Project Name: Fire Alarm Using Thermistor

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Working Principle: In this fire alarm circuit the thermistor is used as temperature sensor of fire alarm. The whole circuit of fire alarm using thermistor is build and fabricated around thermistor (TH1) and timer IC (IC1) with its driver transistor. The timer IC (IC1) used in this circuit is as astable multivibrator oscillator used to oscillate in audio frequency band. The two transistors T1 and T2 used to drive the timer IC (IC1). The output from pin 3 of IC1 is fed to loudspeaker through transistor T3 to generate sound. The value of resistor (R5 and R6) and capacitor (C2) determines the frequency of IC2. The low resistance path of extend positive voltage to the base of transistor is provided when the thermister TH1 become hot. Further collector of transistor T1 is connected to base of transistor T2 provides positive voltage to reset pin 4 of IC1 for reset. Fire alarm using thermistor circuit works on wide range of input power supply voltage i.e. 6v to 12V. LED1 is used to indicate that power to the circuit is switched on.

Equipment:

R1, R3, R7, R8 = 470 Ω

R2 = 33 K Ω

R4 = 560 Ω

R5 = 47 KΩ

R6 = 2.2 KΩ

C1 = 10 µF/16V

C2 = 0.04 µF

C3 = 0.01 µF

IC1 = NE555 (timer IC)

T1 = BC548

T2 = BC558

T3 = SL100B

D2 = 1N4001

TH1 = Thermistor 10 KΩ

LED1 = RED

LS1 = 8 Ω, 1W speaker

Circuit Diagram:

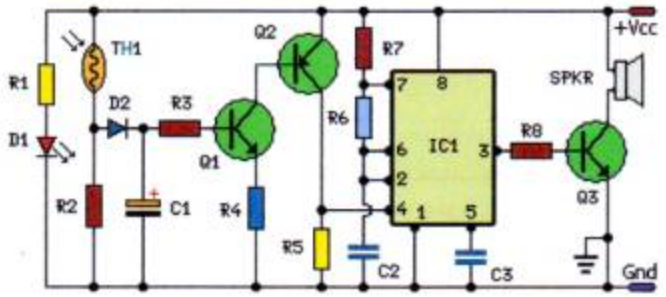

Figure: Fire alarm circuit

Application: It is a simple and inexpensive design of fire alarm. Fire alarm is designed to detect the presence of fire by monitoring environmental changes associated with combustion. Fire alarm system is used to notify people to evacuate in the event of fire. It is widely used in building, shopping mall, office, school, college etc for security purposes.