Simple Fire Alarm Circuits

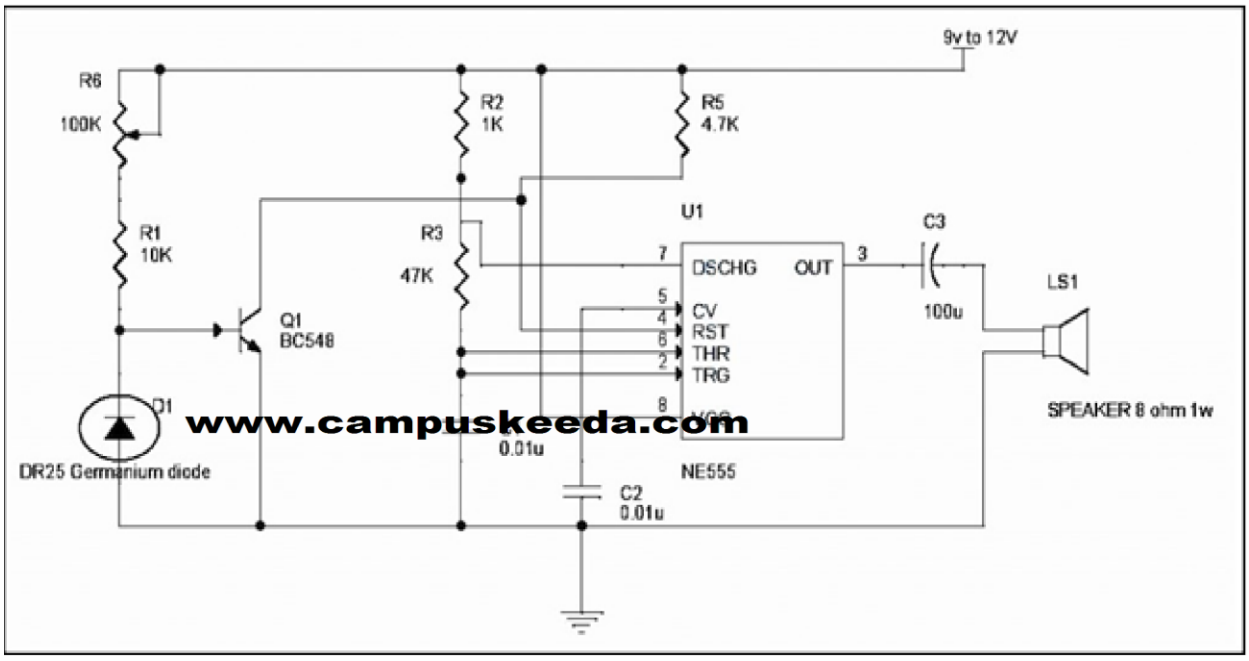
This is a simple fire alarm circuit using Germanium Diode and 555 timer. In this circuit Germanium Diode play very important role in detecting the fire. This circuit is very easy to construct, cost effective and implementable.

Block Diagram of Fire Alarm Circuit Using Germanium Diode:

Block Diagram of Fire Alarm

Here is the simple fire alarm circuit which costs less than 100 rupees. The key component in the circuit is DR25 (germanium diode) whose resistance will decrease with increase in temperature. The conduction of germanium diode will start at 70 degrees. So we may use germanium diode as a heat sensor. When the temperature is more than 70 degree, the germanium diode will conduct and trigger the NE555 timer through a transistor. The NE555 is configured in astable multivibrator and make the buzzer to alarm when germanium diode conducts. So that we can get alert and act according to the alarm.

Circuit Diagram of Fire Alarm Using Germanium Diode:



Circuit Explanation:

- The DR25 germanium diode is heat sensor which will conduct when temperature is increased at certain point. The DR25 is made reverse biased in the circuit. It will conduct only when it is more than 70degree of room temperature.
- The DR25 is connected to the transistor in reverse bias, which has high reverse resistance (more than 10K ohm) and does not make the transistor to turn off which is connected to the reset pin of 555 timer. The reset pin of 555timer will be in ground level when the transistor is turned off. Here, the 555 timer is configured as astable multivibrator.
- When more than 70degrees in room temperature occurred, the resistance of DR25 diode drops to 1k ohm which will make the transistor to turn off and make the reset pin to go high. This will generate the output at pin3 and make the sound through the alarm.
- We can use 3 or more diodes in reverse bias connected in parallel and placed in different room. If there is fire accident, it will sense and make the alarm.

Fire Alarm Applications:

- Fire alarms can be used in any place like parks, theaters, hotels, restaurants, boats, ships, etc.
- Fire alarms can be also used as temperature sensors in some applications, when the temperature goes up abruptly it can inform.
- Fire alarm can be used in our home for safety purpose and it is a very good precautionary measure.