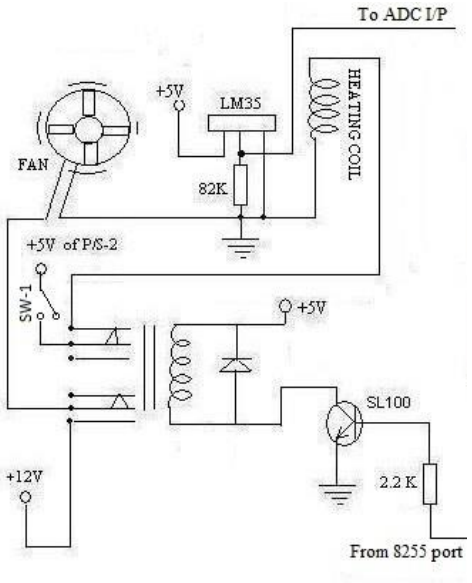
Experiment 5 : Temperature Controller
Time : 2 days

a) Construct heater driver and fan driver circuits as follows and drive both of them through one relay and by one digital signal, so that, either one of them is turned on. Also connect the temperature sensor circuit according to the given diagram.



Connect the input of ADC to the output of temperature sensor circuit instead of potential divider. Place the fan near the heating coil and temperature sensor combination.

b) Observe the output of the temperature sensor both by Multimeter and LEDs connected to the output of ADC by turning on the Heater coil / Fan.

Decide two cut off temperatures significantly different. If the temperature goes higher than the upper cut off temperature (say 60º C), then turn on the Fan and turn off the Heater coil simultaneously. On the other hand, if the temperature goes lower than the lower cut off temperature (say 40º C), then turn on the Heater coil and turn off the fan.

Note that, for safe operation, the power line of the heating coil through relay connector should remain disconnected from power source (using SW-1) when you are not executing your program.

Now, automate the control of the Heater coil and Fan through Microcontroller by observing the output (LEDs) of ADC and there by controlling the input of the relay.