**MQ6 SENSOR**

**CIRCUIT CONNECTIONS**

There are two circuits in the project – transmitter circuit and the receiver circuit. The transmitter circuit is built on Arduino UNO and it has MQ6 gas sensor interfaced to it. The circuit is provided human interface using two tactile switches and an LCD display. The circuit is interfaced with the RF transmitter to send alert signals to the receiver circuit.

The receiver circuit is basically RF receiver circuit with buzzer circuit interfaced with the decoder IC. More than one receiver circuits can also be made and used with the project to add multiple alarms. All the alarm circuit added in the project will alert simultaneously when there will be a gas leakage. It should be taken care that if multiple alarm circuits are added in the project, all the RF receivers in those circuits should be configured to the same address byte as that of the RF transmitter in the transmitter circuit.

**Power Supply –** Both the circuits will be powered by 5V DC supply. The 7805 voltage regulator is used to supply the desired voltage. The power can be drawn from a regular battery which can be connected to the 7805 IC. The IC has three pins – pin 1 should be connected to anode of the battery, pin 2 and 3 with the cathode (common ground). The 5V DC should be drawn from the pin 3 of the IC.

**MQ6 Gas Sensor –** The MQ6 gas sensor is a gas sensor module. The module has 4 pins for interfacing of which two pins are VCC and ground, one pin is analog output and one pin is digital pin via a comparator (LM358). The analog output pin of the module is used for detecting concentration level of gas leakage and interfaced with the A0 analog input pin of the Arduino board.

## **MQ2 Gas Sensor**

The MQ2 sensor is one of the most widely used in the MQ sensor series. It is a MOS (Metal Oxide Semiconductor) sensor. Metal oxide sensors are also known as **Chemiresistors**because sensing is based on the change in resistance of the sensing material when exposed to gasses.

The MQ2 gas sensor operates on 5V DC and consumes approximately 800mW. It can detect **LPG**, **Smoke**, **Alcohol**, **Propane**, **Hydrogen**, **Methane** and **Carbon Monoxide** concentrations ranging from 200 to 10000 ppm.

**Working process:**

When a SnO2 semiconductor layer is heated to a high temperature, oxygen is adsorbed on the surface. When the air is clean, electrons from the conduction band of tin dioxide are attracted to oxygen molecules. This creates an electron depletion layer just beneath the surface of the SnO2 particles, forming a potential barrier. As a result, the SnO2 film becomes highly resistive and prevents electric current flow.