

Circuit Diagram — Temperature Monitor (OLED + DHT11 + RGB LEDs + Active Buzzer)

This document shows the wiring, component list, and a clear breadboard-style diagram for your Arduino UNO project using the code you provided.


Parts / Bill of Materials

- Arduino UNO
 - SSD1306 128x64 OLED (I2C)
 - DHT11 (raw 4-pin) sensor
 - 3 × LEDs (Red, Green, Blue) or RGB module (common cathode)
 - 3 × 220 Ω resistors (for LEDs)
 - 1 × 4.7 k Ω (or 10 k Ω) resistor for DHT11 DATA pull-up
 - Active buzzer
 - Breadboard and jumper wires
 - USB cable for Arduino
 - (Optional) 470 μ F electrolytic capacitor for power smoothing
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Pin mapping (Arduino UNO)

- **OLED (SSD1306 I2C)**
 - VCC → **5V**
 - GND → **GND**
 - SDA → **A4**
 - SCL → **A5**
- **DHT11 (raw 4-pin)** — facing the flat side, pins left→right:
 - VCC → **5V**
 - DATA → **D2**
 - Put a **4.7 k Ω** resistor between DATA and **5V** (pull-up).
 - NC → (no connection)
 - GND → **GND**
- **LEDs (individual)**
 - Red LED anode → **D9** through **220 Ω** resistor; cathode → **GND**
 - Green LED anode → **D10** through **220 Ω** resistor; cathode → **GND**

- Blue LED anode → **D11** through **220 Ω** resistor; cathode → **GND**

If you are using an RGB module (common cathode): connect module  to **GND** and the R/G/B pins through resistors to D9/D10/D11 respectively.

- **Active Buzzer**

- Buzzer + → **D6**

- Buzzer - → **GND**

- **Power note:** All modules above are powered from Arduino 5V (OK for a small setup). If you add servos or motors, use an external 5V supply and connect its **GND to Arduino GND**.

Breadboard-style diagram (ASCII)

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[Arduino UNO]
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| 5V  ---+-----+-----> OLED VCC
| GND ---+---+---+---+---+ |   OLED GND, DHT GND, LED cathodes, Buzzer -
| A4 SDA ---+               |   OLED SDA
| A5 SCL ----+              |   OLED SCL
| D2  <-----+---[DHT DATA]--+----[4.7k]--> 5V (pull-up)
| D6  -----> Buzzer +      |
| D9  --[220R]----> Red LED  |
| D10 --[220R]----> Green   |
| D11 --[220R]----> Blue    |
-----
```

Notes:

- [220R] indicates a 220 ohm resistor in series with each LED anode.
- DHT DATA must be connected to D2 AND have a pull-up resistor to 5V (4.7k-10k).
- All grounds (Arduino GND, OLED GND, DHT GND, LED cathodes, Buzzer -) must be common.

Wiring Steps (step-by-step)

1. Place Arduino next to breadboard and plug in USB (power off while wiring if you prefer).
2. Connect OLED:
3. VCC → 5V
4. GND → GND
5. SDA → A4
6. SCL → A5
7. Connect DHT11 (flat side facing you):

8. Pin1 VCC → 5V
 9. Pin2 DATA → D2
 10. Place 4.7k resistor between DATA and 5V (one leg to DATA, other to 5V).
 11. Pin4 GND → GND
 12. Connect LEDs (each through 220Ω resistor):
 13. Red anode → resistor → D9; red cathode → GND
 14. Green anode → resistor → D10; cathode → GND
 15. Blue anode → resistor → D11; cathode → GND
 16. If using RGB module (common cathode): connect module to GND, and R/G/B pins to D9/D10/D11 through resistors.
 17. Connect buzzer:
 18. Buzzer + → D6
 19. Buzzer - → GND
 20. Double-check all GNDs are common.
 21. Power the Arduino. Open Serial Monitor to view debug prints if any.
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Helpful tips & troubleshooting

- **OLED shows dots / garbled:** try address or check SDA/SCL wiring. Use I2C scanner example to detect address.
 - **DHT11 returns NaN:** check DATA pull-up resistor; ensure correct pin orientation; give DHT time between reads (2s recommended).
 - **LEDs not lighting:** verify resistor placement and cathodes to GND; verify code pins match wiring.
 - **Buzzer always ON:** use active buzzer on a digital pin and drive HIGH/LOW in code; if continuous, check code timing logic.
 - **Power problems when adding servos:** use separate 5V supply for servos and connect grounds.
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If you want, I can also generate a neat PNG schematic or a visual breadboard diagram — tell me whether you prefer a **schematic-style image** or a **photorealistic breadboard diagram**, and I will make it.