REVIEW - 2

HOME AUTOMATION USING ARDUINO

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ABSTRACT

- The main aim of this project is to design and construct a home automation system using an Arduino board, that will remotely on/off home appliances connected to it.
- This provides an integrated system built to facilitate a smart home for the general public especially for the elderly and disabled as the conventional wall switches located in different parts of the house makes it difficult for them to go near to operate. These can not only be used at home but also on a larger scale like offices, industries, hotels, universities, etc.
- In this project we use micro-controllers like Arduino to help the consumer wirelessly control lights or automatically turn off lights in case no motion detected to save power consumption, a door lock keypad system to increase security in sensitive areas, a fire alarm system one of the basic needs for almost all newly constructed buildings, and also a plant monitoring system that can be used in farms, green-house, various labs, etc.

ARDUINO PROJECTS

A

SMOKE DETECTION SYSTEM

B

MOTION CONTROLLED LED LIGHTS

C

PASSWORD BASED DOOR LOCK SYSTEM

LITERATURE SURVEY

SI.NO	RESEARCH PAPER	AUTHOR
1.	http://ijeert.org/pdf/v3-i2/2.pdf	Mamata Khatu, Neethu Kaimal, Pratik Jadhav, Syedali Adnan Rizvi
2.	https://www.irjet.net/archives/V2/i6/IRJET-V2I6133.pdf	S.Anusha, M.Madhavi, R.Hemalatha

A.IMPLEMENTATION OF INTERNET OF THINGS FOR HOME AUTOMATION :

Mamata Khatu, Neethu Kaimal, Pratik Jadhav and Syedali Adnan Rizvi [1] they presented a paper on the implementation of Internet of things for home automation. This paper mainly focused on IoT coverage that connects all the variety of objects like smart phone, tablets, digital cameras and sensors in the internet and thus provides many services and huge amount of data and information. They also focused on Cloud computing, Cloud based platform help to connect the things that surrounds as so that we can easily access anything at any time and in any place. They have illustrated sensing as a service on cloud by using certain application like Augmented Reality, Agriculture, Environment monitoring etc. and finally they have proposed a prototype model for providing sensing as a service on cloud. The society need new and scalable, compatible and secure solutions for both the management of the ever broader complexly networked Internet of Things. Security concern is overcome by this model since we are using Wi-Fi Wireless Equivalent Privacy (WEP) and Wi-Fi Protected Access (WPA) are two most used security accesses used in Wi-Fi .

B. ***HOME AUTOMATION USING ATmega328 MICROCONTROLLER AND ANDROID APPLICATION :***

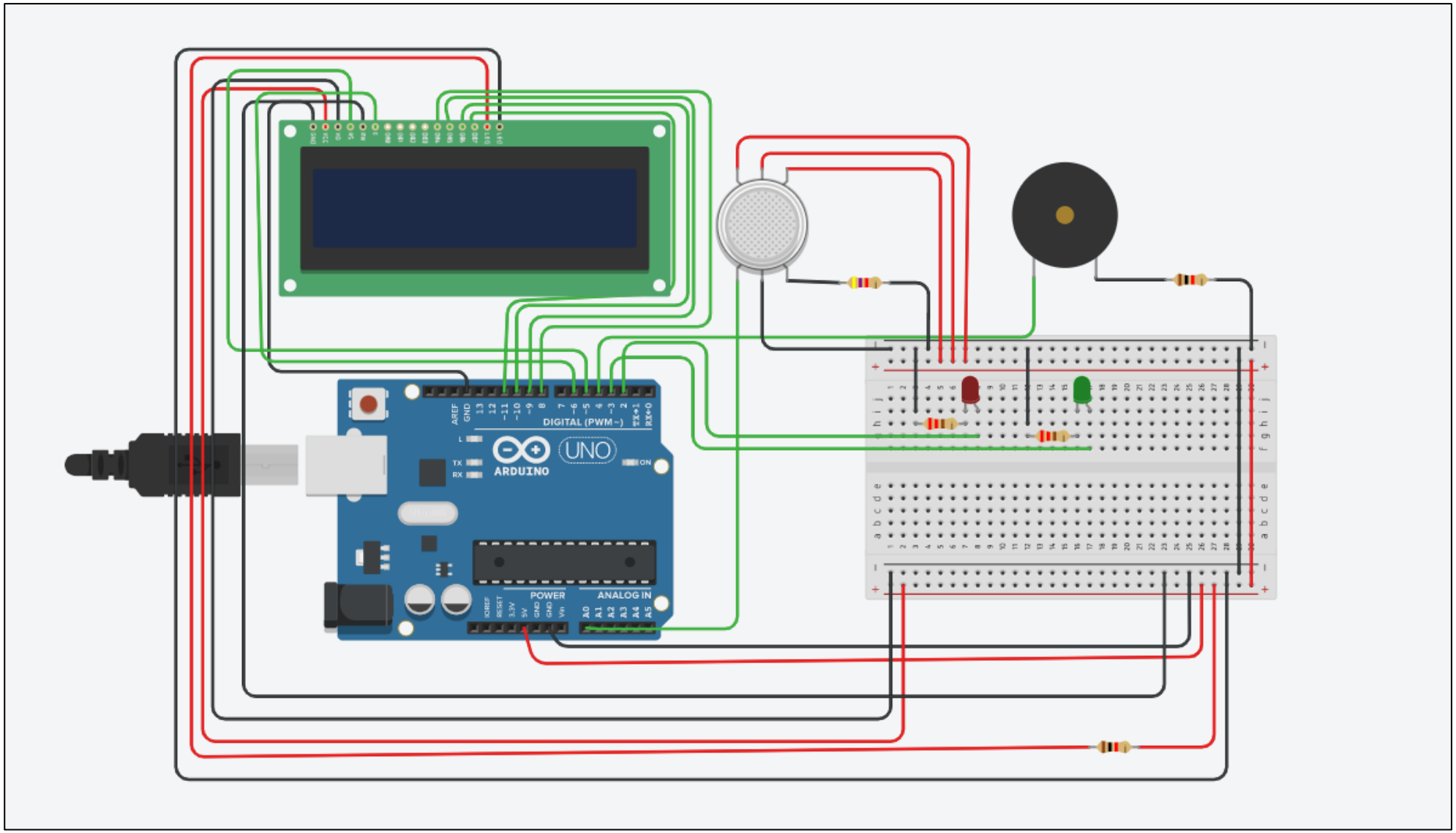
S.Anusha, M.Madhavi and R.Hemalatha [2] presented a paper on Home automation using AT mega Microcontroller and Android application. In this paper they have describe the design and development of a remote household appliance control system using the ATmega328 microcontroller and android mobile through GSM technology. In addition, this appliances remotely using the SMS-based system that satisfying user needs and requirements. Thus, all electrical household appliances can be controlled by sending a text message from an Android mobile. For Controlling, the remote appliances carried out by sending a SMS message from a mobile phone, which again congestion process and make system, complicated for the disabled persons. Here, we does not carry out this technique, we are using simple open source android application through Wi-Fi we can directly control the entire appliance with a greater extent. Thus, intend to be a reliable method.

DESIGN METHDOLOGY

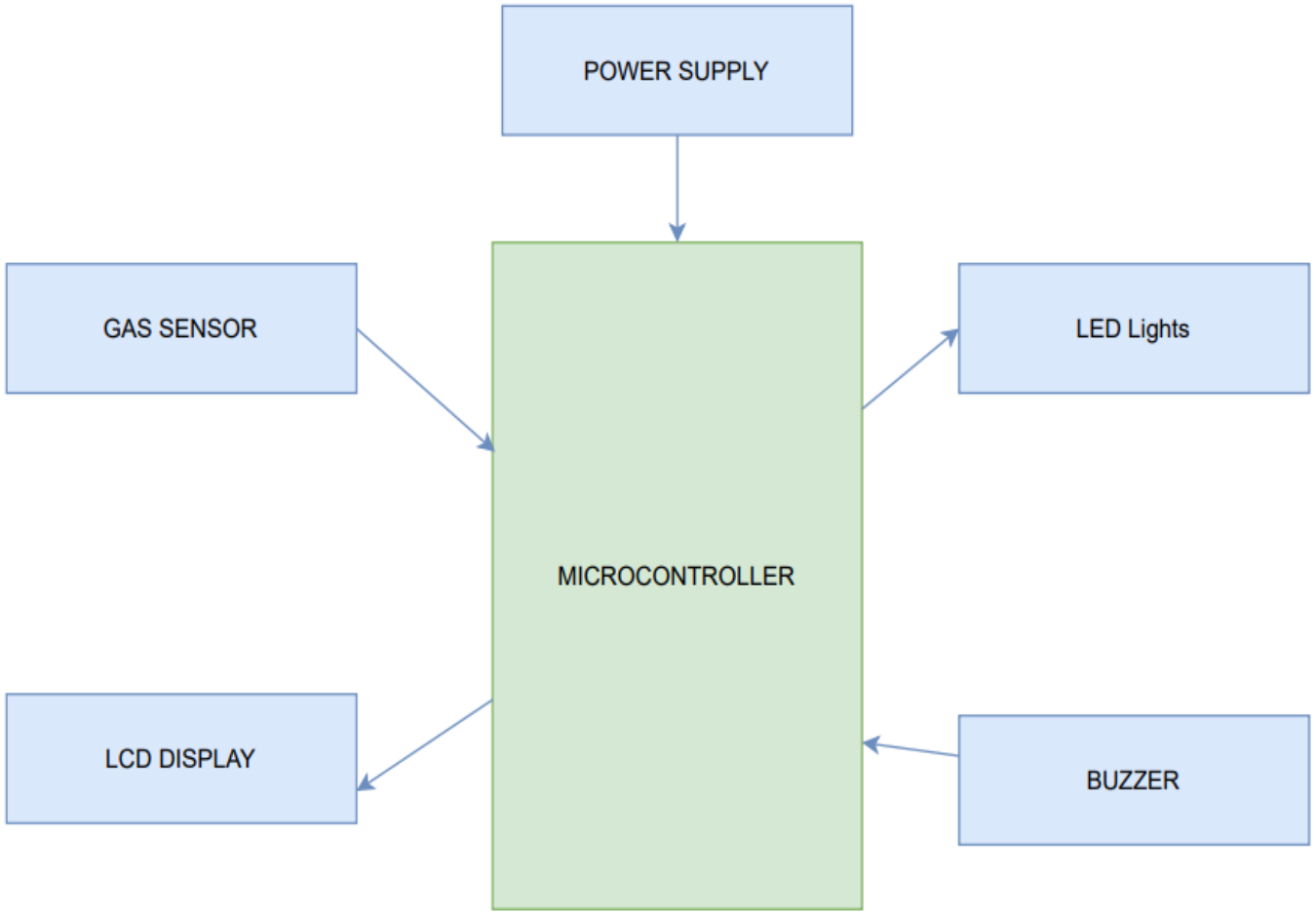
SMOKE DECTECTION SYSTEM

Smoke detector system can be used offices, shops and homes to detect fires. It can also be used to detect alcohol content ignorer to check if people are drunk driving, detect the concentration of harmful and harmless gases in the atmosphere.

CIRCUIT



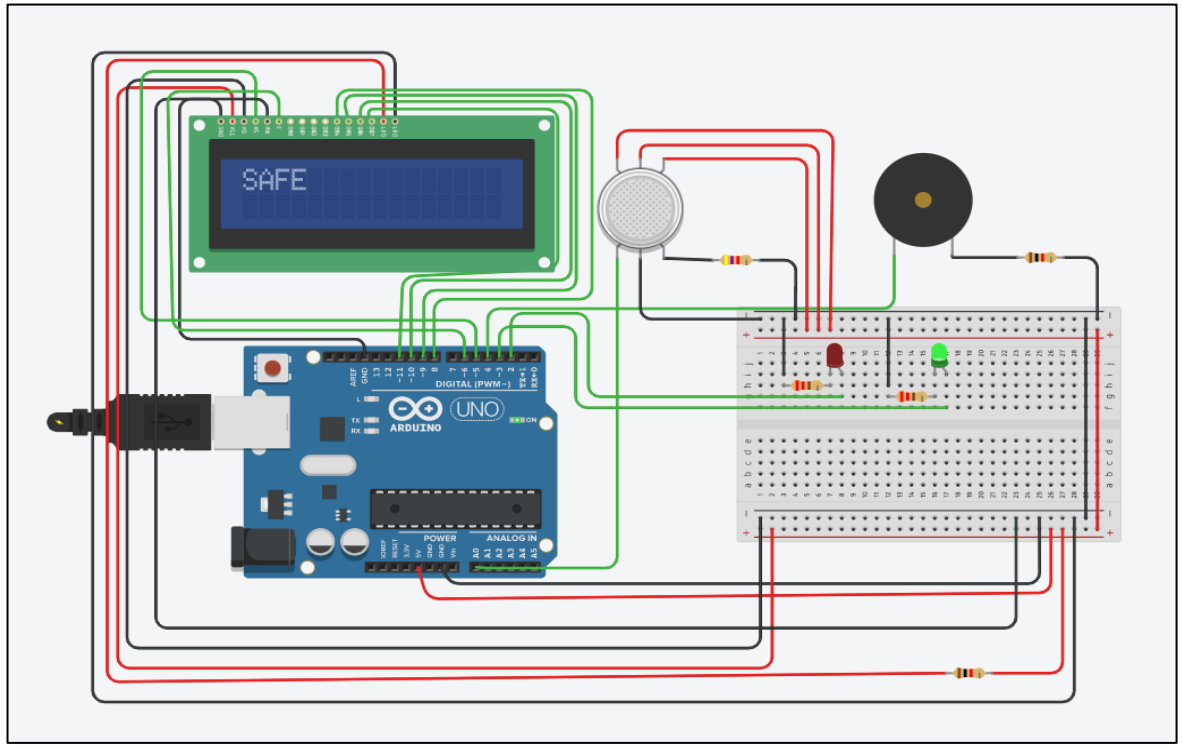
BLOCK DIAGRAM:-

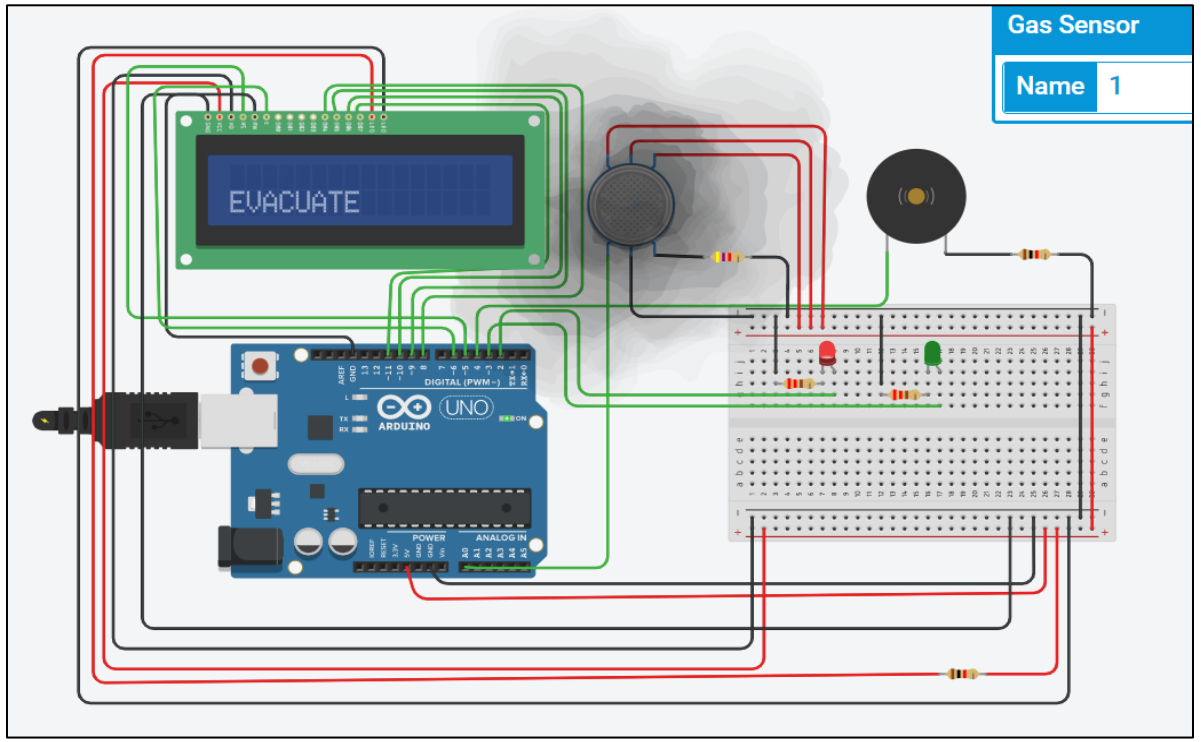


OUTPUT:

- **When Smoke is not Detected,**

Green LED glows and no sound is produced by the buzzer. LCD display Messages “ALL CLEAR” & “SAFE”.





- **When Smoke is Detected,**

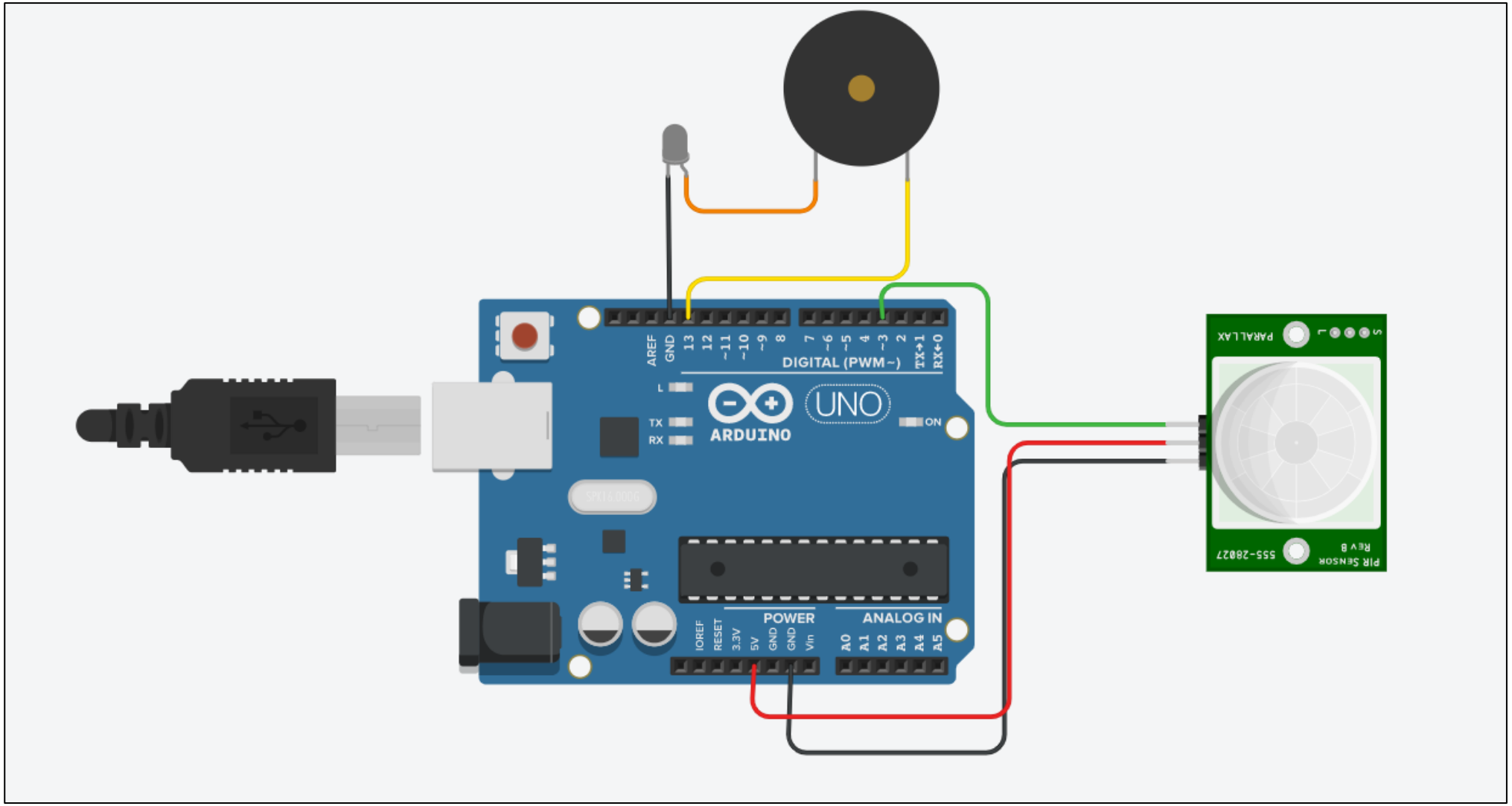
Red LED glows and sound is produced by the buzzer. LCD display messages “ALERT” & “EVACUATE”.

B

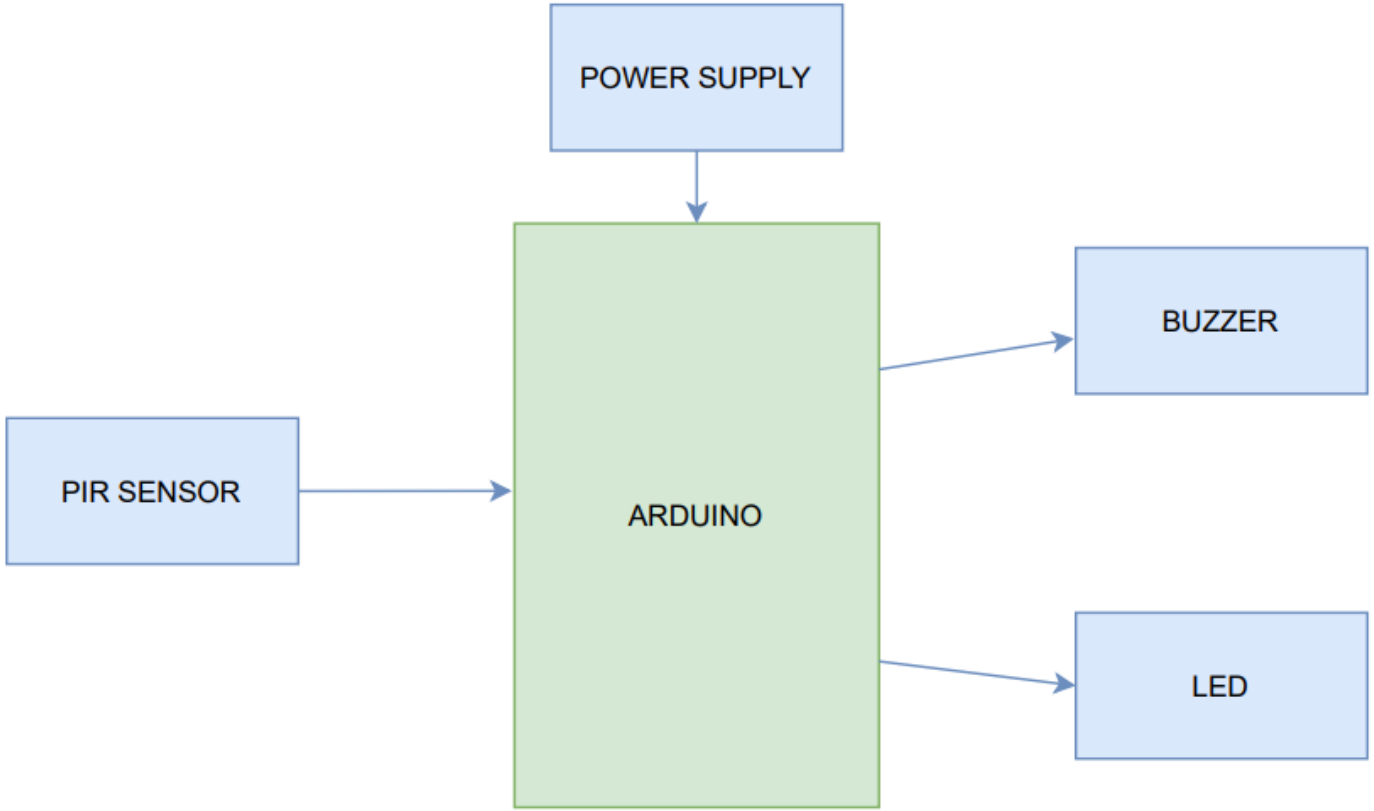
MOTION CONTROLLED LED LIGHTS

Control lights using PIR sensors: Street lights, washrooms, places where light is required only when someone needs to pass by or use it for a very short period of time so electricity is saved.

CIRCUIT


AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
L
TX
RX
ARDUINO
UNO
ON
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5
PARALLAX
PIR SENSOR
555-28027
REV B

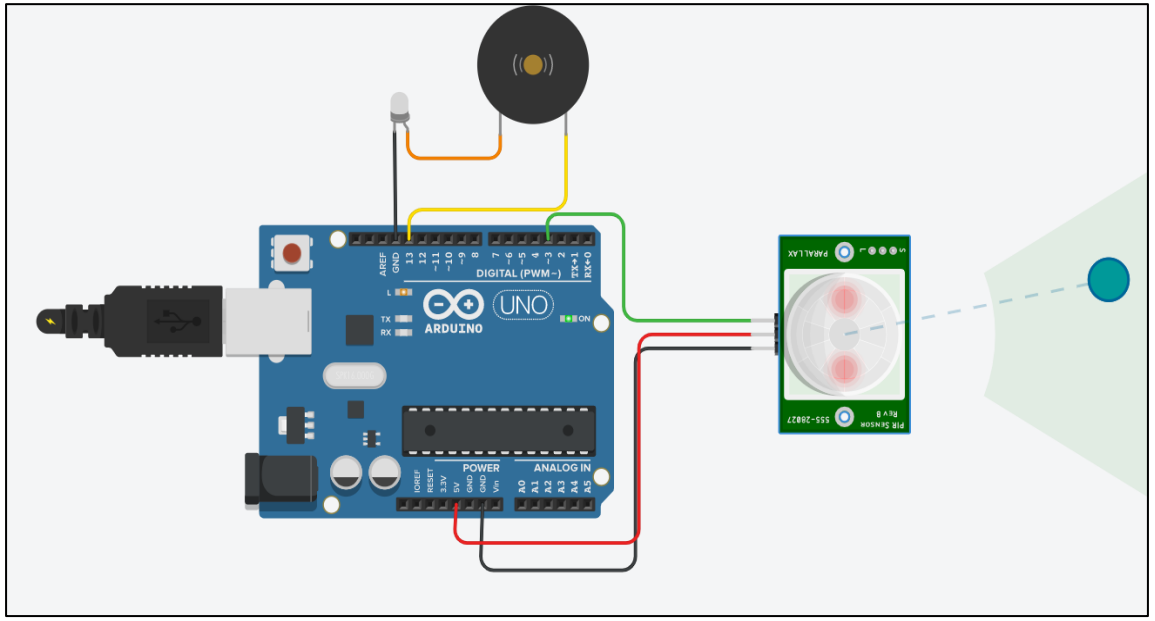
BLOCK DIAGRAM:-

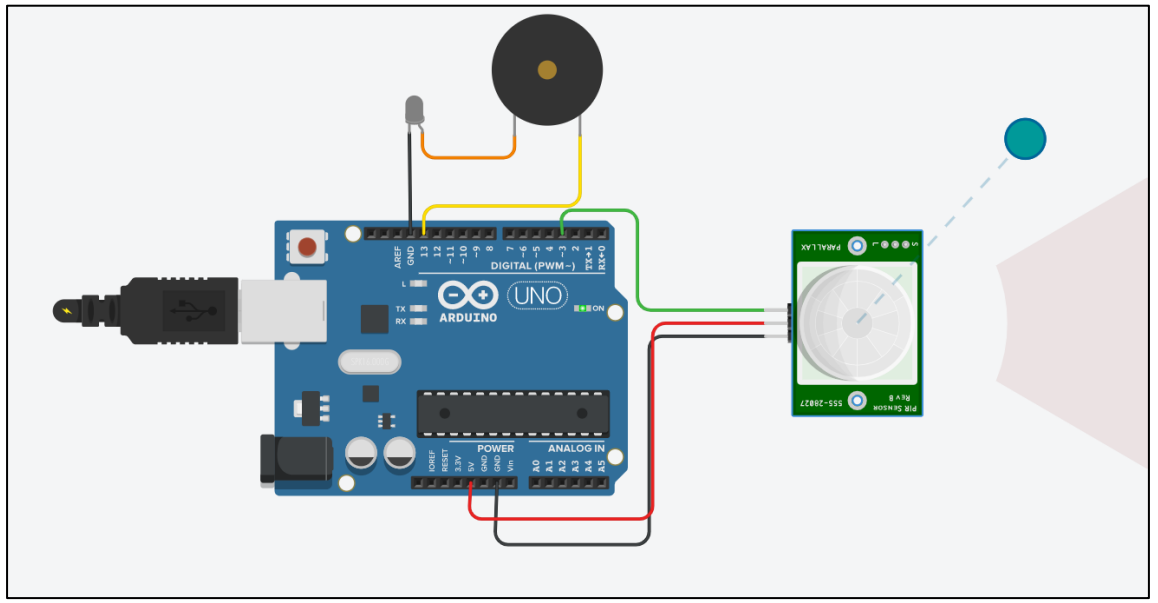


OUTPUT:

When an Object in Motion is detected By PIR SENSOR,

Buzzer Turns ***ON*** & White LED ***glows***





When an Object in not in Motion,

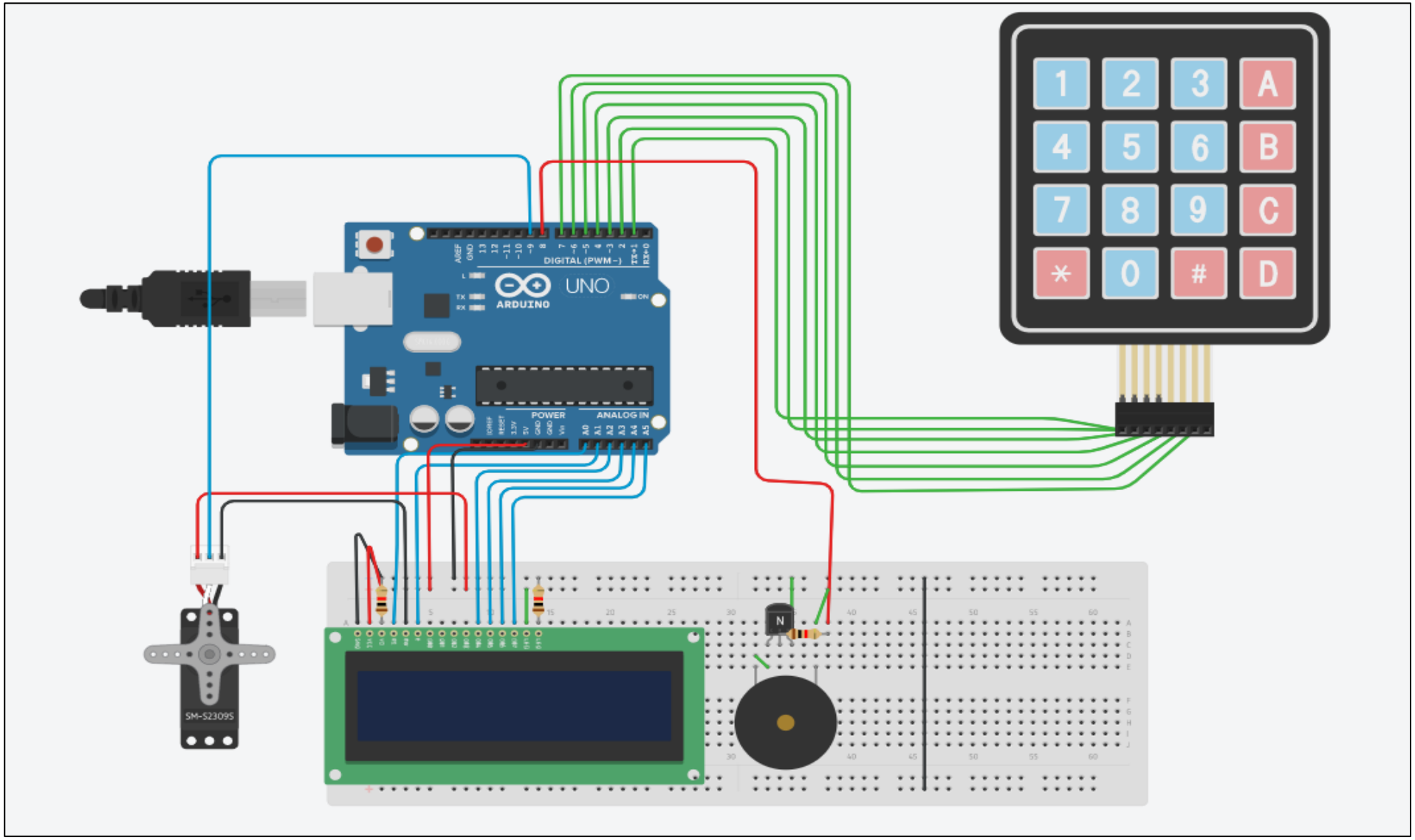
Buzzer Turns ***OFF*** & LED turns ***OFF***

C

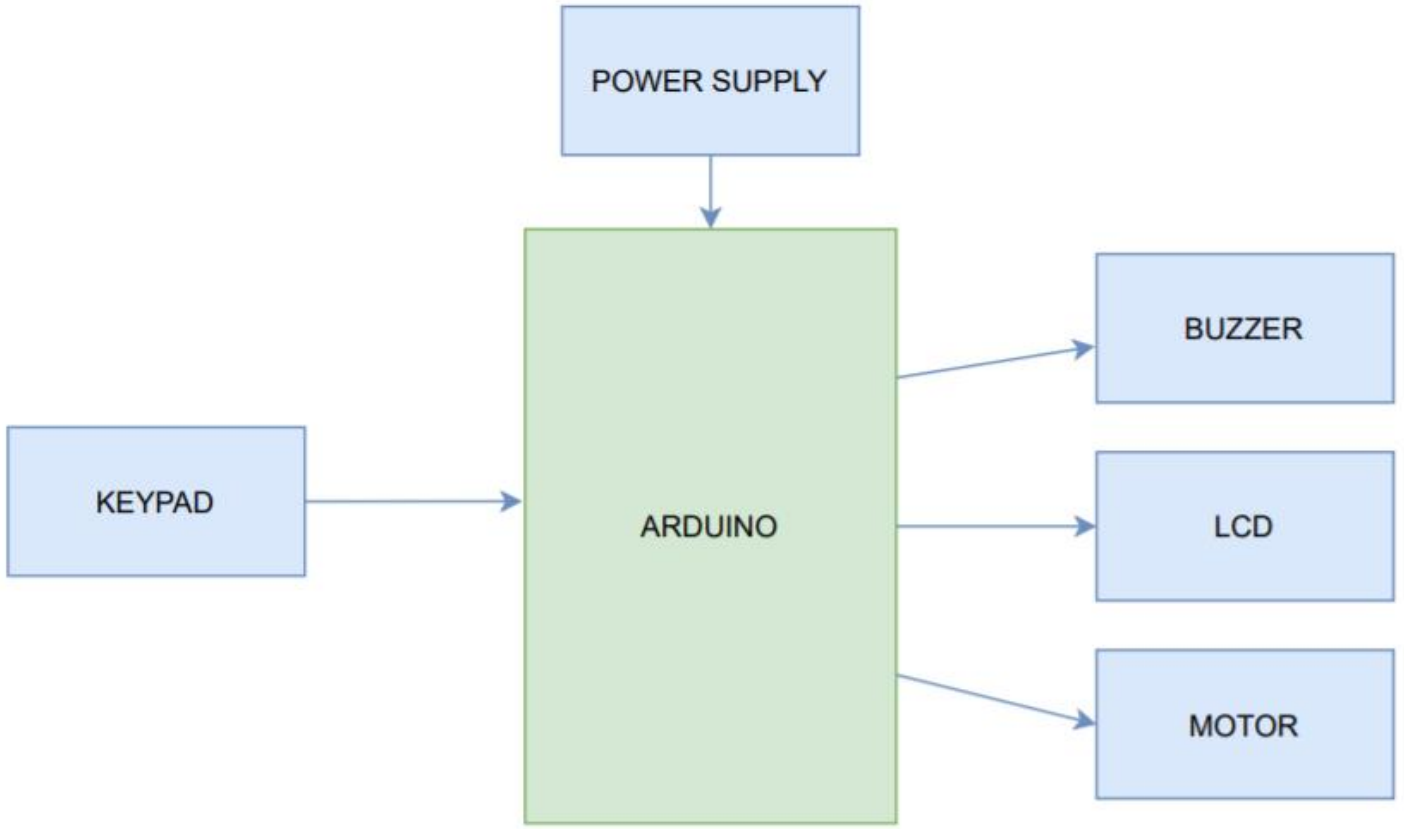
PASSWORD BASED DOOR LOCK SYSTEM

The smart door lock system can be used in homes, offices, and hotels. They provide a higher level of security as compared to the locks used nowadays. It saves time as we don't need a key to lock and unlock the door. It has better access control as we might lose physical keys or forget them.

CIRCUIT


1
2
3
A
4
5
6
B
7
8
9
C
*
0
#
D
UNO
ARDUINO
DIGITAL (PWM~)
POWER
ANALOG IN
SM-S2309S
N

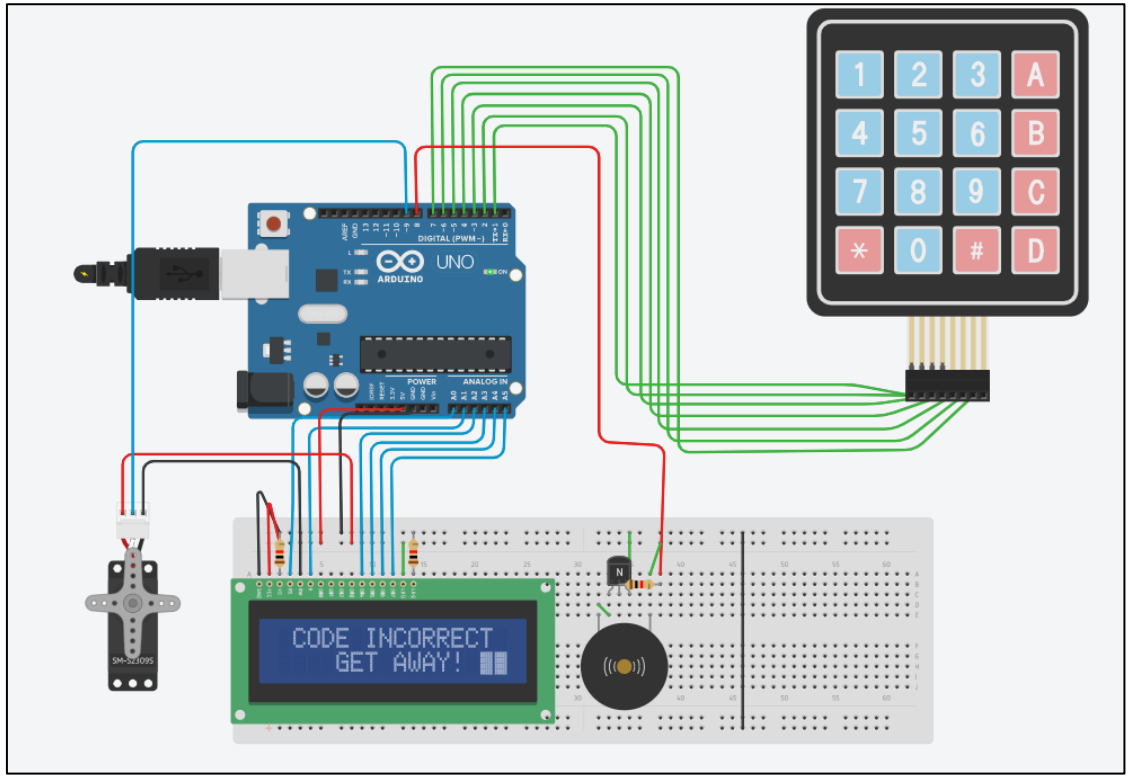
BLOCK DIAGRAM:-

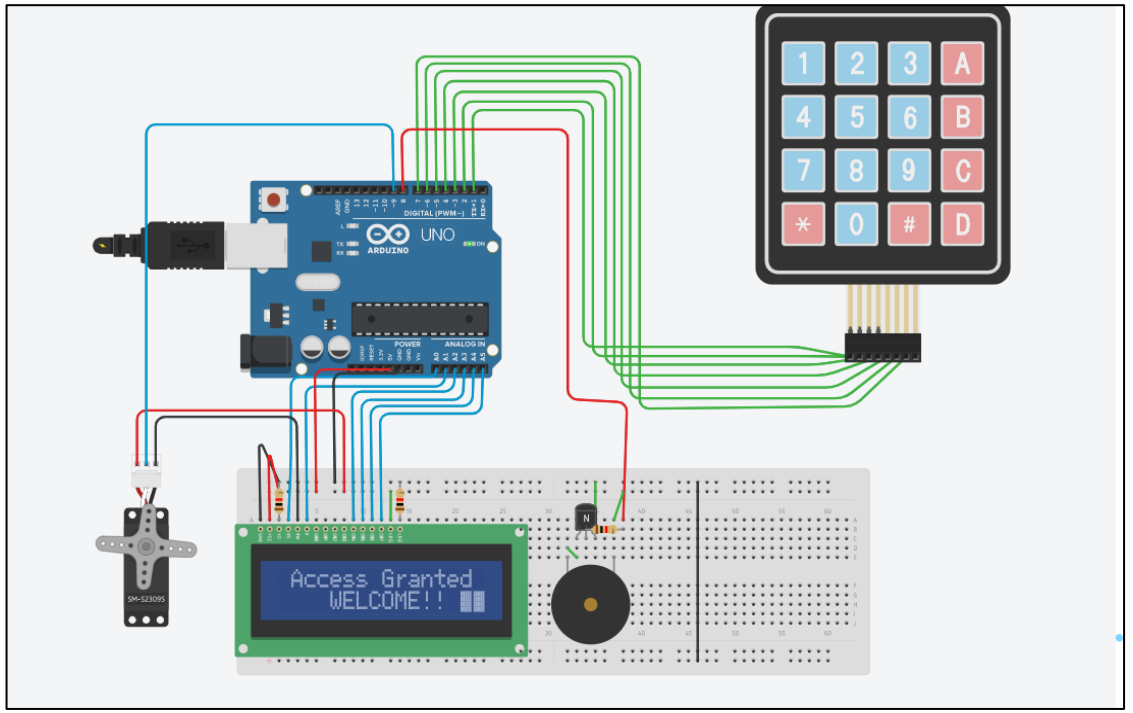


OUTPUT:

- **When code entered is wrong,**

“CODE INCORRECT GET AWAY!” message is displayed & Buzzer Starts to make sound





- **When code entered is right,**

“ACCESS GRANTED WELCOME!” message is displayed

Percentage of Work Completed – 75%

- In this project we are doing three different sub-projects that are
  - ❖ Smoke Detection System
  - ❖ Motion Controlled Led
  - ❖ Password Door Lock System
- We are Done with the tinker cad Implementation for all the above mentioned projects
- Even Done with the Literature Survey

SI.NO	RESEARCH PAPER	AUTHOR
1.	http://ijeert.org/pdf/v3-i2/2.pdf	Mamata Khatu, Neethu Kaimal, Pratik Jadhav, Syedali Adnan Rizvi
2.	https://www.irjet.net/archives/V2/i6/IRJET-V2I6133.pdf	S.Anusha, M.Madhavi, R.Hemalatha

So 75% of our project is almost DONE.

Work pending to complete during final review – 25%

We are yet to complete the offline implementation of

- Motion Controlled LED lights
- Smoke Detection System

Due to this pandemic condition we were not able to get all the hardware devices needed for our project.

REFERENCES:

[1] http://ijeert.org/pdf/v3-i2/2.pdf

[2] https://www.irjet.net/archives/V2/i6/IRJET-V2I6133.pdf

[3] https://www.arduino.cc/

[4] https://create.arduino.cc/projecthub/biharilifehacker/how-to-make-smoke-detector-alarm-1c322b?ref=user&ref_id=1321915&offset=1

[5] https://how2electronics.com/arduino-smoke-level-detector-using-mq-135-sensor/

[6] https://www.arduino.cc/en/Tutorial/LibraryExamples/LiquidCrystalDisplay

Thank You