

## **Monitoring and controlling of temperature at threshold value using GSM technology**

The project aims at developing an automated temperature controlling system. The project displays the live temperature on a LCD display. The user can dynamically change the temperature limit setting by just sending an SMS to the system.

Temperature Monitoring systems are in huge requirement and we definitely can find their advantages in many industrial sector and also in residential sector. We can find many kind of temperature monitoring systems for different uses but the major challenge is to design a very simple, User-friendly and cost effective system. Keeping these in mind we designed a temperature monitoring system using a timer based system.

We developed this project, which is relatively inexpensive to sense the temperature. The temperature is read by the ADC (Analog to Digital Converter) module of the microcontroller Unit. This ADC data is processed and converted into the actual temperature reading by the microcontroller. This processed data is sent to the LCD for user display. The Microcontroller automatically takes the decision of Switching ON/OFF cooling system or heater depending on the temperature reading it got through predefined formatted SMS. To perform the above mentioned intelligent tasks, intelligent program written using embedded 'C' is loaded into it.

### **The objectives of the project include:**

1. Dynamic user input for setting temperature limit through SMS.
2. Making Monitoring and Automatic temperature controlling possible.

### **The project provides the following learning's:**

1. Temperature sensor characteristics.
2. GSM technology.

3. Interfacing of GSM modem to Microcontroller.
4. Relay working principle.
5. LCD interfacing to Microcontroller.
6. Embedded 'C' programming.

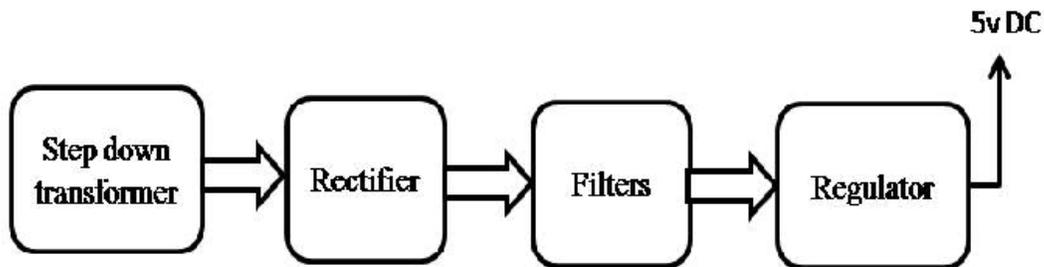
**The major building blocks of this project are:**

1. Regulated Power Supply.
2. Microcontroller
3. Temperature sensor.
4. GSM modem.
5. Relays with driver.
6. LCD with driver.
7. Crystal oscillator.
8. 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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