

Patient Healthcare with Smart Ambulance using GPS and Sensors Technology

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ABSTRACT

Patient Efficient and privacy-preserved access to the health record of patients is necessary to correctly practice medicine. This research addresses two concerns in emerging health software systems. First, electronic health records are not yet remotely accessible without using a token (e.g. health card). Second, patients' privacy must be preserved even in special situations such as emergency cases. This system proposes to exploit biometric identification to access a central health record database featured by privacy policies. The experiments the scenario in which an ambulance reaches an unconscious patient who needs pre-hospital medical care for which their health record is retrieved from the database. This project addresses Patient Healthcare System at emergency situation. If any accident happens then proposed system can check patient health details using the thumb device and medical value check using the temperature and heartbeat sensors. We also check the GPS location where the accident is happened. The purpose of this project is to on emergency case doctor can handle the situation using this device. After analysing these patient records from device then doctor send the all details via SMS to the patient like prescription, tablets etc., and patient take action on this update and take a relax.

Keywords: Predictive monitoring, Wearable sensors, Personalized monitoring Microcontroller.

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I. INTRODUCTION

The monitor of the patients in the hospital are ambulatory and they are well suited to be monitored using wearable sensors for the purpose of predictive care. The goal of such system is to provide early warning of physiological corrupt so that preventative clinical action may be taken to improve patient's outcome health is one of the global challenges for humanity. World health organization (WHO) has mentioned that proper health is the fundamental right for an individual. People who are healthy, don't need to spend money for medicines and in hospitals and they secure income. They reduce burden on over populated clinics, hospitals and reduce

workload of medical professionals. So to keep people fit and healthy proper healthcare services should be provided.

Despite wearable patients' monitors now being manufactured allowing the collection of physiological data from ambulatory patients that resulting in quantity of data acquired each day. This results in data deluge effect. The workload of clinicians and healthcare workers is high. This prevents them to inspect multivariate patient's physiological data to high degree of accuracy. Hence the predictive accept to patients monitoring is lost. Intelligent online processing of this large datasets is required for predictive monitoring of the results which should then focus on the limited resources of human experts to these analytical data to those subsets of patients who require the expert review.

II. PROPOSED SYSTEM

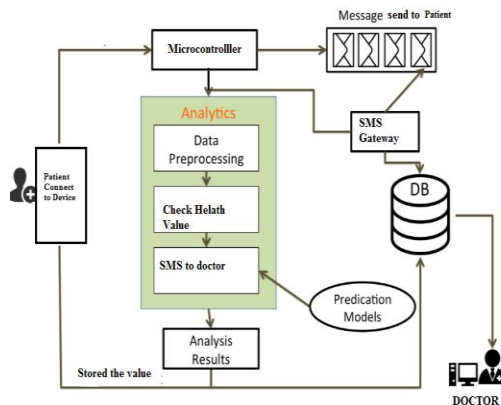


Fig 1. System architecture

Our system has four components: fingerprint scanner, remote capable device (PC), the matching algorithm, and an electronic health record database.

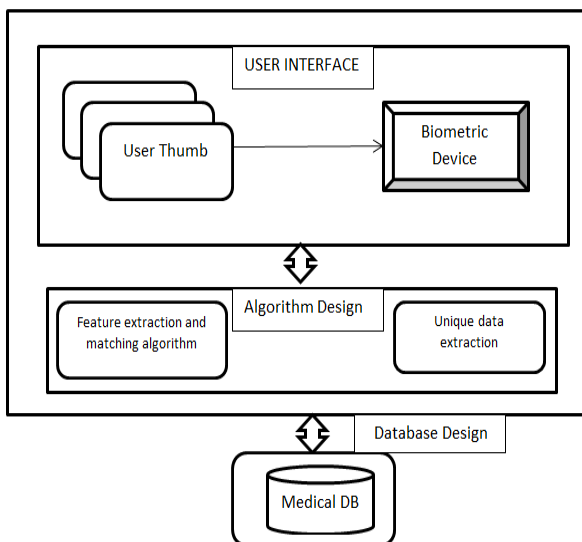


Fig 2. Thumb authentication access

2.1 Database Design & Population:

The database is designed in first normal form and created by MySQL open source software. Relations are populated by fingerprints and notional electronic health records (EHR) for a more realistic scenario in experiments. Each EHR has an ID number, binary data column (fingerprint image), and several attributes specifying different medical information or history of patients.

Data Base:

Many methods are used for fingerprint data collection. In the implemented approach to collect data from individuals patients. These fingerprints data define any thump of patient. The data was collected from more people. The traditional fingerprints data are converted into electronic data to be ready for the processing for emergency extraction.

ARDUINO :

Arduino is an open source computer hardware and software company, project, and user community that designs and manufactures single board microcontrollers. There are a variety of microprocessors and controllers used for designing the Arduino. The name Arduino comes from a bar in Italy.



Figure3 Arduino

III. MATHEMATICAL MODEL

System Description:

Input:

Function Health Calculation ()

P : Patient

D : Doctor

S : Sensors

M : Microcontroller

V : Value of Patient health

Output:

When Patient connect to the device then automatically calculated patient health.

Input

Function SMS (id, request, data)

ID : unique id for each patient.

Request : Doctor send request to patient.

Data : Doctor input text data.

Output: Doctor send SMS in case of patient emergency.

Success Conditions: Success when system sends correct value to the doctor

Failure Conditions: Our system fails when no any result found to the given input.

IV. RESULT

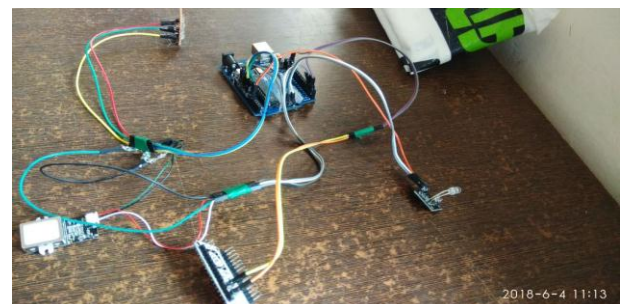


Fig 2. Full setup

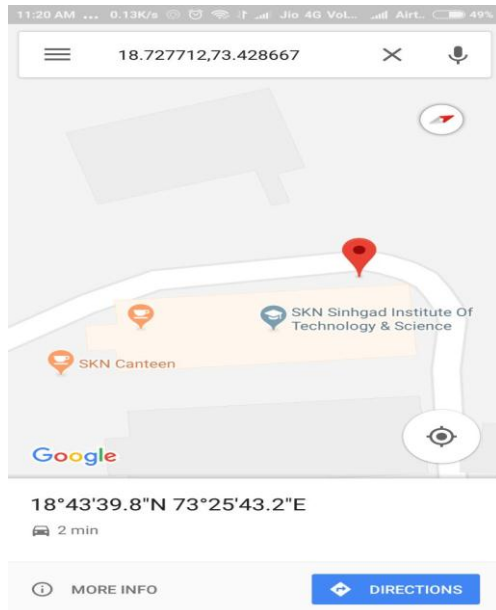


Fig 3. GPS location

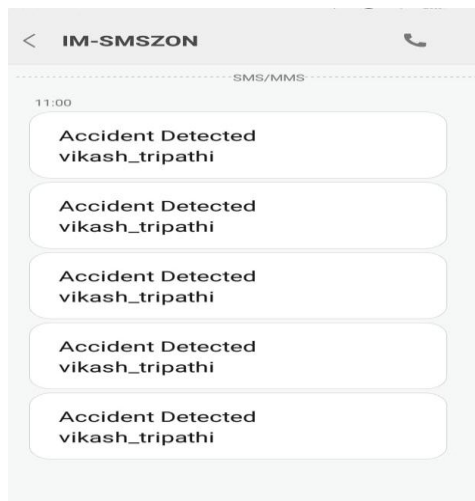


Fig 4. Accident detected message

V. ACKNOWLEDGMENTS

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VI. CONCLUSION

The proposed system is cost efficient and can be reached to lower economic class patients as it contains light weight sensors which are used to monitor the patients continuously and provide the proper messages to doctors and medical staff periodically and in emergency. Thus this system helps in saving life of the patient in case of abnormal conditions. A dynamic integration related to multimedia medical data provides the framework which is low overhead and rich multimedia support. The wireless medium develops a wireless emergency healthcare system for an environment that integrates with several technologies such as Microcontroller, Sensors and SMS.

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SOFTWARE:

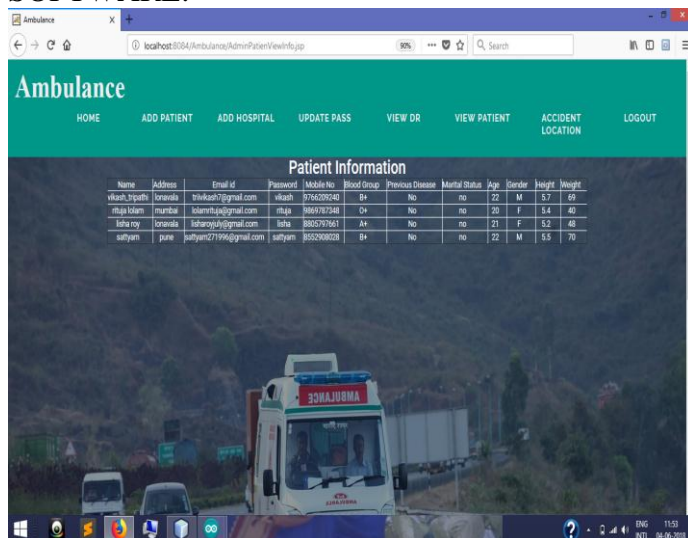


Fig 5. Web page

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