

Survey on Automated Paralysis Patient Healthcare Monitoring System

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Abstract— In today's social Health Insurance structure where patients stay at home after Operations, they are not possible monitored 24-hours by a medical caretaker or a family member so. Many people now a days who work full time are facing a problem of monitoring their loved ones especially old age patient's. So to overcome this problem we are using this patient health monitoring system using IOT. This Uses sensor technology with micro-controller and Wi-Fi module to help the user monitor their loved ones. Those people in most cases are not able to speak .by using these system. This system takes care when in no one is present to attend the patient and thus sending a message through GSM of what he wants to convey in SMS. It then passes on this data to the microcontroller. The microcontroller processes the data displays the particular message as per input obtained. The microcontroller now displays the associated message on the LCD screen. It also buzzer along with message as soon as it receives motion signal from the accelerometer. If there was no one to attend to the message displayed on the LCD, in this way the Automated Paralysis Patient Care System truly automates the care taking ability of the patient which ensures a timely.

Keywords: Pulse Rate Sensor, Microcontroller, Transformer, GSM Model

I. INTRODUCTION

These microcontroller displays the associated message on the LCD screen. It also buzzer a sound along with message as soon as it receives motion signal from the accent. If there was no one to attend to the message displayed on the LCD screen, the patient can choose to slop the device for some more amount of time which will trigger an SMS to be sent through a GSM modem. The registered care taker of the patient with the message that the patient wants to conveyed. In this way the Automated Paralysis Patient Care System truly automates the care taking ability of the patient which ensures a timely attention to the patient and thus for a good health of the patient. We come across hospitals and NGO's serving paralytic patients who have their whole or partial body disabled by the Paralysis attack. Those people in most cases are not able to speak or convey properly nor do they convey through sign language due to loss in motor control by their brain.

In such a critical situation these system propose a that helps disabled person in displaying a message over the LCD by just simple motion of any part of his body which has motion abilities. This system also takes care of the situation wherein no one is present to attend the patient and thus sending a message through GSM model of what he wants to conveyed in SMS. Our system works by reading the tilt direction of the user part. The working of the device here is shown by handle in the fingers of the mobile hand. The user now just needs to slop the device in a particular angle to

convey a message. The device in various directions conveys a different message.

Here we use accentor in order to measure the statistics of motion. It then passes on this data to the microcontroller. The microcontroller processes the data and represent the particular message as per input realize.

II. LITERATURE SURVEY

In First survey learn to IOT Based Patient Health Monitoring System, Author name is Amitabha Chakrabarty (25MAR.2018), Conference/Journal is international Research Journal of Engineering and Technology. (IRJET), Advantages is telemedicine is the new technology used to improve patients health

In second survey learn the paper title is Arduino Based Heart Rate Monitoring And Heart Attack Detection System, the author name is Bandana Mallick (Jan. 2016) Conference/Journal is International Journal of Science, Engineering and Technology Research.(IJSETR) the advantage is Quick response time

In third survey learn the paper title is A Smart patient Health Monitoring System using IOT, Author name is Narasimha Rao Jasti Madhu (MAY.2018) Conference/Journal is International Journal of Pure and Applied Mathematics. (IJPAM) Advantage is Reduces the human activity.

In fourth survey learn the paper title is Sensor Based Wearable System to Assist Paralytic Patient with Continuous Health Monitoring, author name is Kumara K R (MAR. 2017) Conference/Journal is International Journal on Future Revolution In Computer Science & Communication Engineering.(IJFRCSCE) Advantage is Real-time application.

III. BASIC REQUIREMENTS

For implementing this project, we need to install the java and the dependencies in our systems which will help the code to execute successfully. Following are the dependencies to be installed they are:-

A. Hardware Requirements: -

- Processor: - intel i3(2.30 Ghz)
- Ram: - 8GB
- GPU: - Nvidia GEFORCE-940mx
- Webcam: - External Webcam or inbuilt Webcam

B. Software Requirements: -

- Operating System:-Windows(10 or 7)
- Web Browser: - Google chrome
- Editor:-jdk

Structure of the heart and blood flow:-

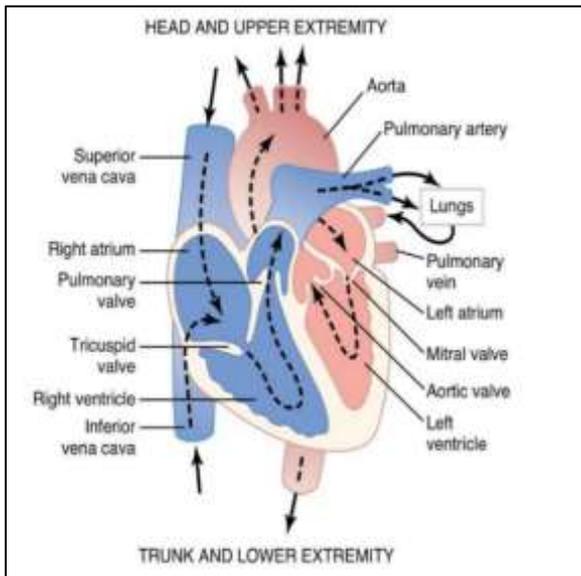


Fig. 1: Heart Structure

C. Heart Rate:

HR is the rate at which the heart beats and affected by the expansion of the arterial wall with each every beat. The most prominent areas for the pulses are wrist (Radial artery), neck (Carotid artery), inside of the elbow (Brachial artery), behind the knee (Popliteal artery) and ankle joint (Posterior artery). The HR changes according to age and the physical and psychological impacts on the body. Higher pulse rate indicates the presence of abnormality in the body which can also be caused by other reasons such as anxiety, anger, excitement, emotion, and heart disorders. The pulse rate of an individual can help in determining various problems within the body, but it cannot be used lone to diagnose an abnormality. The average heart rate is about 72 bpm for sedentary males and 80 bpm for sedentary females but these rates are often significantly different for trained athletes.

Age	Heart Rate (BPM)	Respiratory Rate (Breathes/min)
0-5	90-150	25-40
6-12	80-140	20-30
1-3	80-130	20-30
3-5	80-120	20-30
6-10	70-110	15-30
11-14	60-105	12-20
14+	60-100	12-20

Table 1: Heart Rate and Respiratory Rate for Different Ages

IV. MOTIVATION

The progression of the forward technology has all the time intrigued us. Moreover, we additionally found that there are not critical examines on computerization technology for hospital IoT based Patient Monitoring System. Along these, we began to search the published paper and advancements around us. In present time, medical science is improving and enhancing day by day. On this frame technical method people advancing more noteworthy reinforce logical frill, as a case in point ,brilliant belt which found persistent breath and additionally electro dermal movement (EDA) sensors to successively show for physiology indications of seizures

during the evening. Victim monitoring system is much approachable, painless and smooth for the patient. Recently grew innovative devices executed in patient's body to re-establish ordinary activities. Sometimes it is quite difficult to know about health condition of patient for doctor and nurse. For this, they cannot give the proper treatment and instant result to the patient .It is most important to build up a system which can be useful to doctor and nurse to maintain patient monitoring.

V. USE CASE DIAGRAM

A. State Diagram:

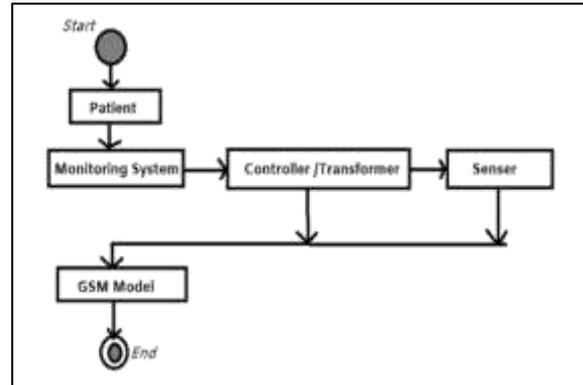


Fig. 2: State Diagram

State diagram is describe an abstract description of a behavior of a system. State diagram can used to graphically represent finite state machines.

B. DFD Diagram:

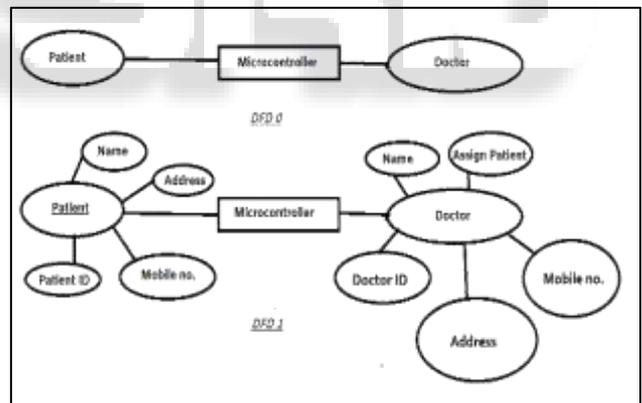


Fig. 3: DFD Diagram

DFD diagram is a simple to understanding the graphically flow of data. DFD(Data Flow Diagram) easy to divided into logical and physical.

C. Sequence Diagram:

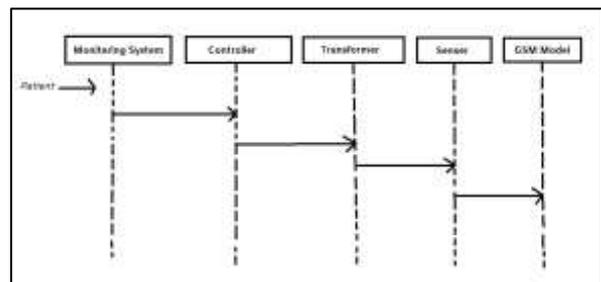


Fig. 4: Sequence Diagram

Sequence diagram is a type of the interaction diagram and it is a group of objects works together. It is a sequentially represent the data.

VI. E-R DIAGRAM OF PROPOSED

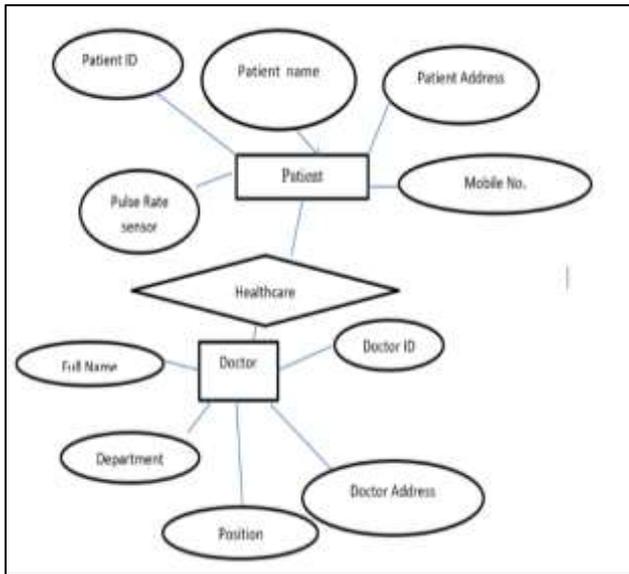


Fig. 5: ER Diagram

ER diagram is entity relationship diagram. ER Diagram are used to model and design relationship database. ER diagram implemented physical data model.

VII. FUTURE SCOPE

The future scope of project In future the system can be made more smart and efficient by making the goggle wireless for eye blink detection. It can be made by using Bluetooth and Wi-Fi technology. So as to Make system efficient and secure as well as easy to handle. Also for constant patient monitoring some indications for security can be added like buzzer or light indicators.

Instead of using GSM module monitor patients parameters on mobile in case of if patient is in hospital. So it becomes useful in hospitals for continuous monitoring of body parameters on doctor's mobile or main mobile of hospital ward.

According to the availability of sensors or development in biomedical trend more parameter can be sensed and monitored which will drastically improve the efficiency of the wireless monitoring system in biomedical field.

A graphical LCD can be used to display a graph of rate of change of health parameters over time. The whole patients healthcare monitoring system which we have framed can be integrated into a small compact unit as small as a cell phone or a wrist or smart watch. This device is easy to handle the patient or other persons.

VIII. CONCLUSION

This system provides it simply and also if the body parameters are changed suddenly from their ideal ranges and goes in danger zone then SMS is immediately sent to patients relative or doctor for critical care so it provides a complete care unit for paralyzed patient.

This device has made thesaurus of message possible only by the motion of a body part. The ease of message transport is the main advantage of this system along with the real time user defined medicine alarm. By implementing this system a simple device for paralysis people can be achieved without the use of complex form of inputs. The prototype we have made is fully functional but limitation to a small area of operation. For a longer area and transmission distance the type of communication used have to be more effective and quick. This system successfully proves that this system is a better approach to be implemented at hospitals for patient-nurse and used our house communication. The project can be a system developed into an automatic wheel chair wherein the wheelchair will be easy move just by hand gesture.

Also, along with only message transmission other data like pulse rate etc. It can be also transmitted to the nurse so that a real time record of all the patients is maintained.

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