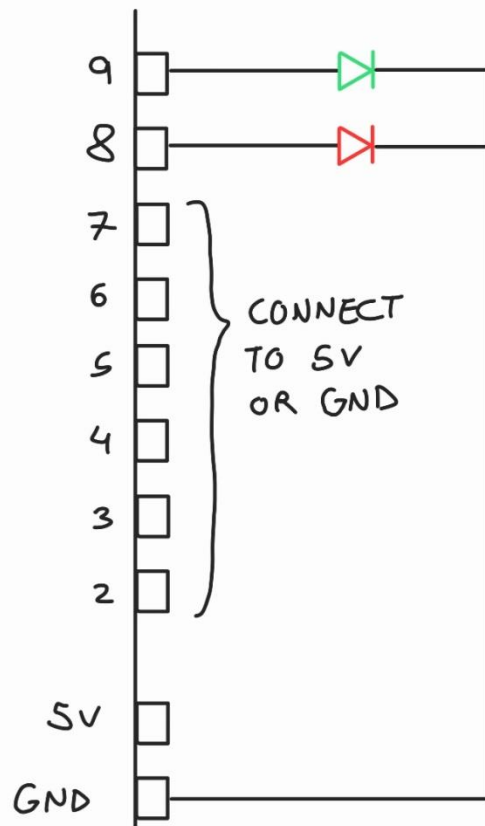


CIRCUIT DIAGRAM



SOURCE CODE

```
#define RED_LED 8
#define GREEN_LED 9

void setup() {
  // Set pin configurations
  DDRD = B00000000; // Configure PORTD pins for input
  PORTD = B11111100; // Enable pull-up resistors on PORTD pins

  pinMode(RED_LED, OUTPUT);
  pinMode(GREEN_LED, OUTPUT);

  digitalWrite(RED_LED, LOW);
  digitalWrite(GREEN_LED, LOW);
}
```

```

void loop() {

    byte portDValues = PIND;

    int red_on = 0, green_on = 0;

    for (int i = 2; (i <= 7) && (!red_on || !green_on); i++) {
        // Check if any two adjacent pins are HIGH
        if (!red_on && ((portDValues & (1 << i)) && (portDValues & (1 << (i + 1))))) {
            red_on = 1;
        }

        // Check if any two adjacent pins are LOW
        if (!green_on && (!(portDValues & (1 << i)) && !(portDValues & (1 << (i + 1))))) {
            green_on = 1;
        }
    }

    if (red_on) {
        digitalWrite(RED_LED, HIGH);
    } else {
        digitalWrite(RED_LED, LOW);
    }

    if (green_on) {
        digitalWrite(GREEN_LED, HIGH);
    } else {
        digitalWrite(GREEN_LED, LOW);
    }

    delay(50);
}

```

NOTES AND OBSERVATIONS

The code works as expected. The pins read a high value even when not connected, so there is no need to connect them to the 5-volt supply for the program to work correctly. Pins 0 and 1 (TX and RX) cannot be used for this program since they serve other purposes to enable communication between the computer and the Arduino board.