

# Smoke Detector Alarm

## Introduction:

Smoke detectors, as well as other critical safety characteristics, are extremely valuable in detecting smoke or fire in buildings. We'll make a simple smoke detector circuit without utilizing a microcontroller in this project. When it detects smoke or fire near it, this circuit activates the Buzzer. The MQ6 Smoke/Gas sensor is used to detect the level of smoke in this circuit. LPG, alcohol, and methane are all detectable by the MQ6 gas sensor. We've used a Buzzer as a smoke detector, which is powered by a BC547 NPN transistor.

## Requirements:

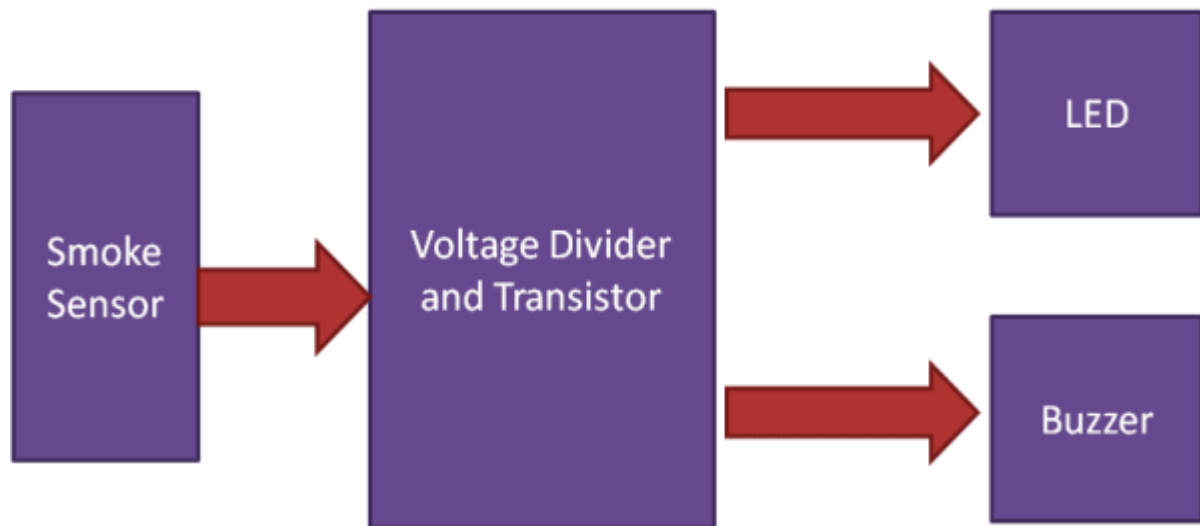
### High Level Requirements:

- Detects smaller smoke particles, responding more quickly to fast moving flaming fires.
- Able to react quickly .

### Low Level Requirements:

- Detects larger smoke particles, giving faster alert during smoldering fires.
- Generally higher cost per unit than stand-alone alarms.
- Slower alert time for slow burning.

### Block Diagram:



The transistor operating properties to work this circuit as a smoke detector. Already used a BC547 NPN transistor which will turn on whenever it gets least 0.70v at its base terminal. So applied a Voltage Divider Circuit at its base.

But before using this circuit, we need to calibrate it by using pot. In calibration, we have applied voltage just below than 0.70v at transistor base. Whenever smoke sensor senses smoke, it reduces its resistance and due to this decrease in resistance, voltage across the base of the transistor increases. Now when the voltage at the base terminal of transistor become more than or equal to 0.70v then transistor turns on and LED lights up and buzzer also starts beeping. And when there is no Smoke, both the indication components turns off as the voltage across base terminal of transistor goes below the 0.70v.

