



Project Proposal

Topic: CPU Info Checker with Fan Speed Controlling

Subject: CSE323

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Section: 9

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In this Arduino based project, we are going to control DC fan speed according to the room temperature and show these parameter changes on a 16x2 LCD display. It is accomplished by the data communications between Arduino, LCD, DHT11 sensor Module and DC fan that is controlled by using PWM. PWM is a technique by using which we can control voltage.

Circuit Components

1. Arduino UNO
2. DHT11 sensor
3. DC Fan
4. 2n2222 transistor
5. 9 volt battery
6. 16x2 LCD
7. 1K resistor
8. Connecting wires
9. LED Light

Description:

This project consists of three sections. One senses the temperature by using humidity and temperature sensor namely DHT11. Second section reads the dht11 sensor module's output and extracts temperature value into a suitable number in Celsius scale and control the fan speed by using PWM. And last part of system shows humidity and temperature on LCD and Fan driver.

Fan speed and PWM values and duty cycles values that we are going to use is showing in given table:

Temperature	Duty Cycle	PWM Value	Fan Speed
Less 26	0%	0	Off
26	20 %	51	20%
27	40%	102	40%
28	60%	153	60%
29	80%	204	80%
Greater 29	100%	255	100%

Fan speed control technique:

A low-frequency pulse-width modulation (PWM) signal, usually in the range of about 30Hz, whose duty cycle is varied to adjust the fan's speed is used. An inexpensive, single, small pass transistor can be used here. It is efficient because the pass transistor is used as a switch.

One disadvantage of this approach, however, is that it can make the fan noisy because of the pulsed nature of the signal. The PWM waveform's sharp edges cause the fan's mechanical structure to move (like a badly-designed loudspeaker), which can easily be audible.

Circuit Diagram:

We will implement that circuit and add some extra features & sensors that will help to check proper info of CPU usage.

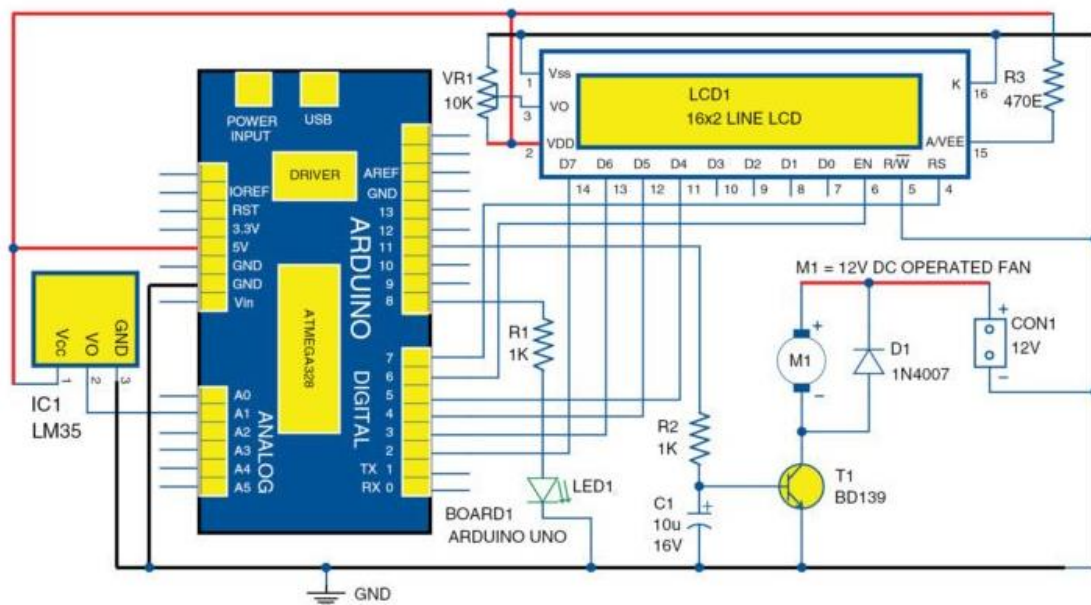


Fig. : Circuit diagram of the temperature-based fan speed control and monitoring CPU usage using Arduino