SIR C R REDDY COLLEGE FOR WOMEN

(Affiliated to Adikavi Nannaya University , Rajamahendravaram)
Vatluru(PO), Eluru

III BSC VI SEMESTER (ELECTRONICS)

AUTOMATIC SMOKE DETECTOR ALARM MQ-135 SMOKE SENSOR & ARDUINO

Internet Of Things (IOT)

SUBMITTED BY

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AUTOMATIC SMOKE DETECTOR ALARM MQ-135 SMOKE SENSOR & ARDUINO

SCOPE:

- INTRODUCTION
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INTRODUCTION:

In our daily life, we come across many incidents that fire accidents in industries or in any hospitals. But we don't focus much on how this gas or smoke or fire was detected. Here's the project which describes about how the smoke is being detected and how it performs operations through logistics available in market in a scientific procedure. In this project the detection of gases like smoke, butane , propane, alcohol can be detected by a sensor named MQ-135 smoke sensor. The smoke sensor we used is the MQ-135 sensor. Smoke Detectors are very useful in detecting smoke or fire in buildings, and so are the important safety parameters.

ABSTRACT

The objective of the project " AUTOMATIC SMOKE DETECTOR ALARM MQ-135 SMOKE SENSOR & ARDUINO " is a fire protection device that automatically detects smoke and gives us warning through led on and starts alarming with a buzzer.

A smoke detector is an electronic fire-protection device that automatically senses the presence of smoke, indication of fire, and Sounds a warming to building occupants.

COMPONENTS:

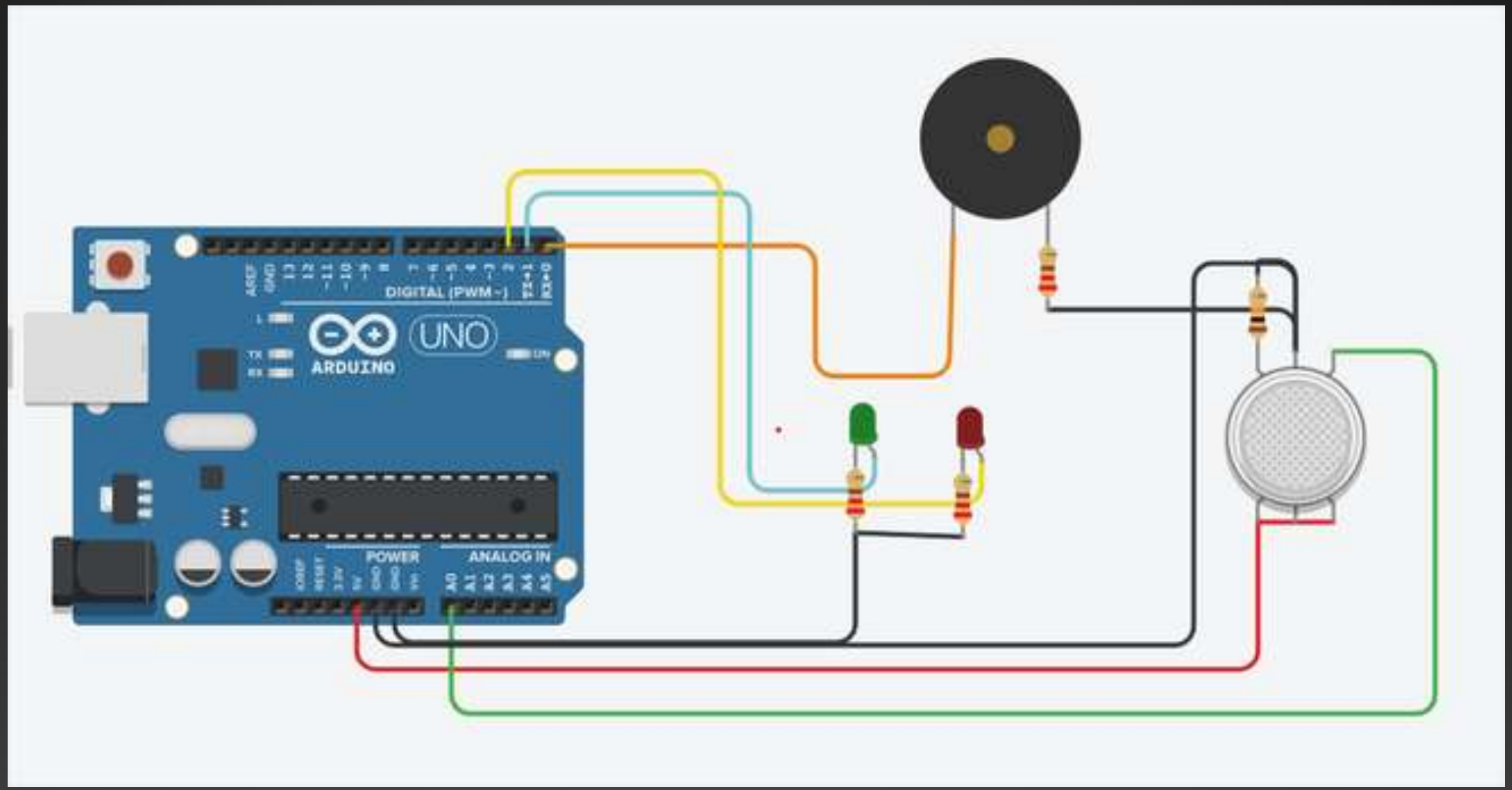
HARDWARE REQUIREMENTS:

- ***Jumper wires***
- ***Arduino UNO***
- ***Buzzer***
- ***Resistor 1k & 100 ohm***
- ***Smoke sensor***
- ***Bread board***
- ***LED'S***

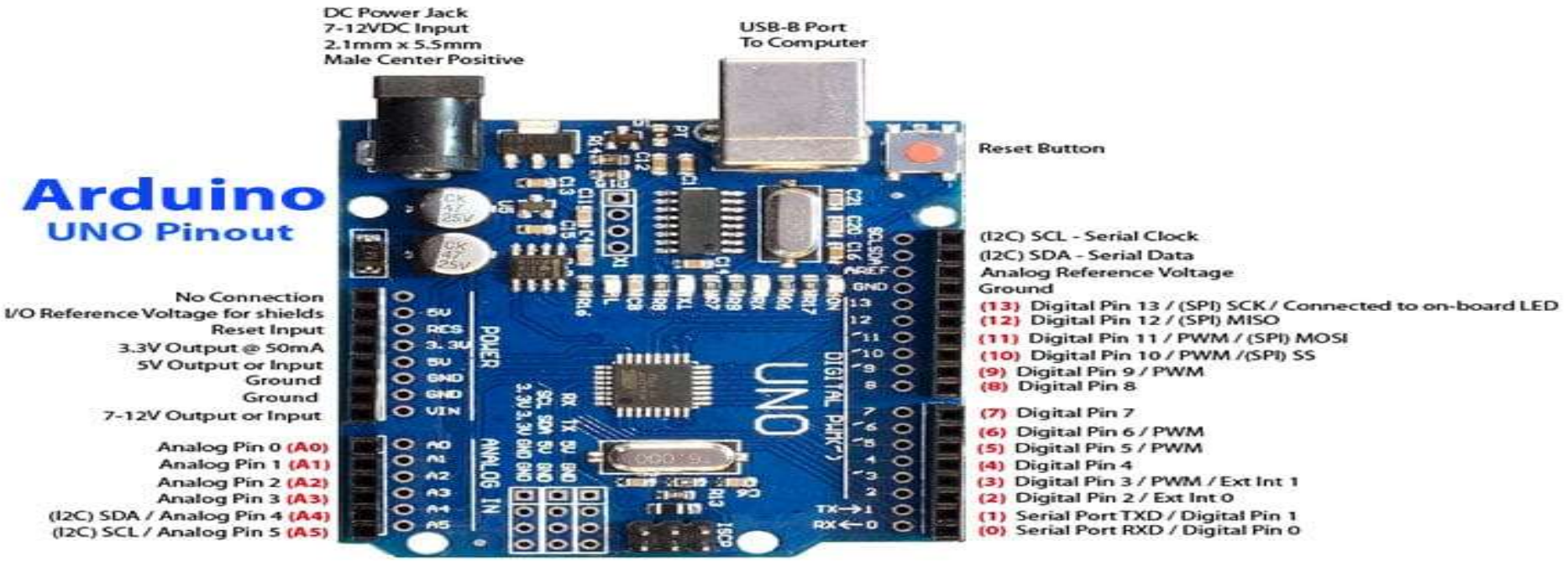
SOFTWARE REQUIREMENTS:

- Window 10 operating system
- Arduino IDE 1.8.5

CIRCUIT DIAGRAM :



ARDUINO UNO

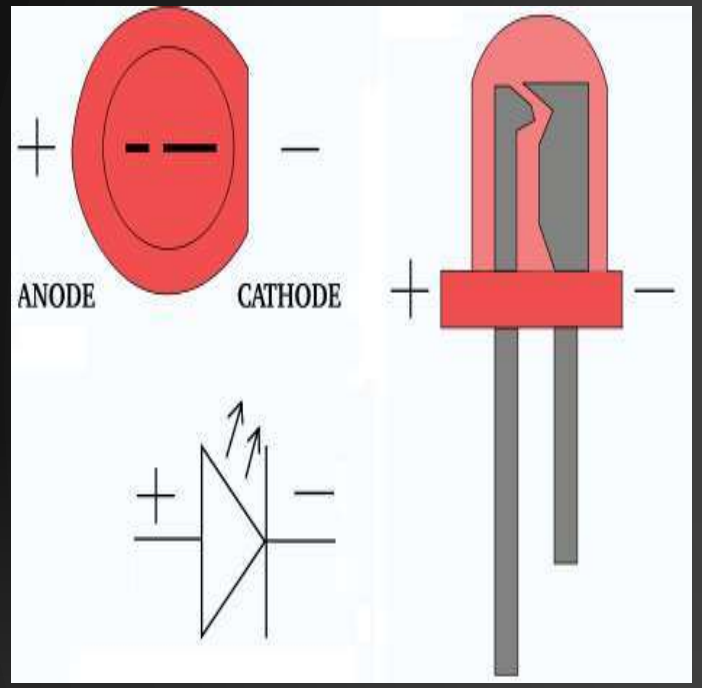


Red numbers in paranthesis are the name to use when referencing that pin.
Analog pins are references as A0 thru A5 even when using as digital I/O

ARDUINO UNO

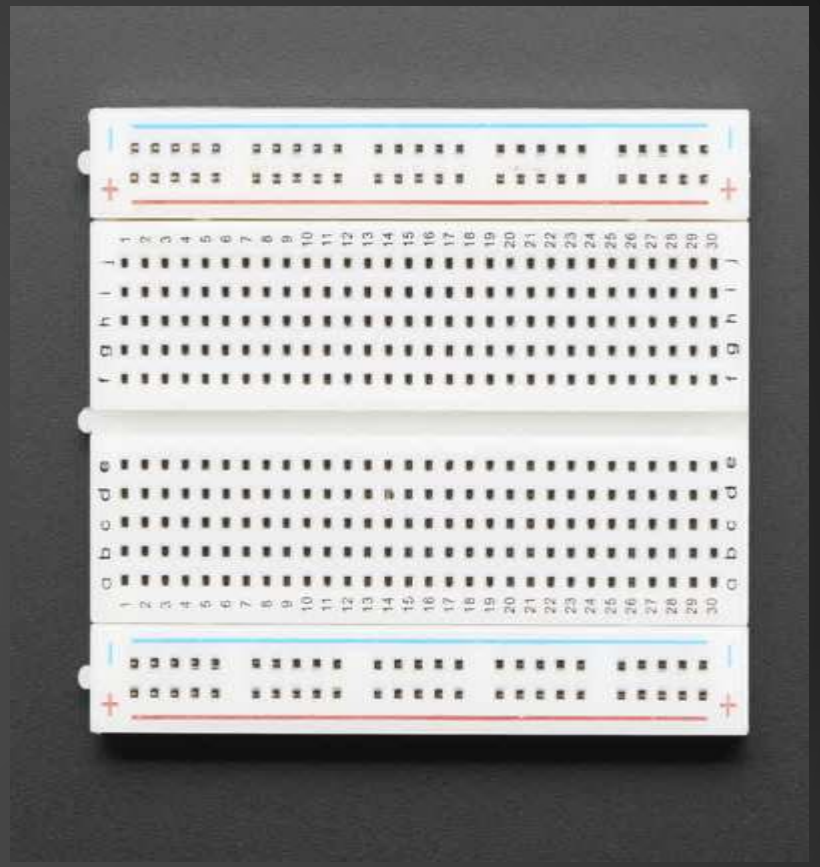
- Arduino is an open- source electronics platform based on easy- to-use hardware and software.
- Arduino boards are able to read input-light on a sensor, activating a motor, turning on an led,publishing something online.
- You can tell your board what to do by sending a set of instructions to the microcontroller on the board.
- To do so you use the arduino programming language (based on wiring),and the arduino software (ide).Based on processing.

LED



100 OHM RESISTOR

1K RESISTOR



JUMPER WIRES

BREAD BOARD

SMOKE SENSOR:

- The MQ-135 gas sensor module is a device that is used for sensing a range of gases, including ammonia (NH3), sulfur dioxide (SO2), and carbon monoxide (CO).
- An MQ-135 air quality sensor is one type of MQ gas sensor used to detect, measure, and monitor a wide range of gases present in air like ammonia, alcohol, benzene, smoke, carbon dioxide, etc. It operates at a 5V supply with 150 ma consumption.

BUZZER :

A buzzer or beeper is a audio signalling device. Which may be mechanical, electrochemical, or piezoelectric typical uses of buzzers and beepers include alarms,timers, and confirmation of user input such as a mouse click or keystroke.

APPLICATIONS OF BUZZER:

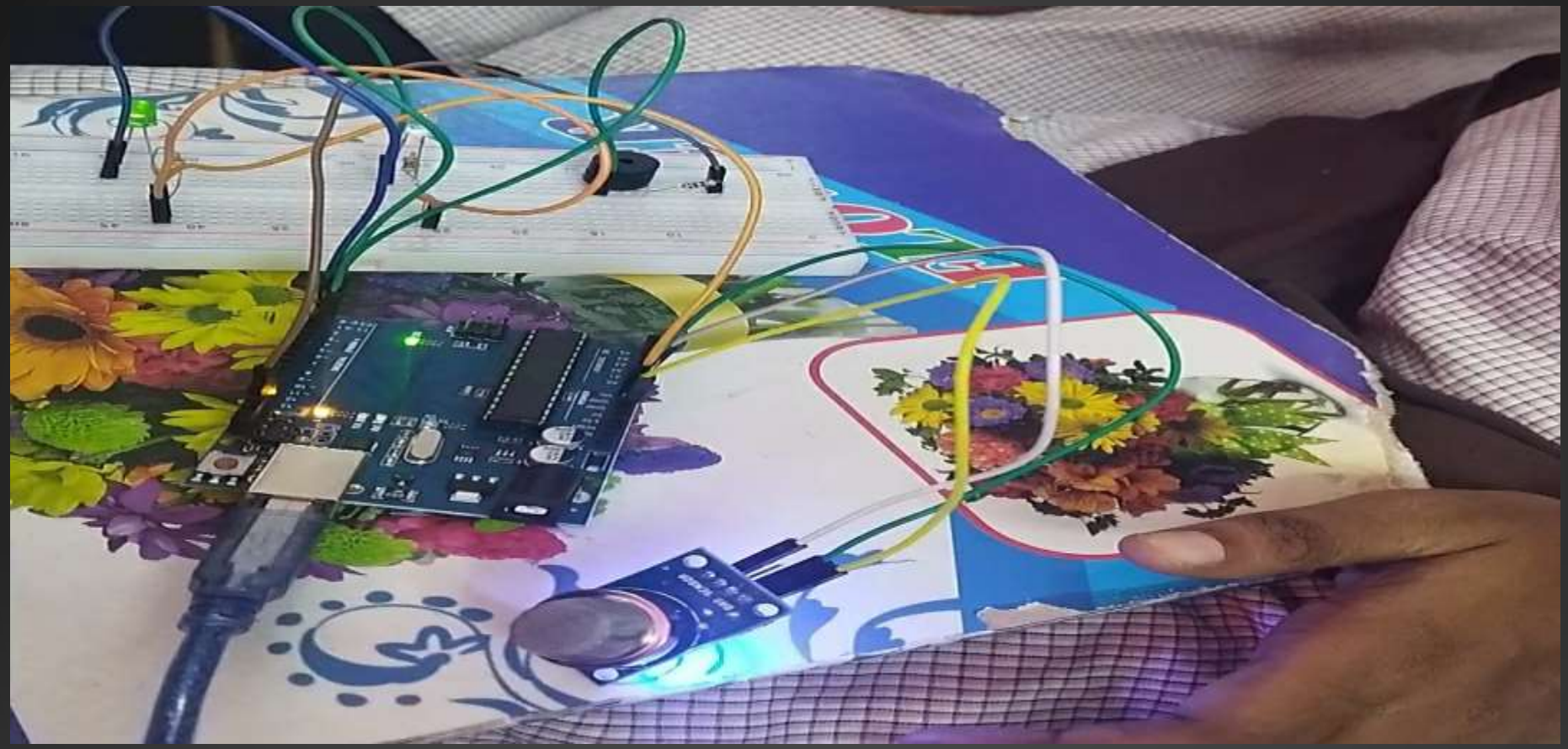
1. Alarms
2. Automobiles
3. Warning devices
4. Electric field

CONNECTION :

- **ARDUINO** **BUZZER** **LED**
- Pin 0 (+ ve) pin
- Pin 1 (+ ve) pin of LED 1
- Pin 2 (+ve) pin of LED 2
- Gnd (-ve) pins of LED's with resistance
- **ARDUINO** **BUZZER**
- Gnd GND pins of a Buzzer with resistance
- **ARDUINO** **MQ-135 (SMOKE SENSOR)**
- pin A0 pin A0
- 5v VCC pin
- Gnd Gnd

INPUT: ***Circuit connection and upload the code.***

OUTPUT: ***Detects smoke and gives us warning through led on and alarming with a buzzer.***



APPLICATIONS:

- Works as a portable air pollution detector.
- Used as an industrial air pollution detector.
- Used as a domestic air pollution detector.
- Used in the detection of excess or leakage of gases like Nitrogen oxide, ammonia, alcohol, smoke and sulfide.
- Used as air quality monitors.
- Used in air quality equipment for offices and buildings.

ADVANTAGES :

- Smoke alarm system installed in your home or building is that it gives you peace of mind.
- A fast response can minimize damage.
- Sensitivity.
- Smoke sensor portable.

DISADVANTAGES:

- Installing a smoke alarm system is the cost involved.
- Depending on the plan selected.
- It is very sensitive , which can lead to false alarm.
- These smoke sensors are used up to only a period of ten years.

CONCLUSION:

A sound quality fire alarm system may provide peace of mind knowing that your home or building is protected from fires with early warning notifications but there are certain drawbacks too, such as cost and potential false alarms due to faulty sensors.

THANK YOU