



parts of the heart muscle. An ECG displays the voltage between pairs of these electrodes, called Leads, and the muscle activity that they measure, from different directions.

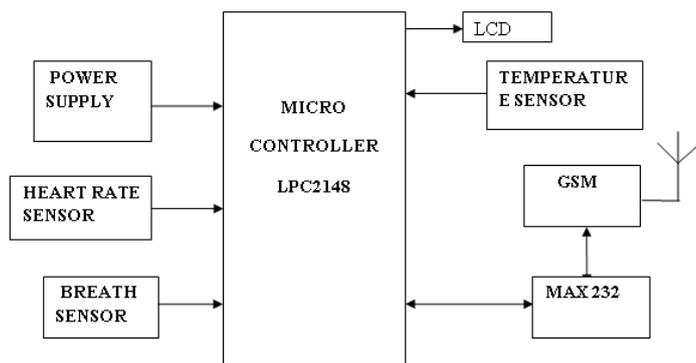


Fig: 1. Block diagram of monitoring system.

The monitoring terminal generally consists of three modules: the sensor module, the control module, and the wireless communication module. The sensor module is used for acquiring medical information from the outside, and then converts them to digital signals. The control module is often compared to the brain of monitoring terminal, which is in charge of coordinating the task of different modules, controlling the sensors, processing data, and executing communication protocols. The wireless communication module mainly deals with the wireless transmission of information. Nowadays, there are various kinds of wireless communication protocols. But since the main task of a monitoring terminal is to realize the transmission of signals such as heart rate, body temperature, and calling signals the data traffic is not heavy. Moreover, because the monitoring terminal is worn on patients, which needs to be supplied by battery, it puts a high demand on the reducing of power dissipation of wireless transmission module. Having taken these comprehensive factors into consideration, this paper chooses the GSM technology as the wireless communication. This system collects the patient data and transmits them to the doctor and in the meantime to suggest the medication the patient for emergency.

### 3. Experimental Results

Figure.2 shows the kit. The monitoring terminal generally consists of three modules: the sensor module, the control

module, and the wireless communication module. The sensor module is used for acquiring medical information from the outside, and then converts them to digital signals.

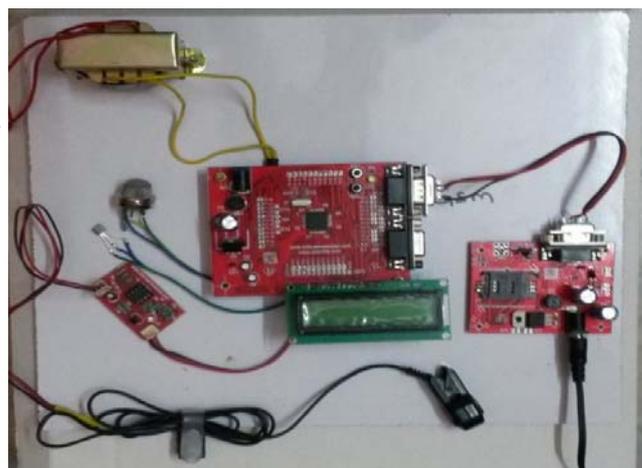


Figure2: Demonstration Kit

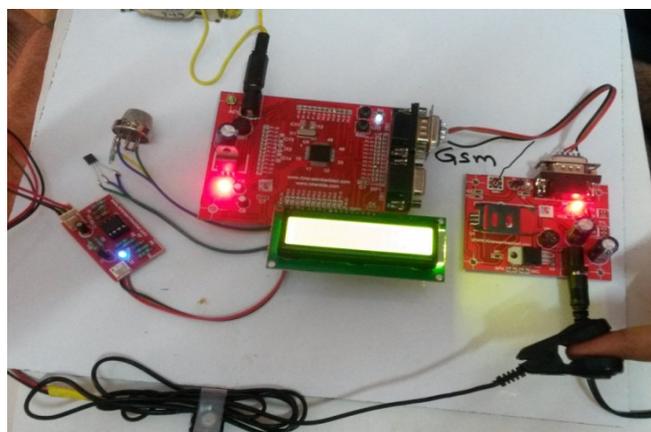


Figure 3: Giving power supply to the whole kit

The control module is often compared to the brain of monitoring terminal, which is in charge of coordinating the task of different modules, controlling the sensors, processing data, and executing communication protocols. The wireless communication module mainly deals with the wireless transmission of information



Figure 4: Output (patient information) shown in LCD

The three sensor modules detect the information from patient and shown in LED and transmit them to the doctor to seek medical advice when needed. The patient information received and shown on mobile.

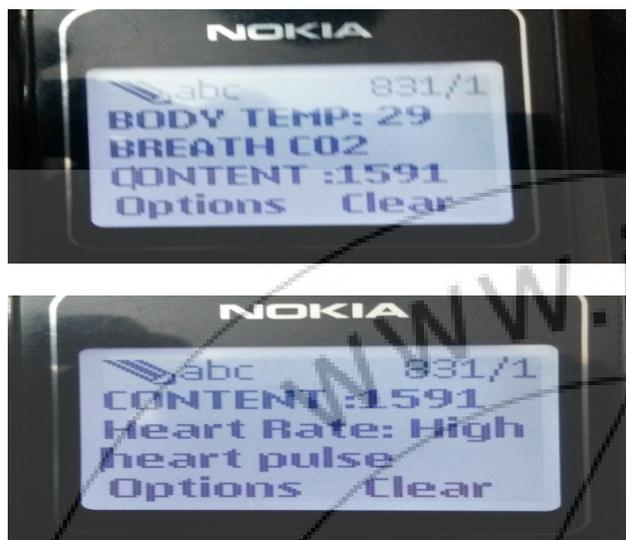


Figure 5: patient information on mobile

#### 4. Conclusion

In this paper, we described a design for a mobile accessory that once connected via USB to the patient's Android based device displays his heart rate, calculated from his ECG extracted from two electrodes connected to his thumbs, and provides him with the option of sharing the result of his heart rate with his physician via SMS by a press of a single button. This proposed design is helpful for patients suffering from cardiac diseases as heart rate is an independent risk factor for patients with cardiovascular disease, in particular with arterial hypertension, myocardial infarction, coronary artery disease and heart failure. Studies demonstrated detrimental effects of increased heart rate on the function and structure of the cardiovascular system. Heart rate can be easily detected and therefore allows a conclusion on prognosis and efficiency of therapy.

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