

# Project Thermometer and Alarm System

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## block schematic

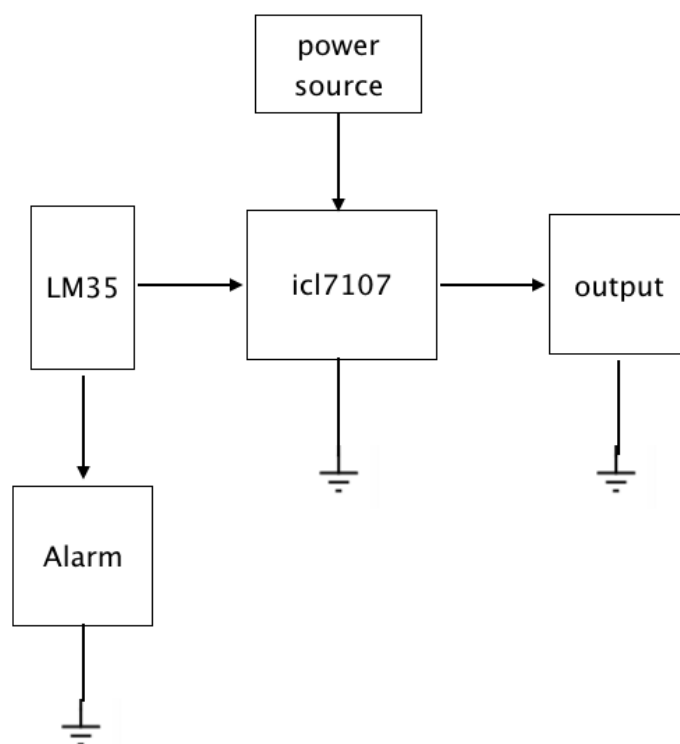


Figure 1: block schenatic

## simulation schematic

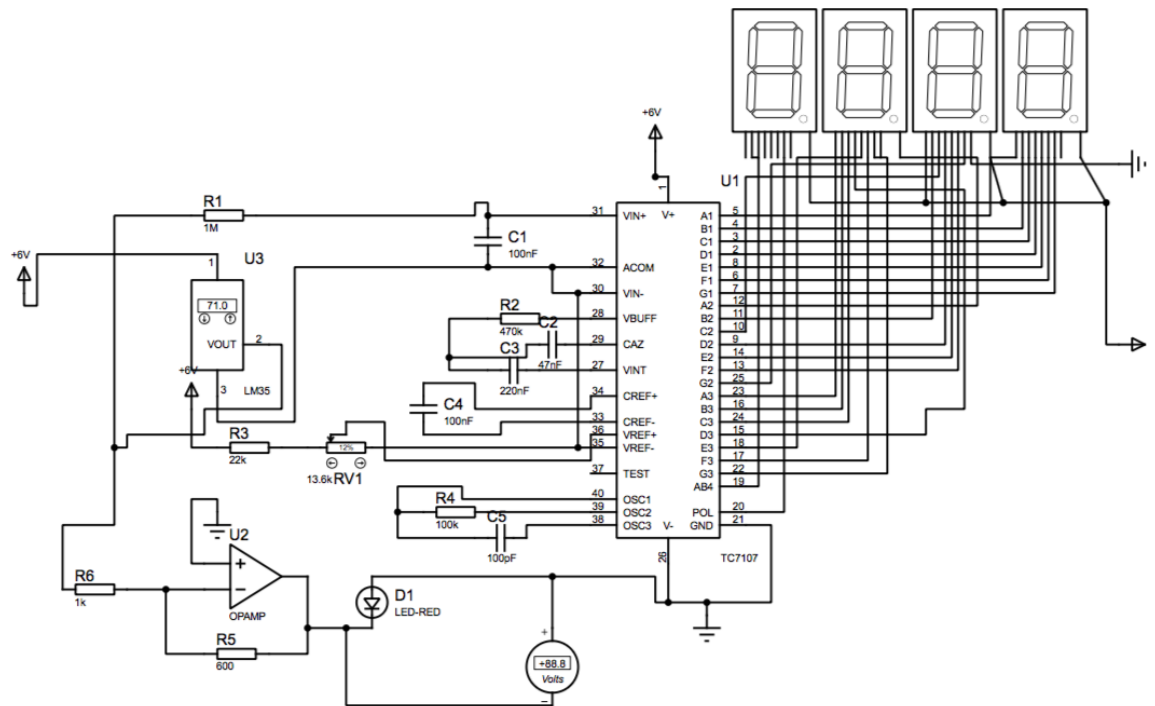


Figure 2: simulation schematic

## simulation results

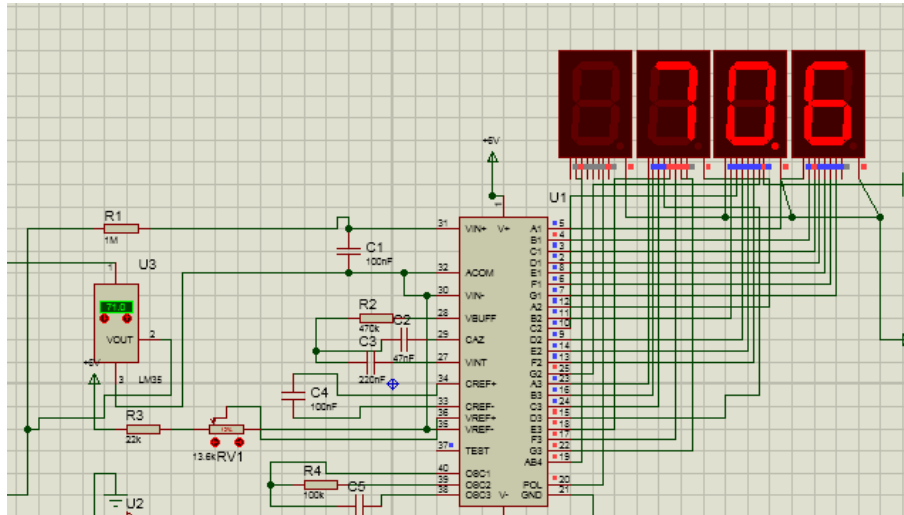


Figure 3: simulation result

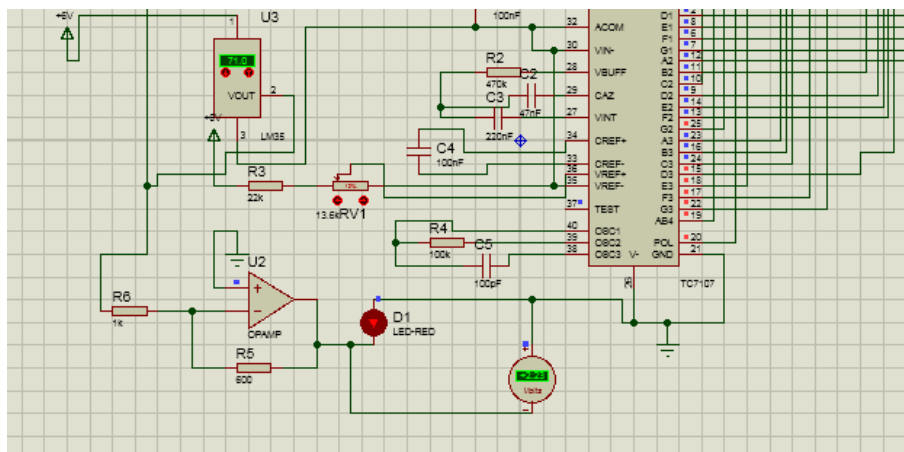


Figure 4: simulation result

When the temperature is 71°C, display 70.6. And at the same time LED lights.

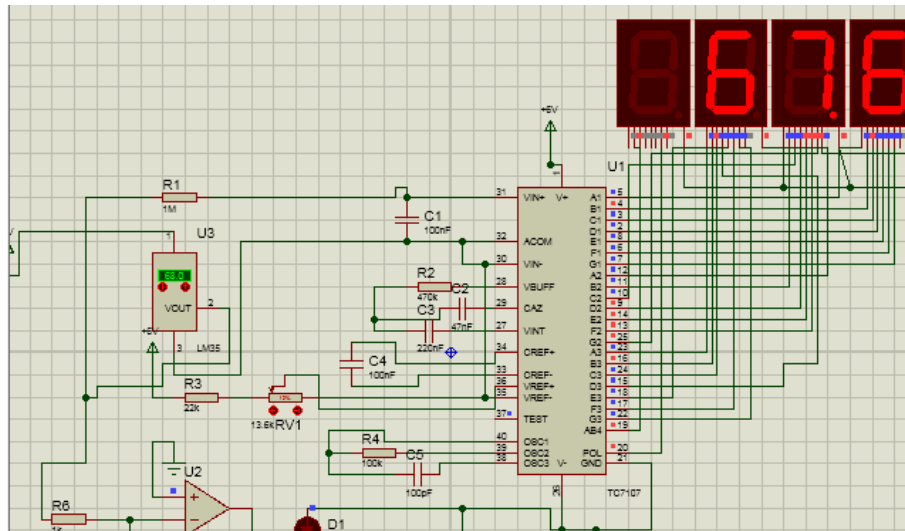


Figure 5: simulation result

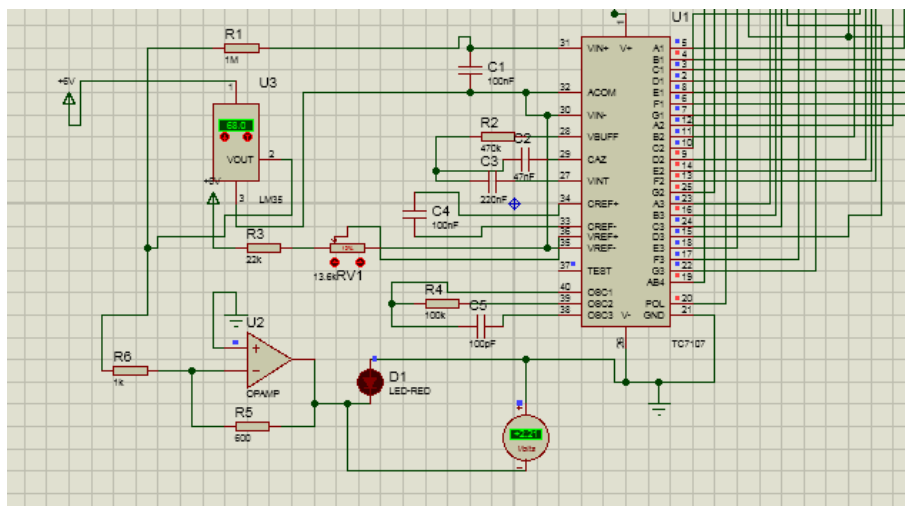


Figure 6: simulation result

When the temperature is  $68^{\circ}\text{C}$ , display 67.6. And at the same time LED off.

## brief statements

ic17107 display count is:  $count = 1000 \times \frac{V_{IN}}{V_{REF}}$ .

LM35 output is:  $V = a \times T + b$ .

Make  $(RV1 + R3) = a$  and use C1 to eliminate b.

**component list**

resistors:

1M\*1

470k\*1

22k\*1

100k\*1

1k\*1

600\*1

capacitors:

100nF\*1

47nF\*1

220nF\*1

100nF\*1

100pF\*1

opamp:

LMC6482AIN\*1

battery:

6V\*1

Other device:

LM35\*1

ic17107\*1

variable resistance 1M\*1

Co-anode Digital tube\*4