Patior Salus Reporting System

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Abstract— Technology is playing an important role in today's health care environment. Therefore health care systems of today's generation should be designed such that full advantage of technology can be taken. The objective of proposed scheme is to basically develop an android (web) based application with the ability of monitoring, acquiring, recording, displaying and finally transmitting the data related with physical parameters from patients to any remote location. The data will be recorded at regular interval of time which can be accessed from any location.

Key words: Android Application, Database, Monitoring System, Physical Parameter, Short Message Service

I. INTRODUCTION

"Patior Salus" are the Latin words it means the Patient Health. Health care has become an important aspect of human beings with the change in era of new technologies. Periodic monitoring of old people and physically challenged is the need of time. Most of the people are bed ridden due to old age and difficulty in body movements. Monitoring patient's parameters is a process in which data is recorded continuously over a period of time form remote areas. Display of data can be done in for of webpage, android application or SMS in case of remote areas which can also be accessed in case of emergency. Recorded data can be used for long duration of time which will provide proper diagnosis to patients in return. Tremendous research has been done in the field of healthcare. Various systems designed have some limitations and techniques overcoming these shortcomings are discussed by various researchers. System based on Graphical User Interface (GUI) is an example of technique used in such systems. Android is rapidly taking over the field of health care in recent times. Online systems can be developed with the help of this technology which can be used even in the absence of the doctor and staff in the hospital. Data of patient can be recorded with the help of GUI and SMS can be sent in case of emergency. The advantage of SMS facility is that it can be used even in case of no internet facility. Traditionally used health care system is not efficient in case of emergency. Parameters can recorded by the proposed system based as per requirement. Features such as android application through server and short message service (SMS) in case of emergency.

II. LITERATURE SURVEY

A number of patient monitoring systems have been proposed by many researchers to monitor the patient at the bedside and also at a central monitoring system. The literature survey presented in this section includes a variety of patient monitoring systems, ranging from simple pulse monitors, activity monitors, and portable Holter monitors, to sophisticated and expensive implantable sensors. The history of physiological monitors looks at the technical evolution of physiologic monitors, which incorporate a cathode ray tube (CRT) or a flat panel display.

Recent studies suggest that remote patient monitoring helps to reduce hospital utilization and improve clinical outcomes. Today, patient monitoring in hospitals is performed via wired sensors that transmit vital signs of the patient to remote bedside monitors. The limitations of this setting, such as limited patient mobility, have encouraged research on wireless medical monitoring solutions, realizing the vision of the wireless hospital. The literature survey presented in this section includes various techniques used in remote patient monitoring systems.

In early 1960's, Kadish used a system, which includes several things namely glucose sensor, a processor and a pump to control glycerin in patients with diabetes. To manage complex situations, the pump will need several MEMS based sensors to monitor more parameters like glucose, heart rate, temperature and ECG etc. Optical methods developed pertaining to sensing purpose became advantageous in biomedical field. In medical field, the opportunities offered by optical fibers are always advantageous. Multi parameter constant vital signs monitors are available in intensive care setting since early 1960s. These medical devices are actually developed upon the introduction of microprocessor technologies in 1970s.

Fortunately Moore's law concentrates on constant improvements in miniaturization and the low power needs of microprocessor that allows on-body wireless sensors. Energy expenditure is the result of movement produced by skeletal muscles as per the physiological point of view. The standard reference for physical activity is the energy expenditure. In normal conditions of daily living, the measurement of energy expenditure is not possible and also impractical for population studies. Therefore the estimation of energy expenditure due to heart rate recordings, observations or movement registration is increasing.

The monitoring of health using mobile computing, and communication technologies can be termed as M-health. In past days, wireless monitoring involves measuring of physiological parameters namely heartbeat, blood pressure, blood oximeter and physiological signals etc. Other signals include measuring of parameters like movement monitoring, fall detection, place tracking and other activities. The features of wireless networking are explained with different examples and applications. Mobile health monitoring to detect physiological deterioration requires technology that can alert a first responder capable of reversing the condition in a timely manner, and be broadly deployed throughout the continuum of care. A wireless on-body digital architecture, sotera's visi mobile system is developed for continuous measurement of different parameters like heart rate or ECG, respiration rate, body temperature and blood pressure.

III. EXISTING SYSTEM

A. Tele-Health Care

Tele-healthcare is the use of information technology to provide healthcare services at a distance. It includes anything

from medical services at the inpatient or at the out patient stage. It could even include when a doctor in one hospital supports surgery with a doctor in another hospital somewhere on another continent. What the doctors actually would like to see is constant monitoring of those parameters so they always know what the history is and how big the change from yesterday to today be and when you have these findings and have these data points available, then a much earlier intervention can take place for a patient.

B. GSM Technology

GSM technology is used to monitor the different parameters of an patient remotely and also control over medicine dosage is provided. Measurement of vital parameters can be done remotely and under risk developing situation can be conveyed to the physician with alarm triggering systems in order to initiate the proper control actions. In the implemented system a reliable and efficient real time remote patient monitoring system that can play a vital role in providing better patient care is developed. This system enables expert doctors to monitor vital parameters viz body temperature, blood pressure and heart rate of patients in remote areas of hospital as well as he can monitor the patient when he is out of the premises. The system in addition also provides a feedback to control the dosage of medicine to the patient as guided by the doctor remotely, in response to the health condition message received by the doctor. Mobile phones transfer measured parameters via SMS to clinicians for further analysis or diagnosis.

Android is everywhere Phones, Tablets. TVs and set-top boxes powered by Google TV. Soon, Android will be in cars and all sort of other places as well. However, the general theme of Android devices will be smaller screens and/or no hardware keyboard. And, by the numbers, Android will probably be most associated with smart phones for the foreseeable future.

IV. PROPOSED SYSTEM

This project describes the design of a simple mobile application based android. System work is based on Graphical User Interface (GUI) is an example of technique used in such systems. This system will be useful for monitoring parameters such as temperature, heartbeat, pulse rate etc. which can be accessed by doctor so that necessary suggestions are given to particular patient. The patient monitoring system is useful mainly for patients. The current and previous values are helpful for comparing the patient's condition. SMS system is useful in case of emergency. The measured values are put in the GUI by any medical staff or nurse. Daily generated reports of patients taken by the nurse will save and notify to Doctor by GSM. As per the patient's health, the drugs and treatments of the patient will get updated immediately as per the Doctor's consult.

V. SYSTEM REQUIREMENTS

A. Hardware Requirements

- Android Phone

B. Software Requirements

- Operating System: Android Os
- Front End : XML
- Back End : MYSQL

C. List of Modules

1) *Doctors*
- Login
- Add Nurse
- Add Patient

2) *Nurse*
- View Patient
- Patient Temperature
- Patient BP
- Review Patient
- Update Status
- Patient Call & Messages

3) *Patient*
- View Prescription
- View Temperature
- View BP

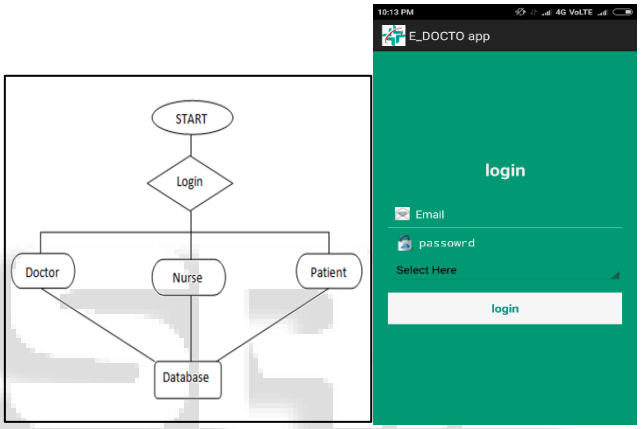


Fig. 1: Flow Diagram of Application Login

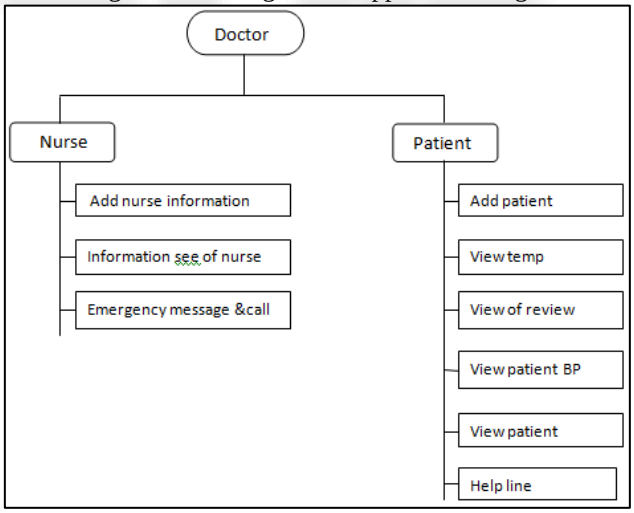
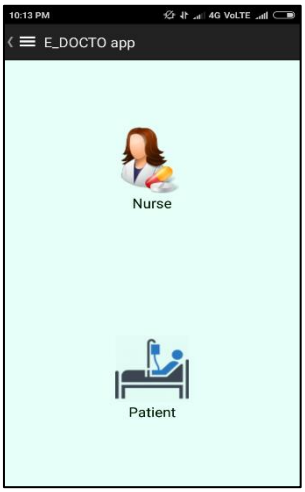


Fig. 1(A): Content of Doctor Dashboard



Screenshot 1(A): View of Doctor Dashboard

D. Doctor

1) *Nurse*

– The Doctor add nurse and view information.

– There is also an option of emergency message & call.

2) *Patient*

– Doctor also add the patient details, view temperature, BP and so on. Doctor can allot and update allotted prescription of Patient.

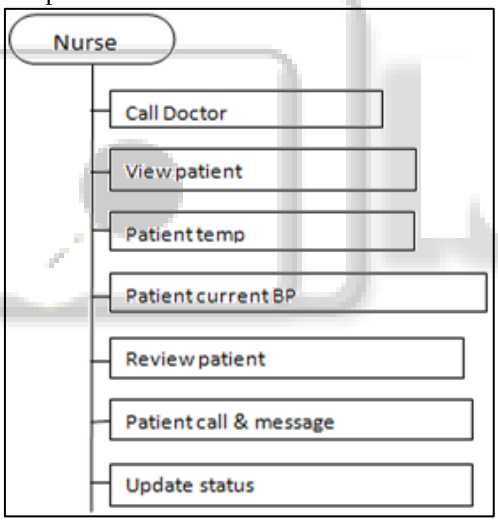
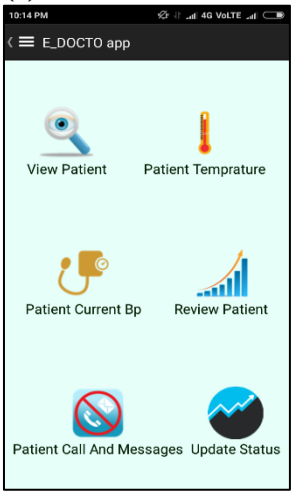


Fig. 1 (b): Content of Nurse Dashboard



Screenshot 1(B): View of Nurse Dashboard

E. Nurse

1) *View Patient*

– In this Nurse can see the list of available patients. Also view and update the physical status of the patient.

2) *Patient Temperature and BP*

– Here, nurse can update the patient temperature and BP.

3) *Review Patient*

– In this nurse will see the details of the patient.

4) *Patient Call & Message*

– Contact with Patient

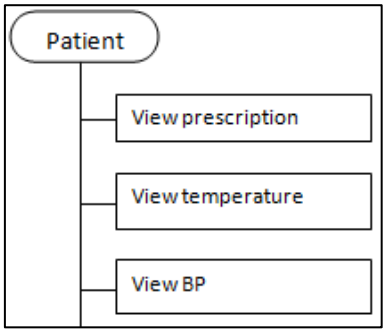


Fig. 1 (c): Content of Patient Dashboard

Screenshot 1(c): View of Patient Dashboard

F. Patient

1) *View Prescription*

– Patient can view allotted prescription.

2) *View Temperature*

– Patient can view their current temperature.

3) *View BP*

– Patient can view their current BP

VI. ADVANTAGES & DISADVANTAGES

A. Advantages

– It is an innovative and promising development in the care of patients that will give mobility to doctor as well as clinical staff.

– It will also improve patient's quality of life and clinical outcomes

– Data of patients will be permanently recorded.

B. Disadvantages

– Database storage which will have patient's details need to update or refresh on regular basis.

– Record stored will not be editable once the treatment is done.

VII. CONCLUSION

The patient monitoring system is useful mainly for patients in general ward. This is an alternative solution for paper based system. The current and previous values are helpful for comparing the patient's condition. Open ID function is useful, if any other patients' data wants to access. SMS system is useful in case of emergency. Android application is easy to use for accessing the data. Database information stored for long term use. Android mobile are now available with almost all doctors. So accessing the data with android application is much easier now. The measured values are put in the GUI as per referred nurse. Display of data can be done in for of webpage, android application or SMS in case of remote areas which can also be accessed in case of emergency. Stored data can be used for long duration of time which will provide proper reports to patients in return.

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