



Project

**Temperature controlled fan in Assembly
Language**

Group Members

Abbiha Mustafa 28855
Syeda Bisma Arooj 30304

Submitted to

Mam Dua Mehmood

BSCS - 4

Temperature Controlled Fan

Description:

The main aim of this project is to calculate and monitor the surrounding temperature and change the speed of the fan as temperature changes i.e. the speed should increase with a rise in temperature and should decrease with a drop in temperature. The temperature would be displayed through the LCD, which is interfaced by the **8051 microcontroller**. The FAN is controlled by a **PWM wave** given to it by the microcontroller, the power given to the fan is lesser in low temperature and greater in high temperature.

Objective:

The objective of this project is to make a **Fan**, whose speed is controlled by **temperature**. The idea behind the project is that we have a **temperature sensor** which senses the temperature and give the output in analog form which then is fed to **ADC** to convert it to **digital signal** (with values in HEX format), the output of ADC is given to the microcontroller. Now according to the temperature we are going to control speed of the dc-fan that depends on the technique Pulse width modulation, as the width varies, the delay varies because of that the speed of the fan varies accordingly.

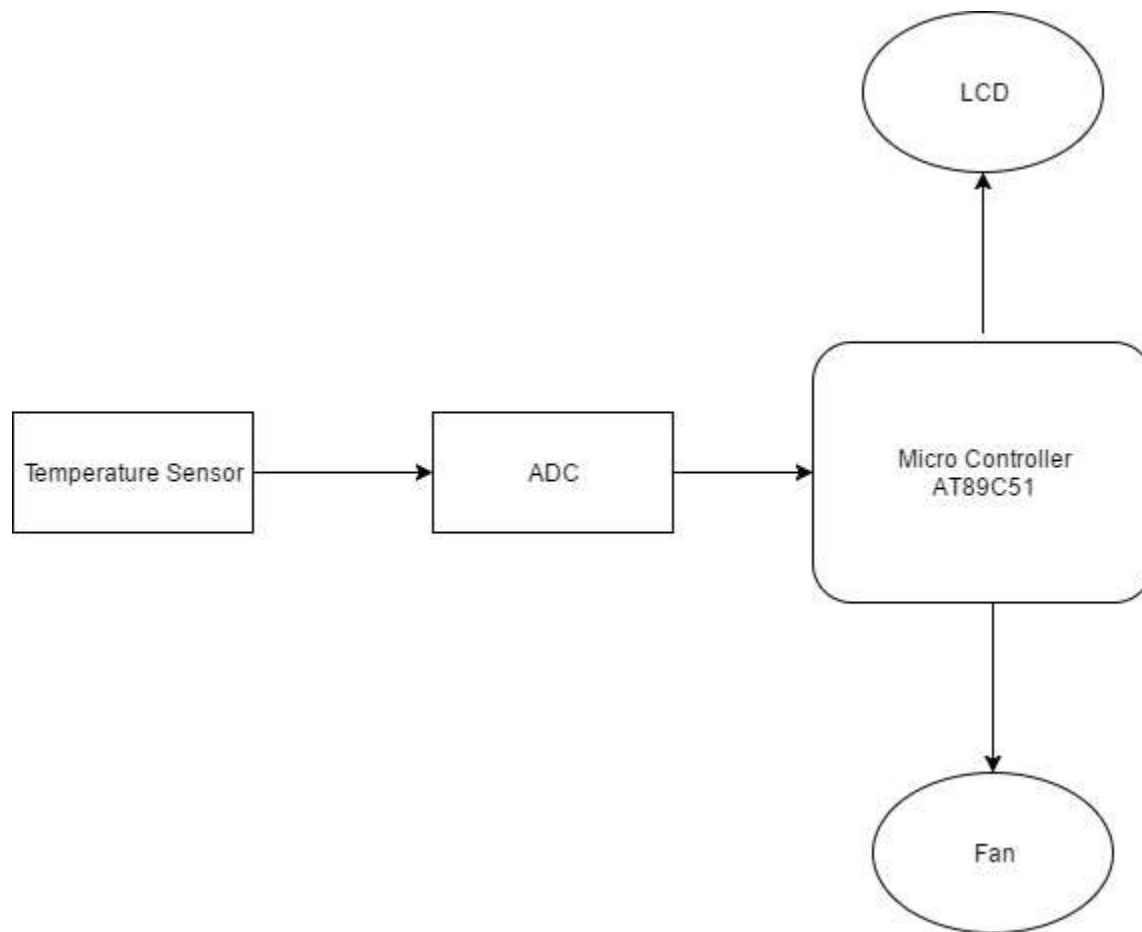
Benefits:

By controlling, the speed of the fan at different temperatures we save a lot of energy throughout the day. Instead of a fan running at full speed all day, which requires a lot of energy, if the speed is controlled and given, as necessary we can save a lot of energy.

Working:

- The main principle behind the working is PWM i.e. pulse width modulation.
- It is a technique for controlling the power output given to different electric devices.
- The average value of voltage (and current) fed to the load is controlled by turning the switch between supply and load on and off at a fast pace. The longer the switch is on compared to the off periods, the higher the power supplied to the load is.
- So if the switch is on for a longer time then more power will be delivered to the fan and it will rotate faster.
- We can program the microcontroller in such a way that when the temperature is higher, the switch remains on for a longer duration and when it is lower, switch remains on for a shorter duration.

Block diagram:



Components required:

- ❖ Microcontroller AT89C52
- ❖ ADC0804
- ❖ 16*2 LCD Display
- ❖ Temperature Sensor LM35
- ❖ Resistors
- ❖ Capacitors
- ❖ Diodes
- ❖ Crystal Oscillator 12MHz
- ❖ Electric Fan
- ❖ Voltage Regulator (7805)
- ❖ Potentiometer (10K)

Thank you!

