

Health care monitoring system

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Abstract — The modern medicine can prevent incurable diseases. If doctors find a sickness very early, they can suspend a spread of illness. Then doctors give suitable medicines to patients which help to recover from a disease. Computers can record data from an ultrasound, help monitor blood pressure, heart rates, and more, without having to move a patient. When combined with a medical computer cart, healthcare staff has everything they need in one place to diagnose, and more importantly, engage with the patient to better treat them.

This paper presents a wireless system which enables real-time health monitoring of multiple patient(s). In health care centres patient's data such as heart rate needs to be constantly monitored. The proposed system monitors the heart rate and other such data of patient's body. For example heart rate is measured through a Photo plethysmograph.

A transmitting module is attached which continuously transmits the encoded serial data using Bluetooth module. A receiver unit is placed in doctor's cabin, which receives and decodes the data and continuously displays it on a User interface visible on an Android application. Thus doctor can observe and monitor many patients at the same time.

System also continuously monitors the patient(s) data and in case of any potential irregularities, in the condition of a patient, the alarm system connected to the system gives an audio-visual warning signal that the patient of a particular room needs immediate attention. In case, the doctor is not in his chamber, the GSM modem connected to the system also sends a message to all the doctors of that unit giving the room number of the patient who needs immediate care.

I. INTRODUCTION

Population aging is inevitable, and with the progress of civilization and medicine, the primary cause of death has changed from infectious to incommunicable diseases. Thus, rescuing elderly patients in the event of accidents and illness are of

primary importance. Improvement of healthcare, both at home and in hospital, have become more important for patients. Telemedicine information systems have become increasingly essential, particularly intelligent systems used to provide high quality healthcare monitoring, which save on medical and manpower costs. With newer technologies, the computer based portable embedded devices have taken our healthcare to another level, So that people may manage their daily routine check-up at home. In addition, this is important to provide people continuous monitoring in non-clinical environments. However, such health management only can be achieved if the computer based portable monitoring devices with smart sensor technologies are available.

The modern healthcare system enables medical professionals to remotely perform real-time monitoring, early diagnosis and treatment for potential health hazards. Medical telemetry systems, also known as telemedicine, are evolving rapidly as wireless communication technology advances. Much advancement has been done recently in commercial products and research prototypes for remote health monitoring. These advancements rely on wired/wireless communication networks to deliver patient consultations and medical diagnosis. The modern healthcare is applied for providing more efficient utilization of physicians, reducing the cost for hospital stays, reducing the skill level and minimizing the frequency of visits of home-care professionals, reducing hospital readmission rates and promoting health education at various levels.

II. PROBLEM STATEMENT

During recent years, due to technological advancements many sophisticated techniques have been evolved for ensuring fast recovery of the patients in hospitals.

Need for good patient care in hospitals, assessment and management of fluid and electrolyte is the most fundamental thing required so we design that system E-Health monitoring system.

III. LITREATURE SURVEY

Ananda Mohan Ghosh et al. [1] has demonstrated a health care system for hospital management to allow relatives and doctors to remotely monitor the health condition of a patient via the internet using Arduino Uno connected with E-health sensor shield kit and Phidgets interface kit. But unlike our solution, it does not provide SMS alert to an emergency contact list.

P Kumar et al. [2] has proposed a raspberry pi controlled patient monitoring system where heartbeat, respiration, temperature and body movement of the patient is being measured using sensors and displayed on the screen using the putty software. However, it does not contain the alarm notification for providing prescribed monitoring to the patient which has been added in our proposed solution.

SarfrazFayaz Khan [3] has proposed a complete and effective healthcare monitoring system using IoT and RFID tags. In this system, for supervising and weighing the health condition of the patient and for increasing the power of IoT, a combination of microcontroller and sensors have been used. But, it does not include medication and precaution according to the patient's health condition by controlling the appliances and providing the prescribed medicine which is present in our paper.

IV. METHODOLOGY

Body vitals (Pulse\Temperature\Humidity) are crucial factors in determining wellbeing of patient and help monitoring the strategy of treatment as well as record the response of treatment being conducted.

While it can be hectic and tedious to go for larger population of patients to collect the vital information on a strict routine, the accuracy and the time lag as well as the calibration of instrumentation increases the risk of false positives. To solve this problem, we present a digitally calibrated and real time

vital measurement device that can operate in real time, record the data and send it for further consultancy of experts. It also notifies with an alarm when vitals need significant attention.

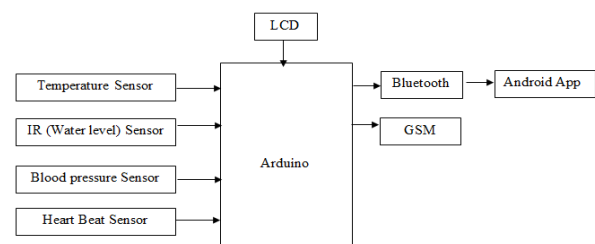
While it can improve the efficiency of health tracking records the data generated by measurement can also be used for statistical purpose. Objective of this device is to improve the quality and efficiency of health care.

V. PROPOSED SYSTEM

In this project we are going to monitor health of patient using various sensors like temperature, sensor, heart beat sensor, blood pressure sensor, IR sensors.

Those continuous reading of these sensor we are going to display on LCD display and get this readings on Android application. So that doctor can monitor patient can monitor patient remotely at some distance. Here the temperature sensor can detect accurate temperature of human body. Blood pressure sensor can detect correct blood pressure of human body. IR sensors can detect Levels of saline water of patient

VI. SYSTEM DIAGRAM



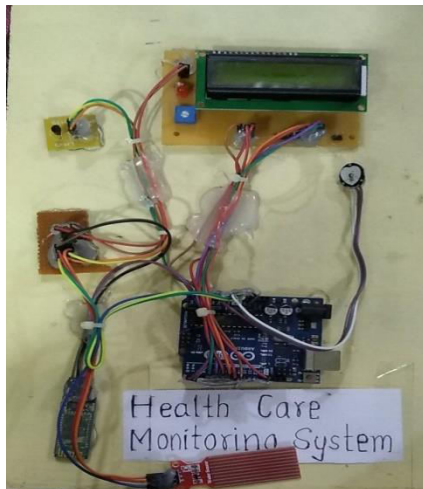


Fig 1: Hardware picture 1 (output when board off)



Fig 2: Hardware picture 2 (output when board on)

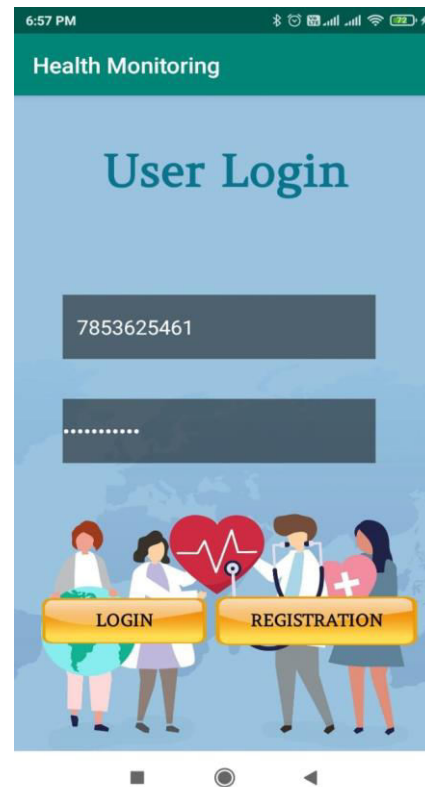


Fig 3: Android output (login page)



Fig 4: Android output (registration page)

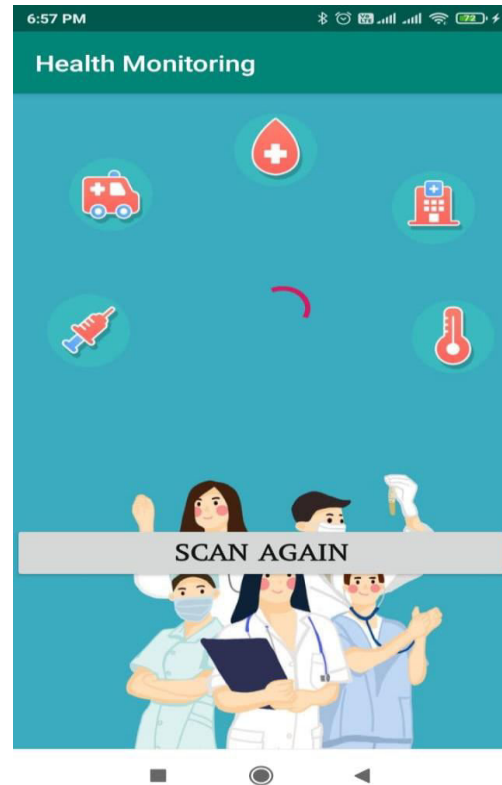


Fig 5: Android output (scan activity page)

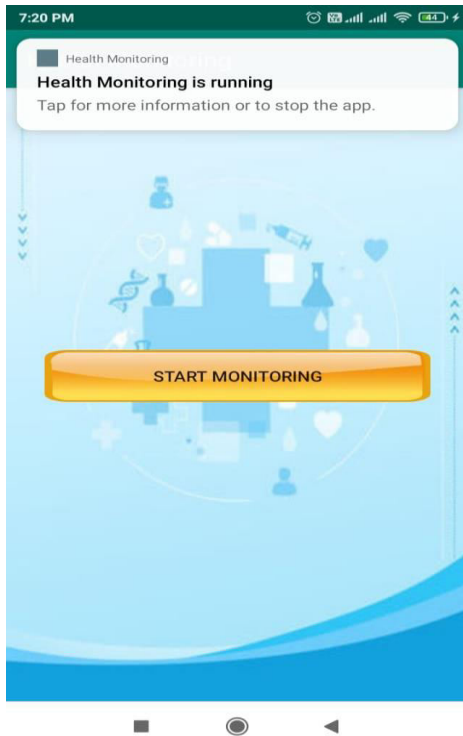


Fig 5: Android output (connection page 1)

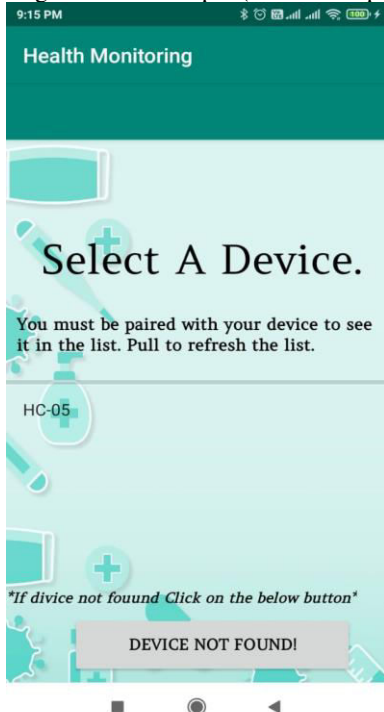


Fig 7: Android output (connection page 2)

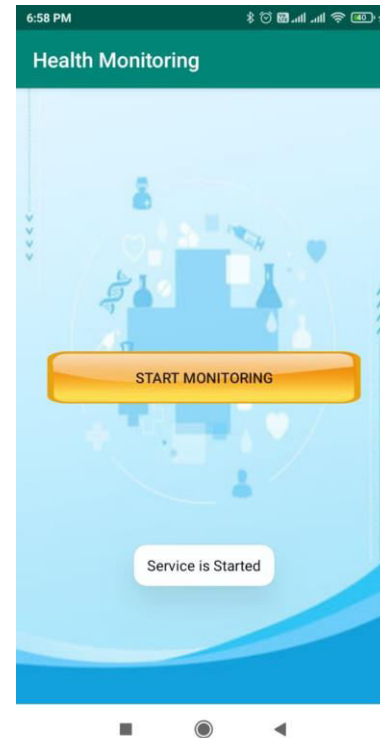


Fig 8: Android output (pop up message after finding the device)

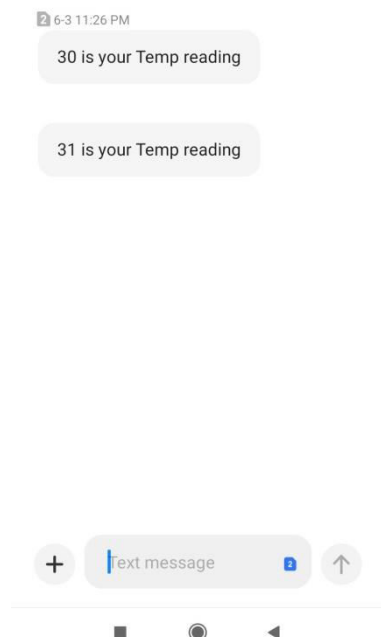


Fig 9: Android output (GSM message)

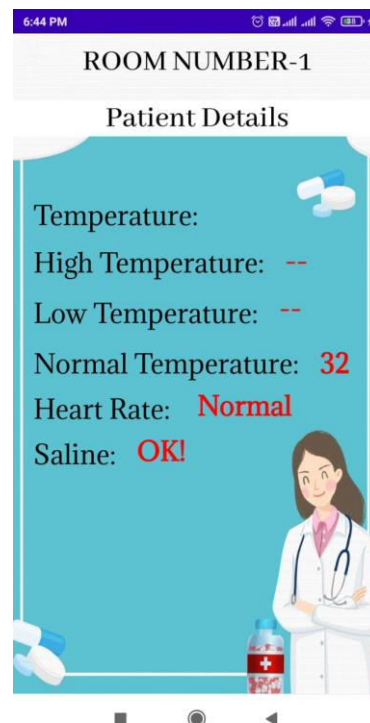


Fig 10: Android output (patient health details)

VII. ADVANTAGES OF THE SYSTEM

- Better access to healthcare.
- Improved quality of care
- Peace of mind and daily assurance.

CONCLUSION

In order to obtain good patient care in hospitals, assessment and management of fluid and electrolyte is the most fundamental thing required, we have designed E-Health monitoring system.

REFERENCES

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