Portable Smart Patient Monitoring System

Bhavin U. Kamdar  
Third Year, Electronics and Telecommunication,  
Sardar Patel Institute of Technology  
Email: bhavin.kamdar.28@gmail.com

Dhaval J. Shah  
Third Year, Electronics and Telecommunication,  
Sardar Patel Institute of Technology  
Email: dhavalshah.1089@gmail.com

Shahid Sorathia  
Third Year, Electronics and Telecommunication,  
Sardar Patel Institute of Technology  
Email: Shahid_s_3@yahoo.com

Mentor: Dr. Y.S. Rao  
HOD, Electronics and Telecommunication,  
Sardar Patel Institute of Technology

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1 Introduction

Traditionally, patient healthcare monitoring is performed live, in person. A patient must visit a healthcare facility to have his or her vital statistics collected and analyzed for warnings, trends, and anomalies. This is a significant manual process, consuming both patient and medical provider time and resources. It is also an inconvenient and imperfect process. The effectiveness of healthcare is critically linked to the time it takes to identify and diagnose conditions that are likely to adversely affect a patient’s health. Frequent and consistent health monitoring, therefore, can help improve healthcare results while reducing overall cost.

Based on this we propose a portable device which will log and analyse various vital information of the patient. In case of some abnormal trends or anomalies, the device will alert the doctor. Also the device itself will have ample amount of intelligence and knowledge so as to predict an upcoming threat based on continuous data acquired. Also the device can log the data to an expert system which can suggest some remedy.

The device will have a Bluetooth (BT) interface via which it can communicate to the external world. A mobile phone will play a vital role in providing a communication link
between the device and external world. The device will communicate to an application end point in the mobile via bluetooth which will then forward the data via GPRS/GSM channel. Hence as the device does not require any other interface except BT, the overall cost of implementation is drastically reduced.

2 Target Areas of Application

1. **Heart Patients:** Continuous heart Rate and ECG monitoring can enable the device to predict the future state based on current trends.

2. **Patients in Remote Areas:** The device will feature an SD card interface which can be used to log data and analyse it in a PC. So a doctor in his/her hospital can call analyse the heart of a patient in a remote area through his/her memory card data. Also the data can be transmitted through a cell phone via GPRS to a web portal.

3 Advantages

1. Portable and light weight, almost the size of mobile phone. So can be carried around easily and can continuously acquire data.

2. Low cost as it doesn’t need extra interfaces except a Bluetooth.

3. Highly accurate as it will be real time embedded Digital signal processing.

4. Can be easily expanded into a series of smart devices which communicate among themselves and a central server to diagnose the illness and suggest a suitable remedy.