

Engineering 90 Topic Selection Memo

Seth Hara
Anima Singh

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Wireless patient monitoring device

We plan to design a physiological monitoring device that communicates wirelessly to a computer/remote data collection station. The device will measure the physiological data utilizing a tympanic thermometer, pulse oximeter and an electrocardiogram. The constant monitoring of these vital parameters is necessary for the proper treatment and/or diagnosis of several conditions. Presently, most monitors of this type must be hardwired to a stationary unit, thereby restricting patients from continuing with their daily activities. Through the use of our proposed design, patients can move freely within a designated radius, such as their house or the workplace.

The culmination of the project will be a wearable device that integrates the information collected from the three sensors for wireless transmission. It will include a microcontroller to dictate the sample rate for each of the sensors. The sampled data will be stored temporarily on a memory chip in the device until transmitted at regular intervals to the station. Zigbee technology will be implemented for data transmission as it has low power consumption and is geared towards sensor networks. The project will also include the development of software to process and present the transmitted data at the portable base.

We plan to work with Professor Erik Cheever.