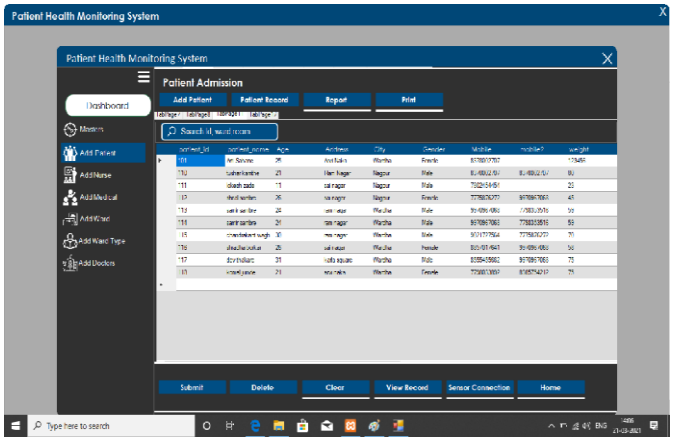

Fig 6. Patient Records

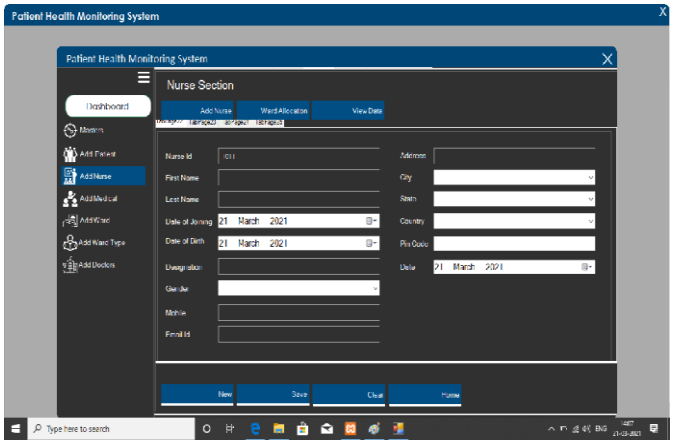

Fig 7. Nurse Registration

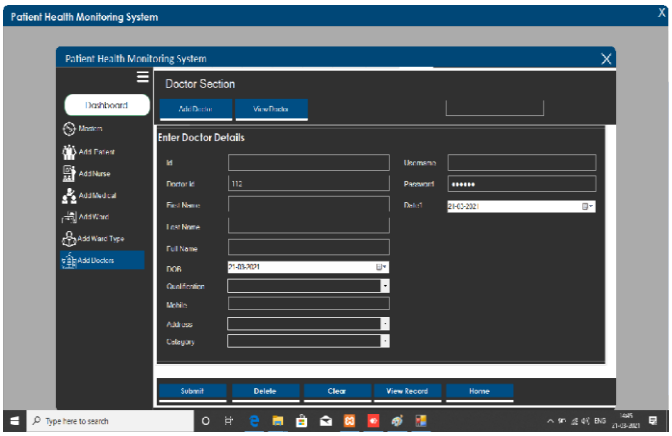

Fig 8. Doctor Registration

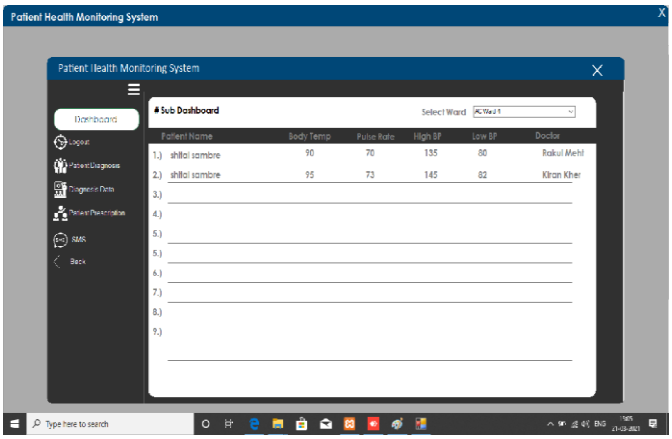

Fig 9. Patient Diagnosis Record

V. CONCLUSION

Since we are entering details of the patients electronically in the" Hospital Management System", data will be secured. Using this application, we can retrieve patient's history with a single click. Thus, processing information will be faster. It guarantees accurate maintenance of Patient details. It easily reduces the book keeping task and thus reduces the human effort and increases accuracy speed.

VI. REFERENCES

[1]. Noha MM. AbdElnapi, AbdeImageid a. Ali, Nahla F. Omran, Fatma A Omara, "A Survey of internet of Things Technologies and Projects for Healthcare services", International Conference on Innovative Trends in Computer Engineering 2018.

[2]. C. Premalatha, R. P. Keerthana, R. Abarna, "HUMAN HEALTH MONITORING SYSTEM " , International Journal of Engineering Research & Technology (IJERT) 2019.

[3]. Sanaz Kianoush, Stefano Savazzi, Federico Vicentini, Vittorio Rampa, and Matteo Giussani , "Device-Free RF Human Body Fall Detection and Localization in Industrial Workplaces " , IEEE INTERNET OF THINGS JOURNAL VOL. 4, NO. 2 ,2017.

[4]. RUAA SHALLAL ABBAS ANOOZ , "Remote Patients Monitoring System(Heartbeat and Temperature) using Arduino " , International Journal of Scientific & Engineering Research 2018.

[5]. Pine, C. John, "Technology and Emergency Management," John Wiley& Sons, book, 2017.

[6]. A. M. Uddin, Sh. Begum, and W. Raad, "Internet of Things Technologies for HealthCare," Springer, book, 2016.

[7]. H. Rahman, Sh. Iyer, C. Meusburger, K. Dobrovoljski, M. Stoycheva, V. Turkulov, Sh. Begum, and M. U. Ahmed , "SmartMirror: An Embedded Non-contact System for Health Monitoring at Home," International Conference on IoT Technologies for HealthCare. Springer, Cham, pp. 133-137, 2016.

[8]. E. Granulo, L. Bećar, L. Gurbeta, and A. Badnjević , "Telemetry System for Diagnosis of Asthma and Chronical Obstructive Pulmonary Disease (COPD)," International Conference on IoT Technologies for HealthCare, pp. 113-118, Springer, Cham, 2016.

Cite this article as :

Shital S. Sambre, Dr. A. N. Thakare, Prof. A. D. Gotmare, "To Design Novel Approach for IoT Based Patient Health Monitoring System Using Wearable Sensors", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 8 Issue 2, pp. 456-460, March-April 2021.

Journal URL : https://ijsrst.com/IJSRST218290