



## 1. **Microphone:**

- Ensure the microphone is an electret condenser type, which is commonly used with GSM modules.
- Check the voltage and impedance requirements of the microphone. The SIM900A typically expects a microphone with an impedance of around  $2.2k\Omega$  and a bias voltage of around 2V-3V.

## 2. **Loudspeaker:**

- Ensure the loudspeaker is compatible with the SIM900A's output. The typical impedance for the speaker should be around  $8\Omega$ .
- Check the power handling capacity of the speaker to ensure it can handle the output from the SIM900A.



Ensure the connections are made as follows:

- **Microphone:**
  - **pin1** to **SIM900A 3VT**
  - **pin2** to **SIM900A 3VR**
- **Loudspeaker:**
  - **pin1** to **SIM900A 5VT**
  - **pin2** to **SIM900A 5VR**

## Battery Connection:

### 1. **Connect the Positive Terminal of the Battery:**

- Connect the positive terminal of the battery to the **Vin** pin of the Arduino UNO.

### 2. **Connect the Negative Terminal of the Battery:**

- Connect the negative terminal of the battery to the **GND** pin of the Arduino UNO.

## Arduino UNO R3

- D3 to SIM900A (DB9-3 (RXD))
- D2 to SIM900A (DB9-2 (TXD))
- 5V to LCD 16x2 (VDD), SIM900A (VCC)
- GND to LCD 16x2 (VSS) ,LCD 16x2 (RW), SIM900A (GND), 9V Battery (-)
- D7 to 4X4 Membrane Matrix Keypad (R1)
- D6 to 4X4 Membrane Matrix Keypad (R2)
- D5 to 4X4 Membrane Matrix Keypad (R3)
- D4 to 4X4 Membrane Matrix Keypad (R4)
- D11 to 4X4 Membrane Matrix Keypad (C1)
- D10 to 4X4 Membrane Matrix Keypad (C2)
- D9 to 4X4 Membrane Matrix Keypad (C3)
- D8 to 4X4 Membrane Matrix Keypad (C4)
- A0 to LCD 16x2 (RS)
- A1 to LCD 16x2 (E)
- A2 to LCD 16x2 (D4)
- A3 to LCD 16x2 (D5)
- A4 to LCD 16x2 (D6)
- A5 to LCD 16x2 (D7)
- Vin to 9V Battery (+)

## 4\*4 Membrane Matrix Keypad

- R1 to Arduino UNO (D7), C1 to Arduino UNO (D11)
- R2 to Arduino UNO (D6), C2 to Arduino UNO (D10)
- R3 to Arduino UNO (D5), C3 to Arduino UNO (D9)
- R4 to Arduino UNO (D4), C4 to Arduino UNO (D8)

## LCD 16\*2

- **VDD to Arduino UNO (5V)**
- **VSS to Arduino UNO (GND)**
- **RW to Arduino UNO (GND)**
- **RS to Arduino UNO (A0)**
- **E to Arduino UNO (A1)**
- **D4 to Arduino UNO (A2)**
- **D5 to Arduino UNO (A3)**
- **D6 to Arduino UNO (A4)**
- **D7 to Arduino UNO (A5)**

## SIM900A

- **DB9-3 (RXD) to Arduino UNO (D3)**
- **DB9-2 (TXD) to Arduino UNO (D2)**
- **VCC to Arduino UNO (5V)**
- **GND to Arduino UNO (GND)**
- **5VT to Loudspeaker (pin1)**
- **5VR to Loudspeaker (pin2)**
- **3VT to Condenser Microphone (pin1)**
- **3VR to Condenser Microphone (pin2)**

## 9V Battery

- **+ to Arduino UNO (Vin)**
- **- to Arduino UNO (GND)**