



Beni-Suef University Communications and Electronics Engineering 3rd

Embedded Project (Smart_room)

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Introduction:

Smart Room project is to create a smart room temperature control system using ATmega32, LCD, LM35, fan and LED.

In this project, you will use an LM35 temperature sensor to measure the temperature in a room. The ATmega32 microcontroller will be programmed to read the temperature value from the LM35 and display it on the LCD screen. Based on this reading, you will decide to turn the fan and LED on or off.

For example, if the temperature exceeds a certain value (such as 25°C), the microcontroller will turn on the fan to provide ventilation and cool the room.

This way, you can have a smart system that automatically controls the room temperature and provides efficient energy use. You can also use the LCD screen to display current temperature values and fan and LED status, allowing you to easily monitor the system.

Explanation of ingredients:

1. ATmega32 microcontrollers: used to control system components and execute programs. You will use it to read the temperature value, control the fan and LED, and communicate with the LCD screen.
2. LCD screen: used to display information. They can be used to display temperature, fan status, LED status, and any other information you wish to display.
3. LM35 temperature sensor: It is a sensor that converts temperature into an electrical signal. It can be used to measure the temperature in the room.
4. Fan: used to provide ventilation and cool the room. Microcontrollers can be used to control the fan on and off based on the measured temperature.
5. LED lamp: used to light the room. Microcontrollers can be used to control the LED on and off based on the desired lighting condition.

Project work:

1. Connect components: Connect the VCC and GND terminal of LM35, LCD display, fan, and LED to a suitable power supply (usually 5V). Connect the OUT terminal of LM35 to the analog input of the microcontroller, and connect the LCD, fan, and LED to the microcontroller according to the required connections.

3. Control the fan and LED: Use the microcontroller to control the fan and LED. Set a specific temperature value, when the temperature reading exceeds this value, turn on the fan and when the temperature reading falls below this value, turn off the fan.

