# Circuit Documentation

## Summary

This circuit is designed using an Arduino UNO R3 as the central microcontroller, interfacing with various components including LEDs, a buzzer, an OLED display, and pushbuttons. The circuit is powered by the Arduino's 5V and GND pins, and it utilizes digital and analog pins for controlling the components. The circuit is intended for a basic interactive setup where LEDs can be controlled, a buzzer can be activated, and an OLED display can be used for output.

## Component List

1. **Arduino UNO R3**
   * **Description**: A microcontroller board based on the ATmega328P.
   * **Pins**: A5, A4, A0, A1, A2, A3, VIM, GND, SCL, SDA, AREF, 5V, 3.3V, RESET, D0, D1, D2, D3 ~, D4, D5 ~, D6 ~, D7, D9 ~, D10 ~, D11 ~, D12, D13.
2. **LED: Two Pin (white)**
   * **Description**: A white LED with two pins, anode and cathode.
3. **LED: Two Pin (red) - Long Pins**
   * **Description**: A red LED with two pins, anode and cathode.
4. **LED: Two Pin (yellow)**
   * **Description**: A yellow LED with two pins, anode and cathode.
5. **LED: Two Pin (green)**
   * **Description**: A green LED with two pins, anode and cathode.
6. **Buzzer**
   * **Description**: A simple buzzer with VCC and GND pins.
7. **OLED Display**
   * **Description**: A small OLED display with GND, VCC, SCL, and SDA pins.
8. **Pushbutton (x2)**
   * **Description**: A pushbutton with four pins: Pin 1 (in), Pin 2 (in), Pin 3 (out), Pin 4 (out).
9. **Resistor (x4)**
   * **Description**: 330 Ohm resistors used for current limiting.
   * **Properties**: Resistance: 330 Ohms.

## Wiring Details

### Arduino UNO R3

* **GND**: Connected to the GND pins of the OLED, LEDs, Buzzer, and Pushbuttons.
* **5V**: Connected to the VCC pins of the OLED and resistors.
* **D3 ~**: Connected to the anode of the red LED through a resistor.
* **D2**: Connected to the anode of the yellow LED through a resistor.
* **D4**: Connected to the anode of the green LED through a resistor.
* **D5 ~**: Connected to the anode of the white LED through a resistor.
* **D6 ~**: Not connected in this circuit.
* **D7**: Connected to Pin 1 (in) of the first pushbutton.
* **D0**: Connected to Pin 1 (in) of the second pushbutton.
* **A5**: Connected to the SCL pin of the OLED.
* **A4**: Connected to the SDA pin of the OLED.

### LED: Two Pin (white)

* **Anode**: Connected to a resistor, which is then connected to Arduino pin D5 ~.
* **Cathode**: Connected to GND.

### LED: Two Pin (red) - Long Pins

* **Anode**: Connected to a resistor, which is then connected to Arduino pin D3 ~.
* **Cathode**: Connected to GND.

### LED: Two Pin (yellow)

* **Anode**: Connected to a resistor, which is then connected to Arduino pin D2.
* **Cathode**: Connected to GND.

### LED: Two Pin (green)

* **Anode**: Connected to a resistor, which is then connected to Arduino pin D4.
* **Cathode**: Connected to GND.

### Buzzer

* **VCC**: Connected to GND (Note: This seems incorrect as VCC should typically connect to a positive voltage).
* **GND**: Connected to GND.

### OLED Display

* **GND**: Connected to GND.
* **VCC**: Connected to 5V.
* **SCL**: Connected to Arduino pin A5.
* **SDA**: Connected to Arduino pin A4.

### Pushbutton (1)

* **Pin 1 (in)**: Connected to Arduino pin D7.
* **Pin 4 (out)**: Connected to GND.

### Pushbutton (2)

* **Pin 1 (in)**: Connected to Arduino pin D0.
* **Pin 4 (out)**: Connected to GND.

### Resistors

* **Each resistor**: Connected between the anode of an LED and the corresponding Arduino pin.

## Code Documentation

There is no code provided for this circuit. If code is developed, it should be documented here, detailing the functionality and purpose of each section of the code, including any libraries used, setup configurations, and loop operations.