Exp 3:- Design a door bell using push button.

Circuit Diagram:-

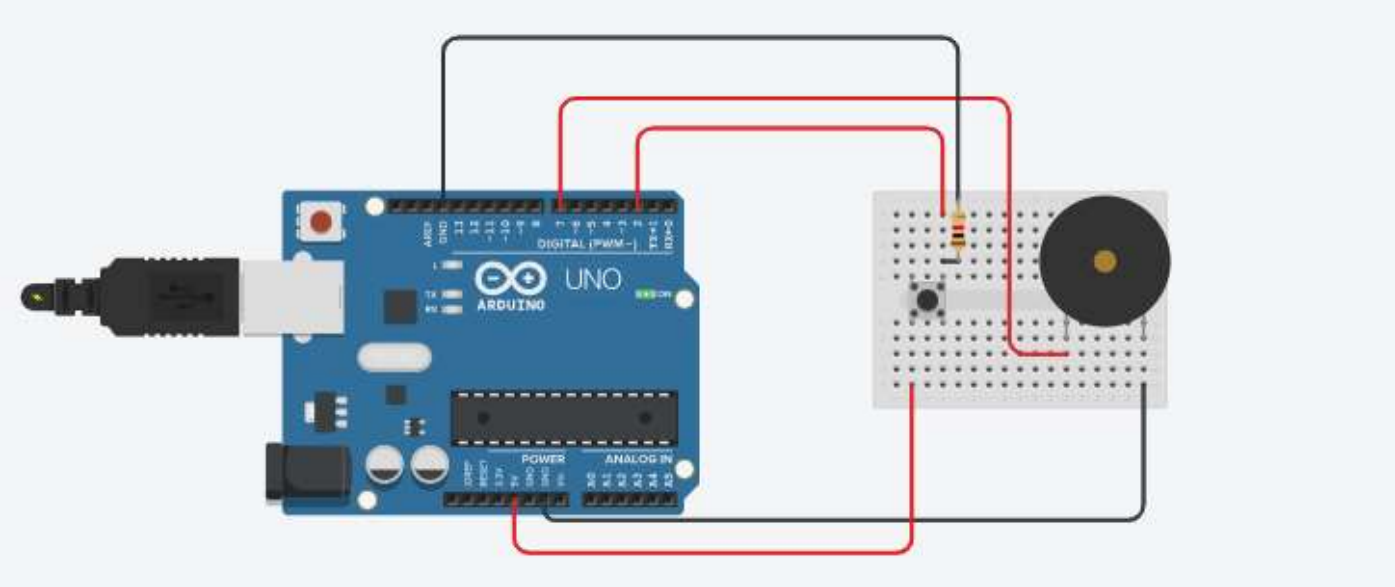

Fig:1

Theory: -

Concept used:-

- The Arduino board can supply a power of 5V as digital output signals through the 14 pins (namely 0-13) present in it as digital input or output pins.
- The GND pin of the Arduino board acts as ground
  (It provide 0V).
- When the pushbutton is open (unpressed) there is no connection between the two legs of the pushbutton, so the pin is connected to ground (through the pull-down resistor) and we read a LOW. When the button is closed (pressed), it makes a connection between its two legs, connecting the pin to 5 volts, so that we read a HIGH.

- A buzzer or beeper is an audio signaling device which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

Learning and Observation: -

Learnings:

- Learned how to use a push button with Arduino and a piezo buzzer.
- Learned how to use a pull up and pull down resistor with switch to control the signal passing to piezo buzzer via Arduino.

Observations:-

- When the code is uploaded to the Arduino broad it worked accordingly i.e. whenever the pushbutton is pressed the piezo buzzer start buzzing and stopped when pressed again.

Problem and Troubleshooting:-

- The code was not uploading to the Arduino because of the wrong port selection. Make sure to choose the correct port just after connecting Arduino with the PC.
- Problem in compilation due to syntax error. So make sure to write the correct code

- Problem in sketching i.e. code uploading due to problem in Arduino IDE. If this problem is encountered start the IDE again.
- Buzzer was not working. Use multimeter to check the continuity of the buzzer.
- Switch was not working because of the low value of resistor used as pull down resistor. Use resistor of higher value i.e. greater than 500ohm.

Precautions:-

- Make sure the circuit is closed
- The connections at different points should not be loose and the pins should be inserted properly.
- Make sure the pull up or pull down resistors are properly used in the connection.

Learning Outcomes:-

• I have learned how to use buzzer and push button.

• I have learned what is pull up and pull down resistor.

• Through this experiment I have gained the skill of making a circuit using different hardware and controlling the functions done by that circuit with the help of codes.

• I have learned how to make a door bell system using Arduino and making tweaks in it to use it along with LED’s also.