

Digital Helthcare System Using iBox

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Abstract— This paper is developed to help patient as well as doctors. This system required Special Hardware circuit called as “iBox” to monitor the patient various parameters such as heart rate, Temp, movement. Futher this information will send to server-side PC. Pc will store information in excel and if some abnormal codition or variation happens than information will send to doctor on his mobile through IoT. Then doctor will send prscription to server-side Pc through his application. This is very helpful in hospital beause It is difficult for doctor to monitor paitent continuously. With the help of this system doctor can not only keep the record of patient but also get updates various parameter. This will also helpful in rural area where doctor can not reach easily.

Index Terms— iBox (Integrated Box), IoT (Internet of things), Application on doctor’s mobile. PC for storing data and act as server.

1 INTRODUCTION

According to recent survey 27% deaths India happens because of no medication at the time of emergency. Day by day, world is becoming digitalise everywhere and Health care is a important part of our life.

So it is important to digitalise Health care system in order to make the system more feasible for people and making the health care system more efficient.

Day by day, the ratio of patient-to-doctor is drastically decreasing.

In our project, we propose to build a system that will help us to overcome these difficulties or complexities.

In the system, we will be having a hardware device that will detect various conditions of the patient including the blood pressure, body temperature, etc.

The report will be sent to the doctor on his application, later, the doctor will prescribe the suitable medication to the nurse who in turn will provide the same to the patient.

1.1 Objective

Objective tells us “Why this project needs?” According to a recent survey 27% death happens in India because of no medication at the time of emergency. In case of emergency, a patient can be treated with help of expertise using a App which is provided to the doctor

1.2 Problem Defination

In previous systems, the patient details just used to be get stored in the database. We will be overcoming this drawback with adding the feature of notification module which will no-

tify the current condition to the doctor in real time.

The doctor will be able to retrieve the patient information with the help of notification and acknowledge the patient with proper prescription on the spot.

1.3 Scope

We can handle the patients without visiting the doctor by using this architecture or system and the next is that the financial load can be greatly redused by using this system. This Appli-cation is only applicable within the medical industry. The doctor is notified using a notification module of the application in which Internet is must.

2 LITERATURE SURVEY

In literature survey we studied three papers. Name and technology used in that system is as follows.

1. “Android smartphone based body area network for the evaluation of medical parameters in real time” :-
In this System Patient’s physiological activity is continuously monitored by the system and if any variation found in the physiological activity of patient, it informs to the medical professional through Bluetooth.
The main advantage of this System is it does not require internet for communication. But this is also causes to disadvantage of this system because of it using Bluetooth for communication area for communication is limited.
2. “PC Based Electrocardiography & Data Acquisition.”:- In this system Patient android phone will be containing an application which will detect the heart attack according to the received data respectively and if any abnormalities are found regarding heart attack message will be send to patient’s doctor, relatives and hospitals.
Advantage of this system is Patient can move freely and

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can be monitored continuously. Data is store in cloud. Dis-advantage for this system is only Heart Beat is monitored.

3. "Mobile Telemedicine System for Home Care and Patient Monitoring" :-

This System Is Based On Client Server Application In Which Server Stores Data Collected From Client, Role Of Client Is To Collect Proper Data From Patient.

Advantage of this system is This System Will Be Useful for Patients At Home As well As Patients from Hospitals. But disadvantage of this system is security in major issue while storing data in to the cloud.

3 SOFTWARE AND HARDWARE REQUIREMENTS

3.1 Hardware Requirements:

- 8051 controller (AT89s52)
- Heartbeat Sensor
- Temp sensor -LM 35
- Accelerometer Sensor - ADXL335
- PC
- LCD - 16 x 2
- Android Phone
- Wi-Fi - ESP8266

3.2 Software Requirements:

- Keil - Microcontroller programming
- UC Flash - Microcontroller code burning software
- B4A - Android App
- VB 6.0 - PC side coding
- Excel - Database

4 SYSTEM DESIGN:

Overall Design

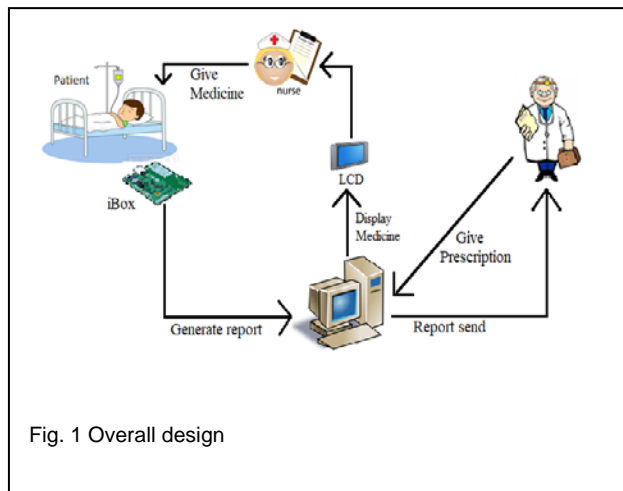


Fig. 1 Overall design

Block Diagram:

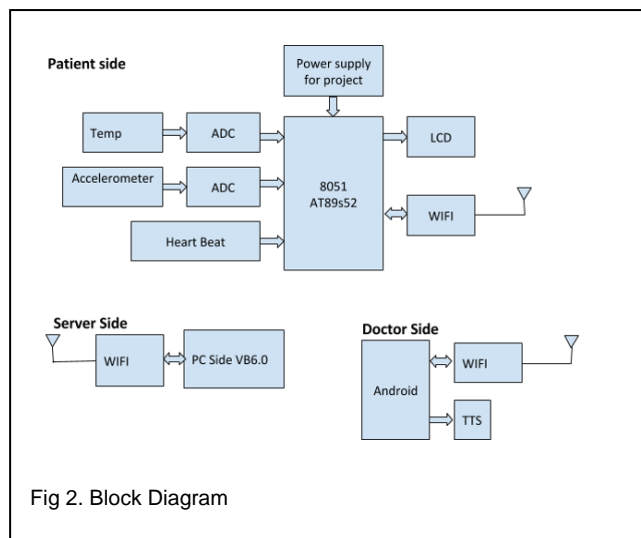


Fig 2. Block Diagram

5 WORKING

- Establish the connection between patient side WiFi system with server-side PC and Android phone.
- The sensors will sense the status of the patient and give information to microcontroller. Here Temperature sensor and Accelerometer is interfaced via ADC to microcontroller. While Heart beat sensor is directly connected to the microcontroller.
- Microcontroller will fetch the data from sensors, process it and convert in the suitable form for further process.
- Microcontroller will display data on LCD and continuously feed through Wi-Fi into server-side PC.
- PC will further send data to Android phone handled by doctor. If the values are abrupt or If there is an emergency than doctor will handle situation.
- If any medicine has to be provided doctor will be prescribe using android phone and will be received at the patient end via PC and display on LCD.
- If there is an emergency doctor will inform to an ambulance or nurse through android app. The number has to be pre-fedded in android app.
- Whenever Doctor receives message it given out as TTS output. Database of patient log is stored in excel format.

6.1 User Interface of Server side PC

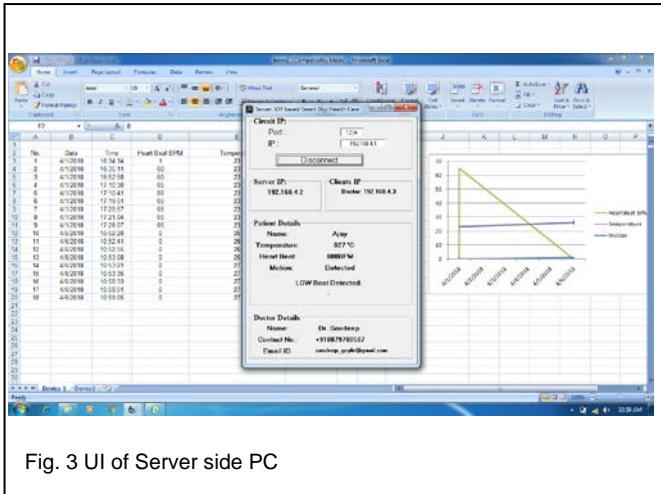


Fig. 3 UI of Server side PC



Fig. 5 User Interface of on Doctor's App

6.2 User Interface of App



Fig. 4 User Interface of on Doctor's App

4 CONCLUSION

This project shows the patient's various parameters such as heart rate, Temp, movement are measured using a iBox. These values are entered into a database and are uploaded into a web-based server manually; there is scope of measuring Blood pressure and other parameters in the future. Also, the details of the patient suffering from various diseases like cancer, Alzheimer's etc can be sent to a doctor sitting abroad by using internet in order to analyze and recommend the type of treatment and medicines for the diagnosis of the disease.

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