Smart phone based Data Logger

The aim of this project is to construct an Electrical data logger for monitoring various electrical parameters like voltage, current, frequency and temperature wirelessly using Bluetooth technology.

The modules in the project are: Bluetooth module for transmitting the acquired parameters wirelessly to Bluetooth enabled smart phone, different sensors to measure electrical parameters, LCD display to display the electrical parameters, Bluetooth enabled mobile phone to monitor the electrical parameters.

Bluetooth is an open standard specification for a radio frequency (RF)-based, short-range connectivity technology that promises to change the face of computing and wireless communication. It is designed to be an inexpensive, wireless networking system for all classes of portable devices, such as laptops, PDAs (personal digital assistants), and mobile phones. It also will enable wireless connections for desktop computers, making connections between monitors, printers, keyboards, and the CPU cable-free.

The controlling device of the whole system is a Microcontroller. Different sensors, LCD display and Bluetooth module are interfaced to the Microcontroller. Different sensors feds the electrical parameters along with temperature as input to the Microcontroller. The Microcontroller processes this information and transmits this using Bluetooth module and also displays on the LCD interfaced to it. The transmitted electrical parameters can be monitored on a Bluetooth enabled smart phone. To perform the task the Microcontroller is programmed using Embedded C language.

The major features of this project are:

1. Monitoring of electrical parameters on Bluetooth enabled smart phone.
2. Wireless data transmission.

This project provides us learning's on the following advancements:

1. Bluetooth technology.
2. Interfacing Bluetooth module to Microcontroller.
3. Initializing ADC module.
4. Interfacing electrical sensors with the micro controller.
5. Embedded C programming.
6. PCB design.

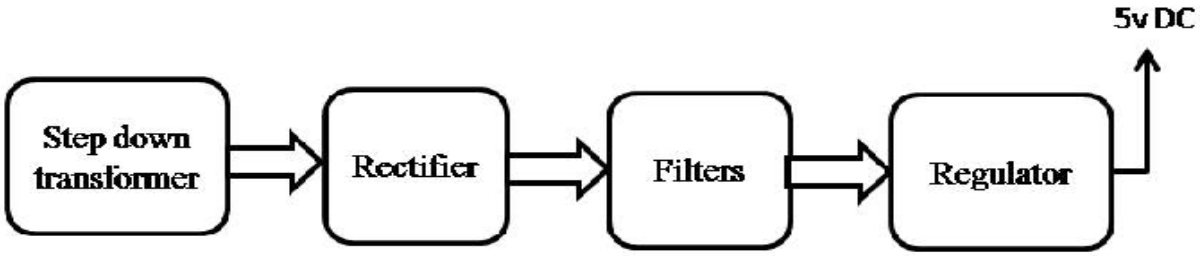
The major building blocks of this project are:

1. Regulated Power Supply.
2. Electrical sensors.
3. Temperature Sensor.
4. Bluetooth module.
5. Micro controller.
6. Bluetooth enabled smart phone.
7. LCD display with driver.
8. Reset.
9. Crystal oscillator.
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:

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