

Wireless Touch screen based heartbeat monitoring of multiple patients

The purpose of this project is to construct a heart beat monitoring system for multiple patients wirelessly using Touch screen technology. The monitoring is done from a central location using a touch screen based control and Graphical LCD based display system. This system makes use of RF transceiver modules to establish communication between multiple patients systems and remote central monitoring unit.

Technology is being used everywhere in our daily life to fulfill our requirements. We are employing different sensors for different applications sometimes we may even use same sensors differently for different applications. We can not only increase the speed of life but also increase security with good ideas to make use of this technology. One of the ideal ways of using technology is to employ it to sense serious health problems so that efficient medical services can be provided to the patient in correct time. This idea to provide efficient health service to patients has given birth to the project Touch screen based wireless heartbeat monitoring of multiple patients

The functioning of this device is based on the fact that blood circulation occurs for every heart beat which can be sensed by using a circuit formed by the combination of an LDR and LED. Depending upon the rate of circulation of blood per second the heart beat rate per minute is calculated. This device consists of a micro controller which takes the input from the heart beat sensor and calculates the heart rate of the patient.

The controlling device of the whole system is Microcontroller. In this project three Microcontrollers are used; two controllers at two patients and one at central

monitoring system. The central monitoring system makes use of touch screen and GLCD interfaced along with RF transceiver module. The GLCD has unique numbers assigned to each patient. Whenever a number is fed as input through touch screen the controller accepts data relating to that patient through RF transceiver and displays it on GLCD. The system at patients has a heart beat sensor, LCD display and RF transceiver module which are interfaced to the Microcontroller. The Microcontroller continuously gets data from heart beat sensor and this information is transmitted using RF transceiver module interfaced to controller. Also, displays the heart rate on the LCD display available in system present at the patient. The controllers used in the project are programmed using Embedded C language.

Here we are going to monitoring the heartbeat of multiple patients from central location. This monitoring station allows us to select the patients whose health information is to be monitored. By using touch screen a particular patient's heartbeat will be displayed on the GLCD.

The main objective of this project:

1. Monitoring the heart beat of multiple patients.
2. Wireless communication to central location.
3. Monitoring of multiple patients at common location on Hand held display.
4. Touch screen based user friendly interface.
5. Graphical Display for better visibility.

The project provides learning's on the following advancements:

1. Development of heartbeat sensor based on LED and LDR.
2. RF technology.
3. Touch screen sensor.
4. Touch screen interfacing to Microcontroller.
5. Embedded C programming.
6. PCB design.
7. Graphical LCD interfacing to Microcontroller.

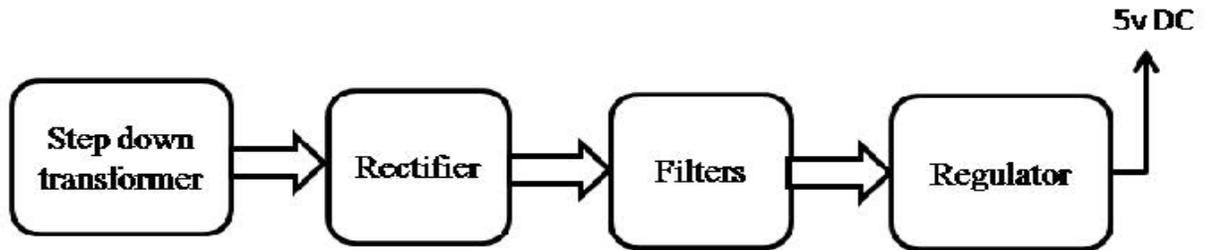
The major building blocks of this project are:

1. Regulated Power Supply.
2. Microcontrollers.
3. Heart beat sensor.
4. LCD with driver.
5. Touch screen with driver.
6. RF transceiver modules.
7. GLCD with driver.
8. Crystal oscillator.
9. Reset.
10. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

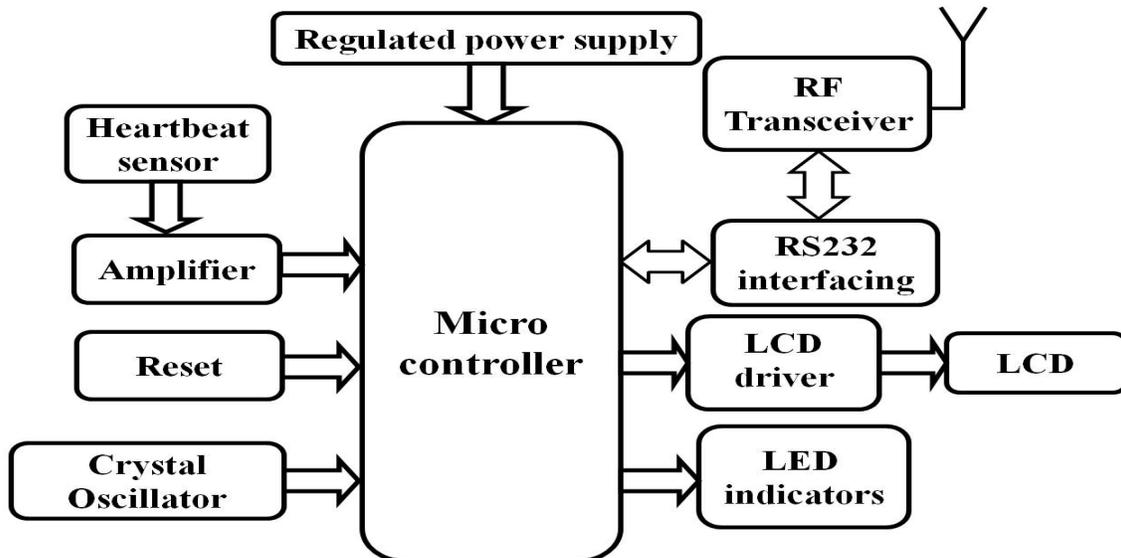
Regulated Power Supply:



Block diagram:

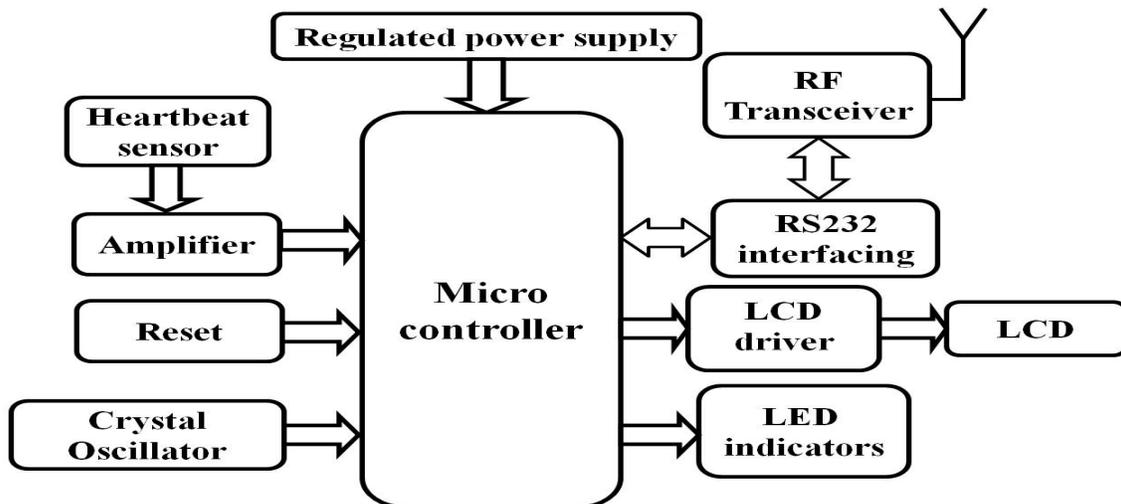
At patient 1:

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At patient 2:

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Central monitoring system:

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