

CHAPTER 1

INTRODUCTION

Recently, Health monitoring systems have developing into a crucial research field. Lots of researches on the health monitoring were developed for many applications such as military, homecare unit, hospital, sports training and emergency monitoring system. To improve a wearable and instantaneous monitoring system of some precarious critical signs for elderly people is the need of the day. This system may benefit doctor or family members to monitor the emergency alarm from patient or aged people. It considers 3 crucial parameters which are body temperature, heart rate and quantity of saline content.

1.1 Overview

The heart rate of the patient is measured from the key finger using IRD and temperature is measured by using DS18B20 temperature sensor. To develop this device the essential resources are very cheap. The device is easy to use and delivers high speed. Contingent on the condition the Smart phone can spontaneously alert already allocated care takers by sending the text message. It is also used to provide information or to encourage the patient based on the sensors and environmental data anticipation. The sensors measure the data and transmit it via GSM Modem on the particular frequency on which cell phones work. An android application will be developed to enhance the data to determine important health feature and can analyze his medical antiquity date wise, event wise etc.

Physiological processes are complex phenomena, including nervous or hormonal stimulation and control, input and outputs that could be in the form of physical material, neurotransmitters, or information, and action that could be mechanical, electrical, or biochemical. Most physiological processes are accompanied by or manifest themselves as signals that reflect their nature and activities, such signals could be of many types, including biochemical in the form of hormones and neurotransmitter, electrical in the form of potential or current, and physical in the form of pressure or temperature.

Diseases or defects in a biological system cause alteration in its normal physiological processes, leading to pathological processes that affect the performance,

health, and general well-being of the system. A pathological process is typically associated with signals that are different in some respects from the corresponding normal signals. If we possess a good understanding of a system of interest, it becomes possible to observe the corresponding signals and assess the state of the system. The task is not very difficult when the signal is simple and appears at the outer surface of the body.

For example, most infection cause a rise in the temperature of the body, which may be sensed very easily, albeit in a relative and qualitative manner, via the palm of one's hand. The example of body temperature as a signal is a rather simple example of a biomedical signal. Regardless of its simplicity, we can appreciate its importance and value in the assessment of the well-being of a child with a fever or that of a critically ill patient in hospital.

The measurement of heart rate is used by medical professionals to assist in the diagnosis and tracking of medical conditions. It is also used by individual, such as athletes, who are interested in monitoring their heart rate to gain maximum efficiency from their training. Heart rate is the number of beats per unit of time, typically expressed as beats per minute (bpm), which can vary as the body's need for oxygen changes, such as during exercise or sleep. The R wave to R wave interval (RR interval) is the inverse of the heart rate.

Heart rate is measured by finding the pulse of the body. This pulse rate can be measured at any point on the body where an artery's pulsation is transmitted to the surface, often as it is compressed against an underlying structure like bone, by pressuring it with the index and middle finger. The thumb should not be used for measuring it with the index and middle finger. The thumb should not used for measuring another person's heart rate, as its strong pulse may interfere with discriminating the site of pulsation.

The Android SDK will be used in future. The Android SDK comprises a mobile device emulator which runs the application in the Smartphone and shows patient's health parameters like heart rate, body temperature and quantity of saline bottle. A system will be made of android application on user side and an online service which will accomplish the server associated operations. An Android application can implement data mining on a specific patient data to realize important facts. These systems can offer non-invasive