Circuit Diagram - ESP8266 + PDA20H Integration

Connections

ESP8266 NodeMCU Pinout

```
ESP8266 Pin    →    Component
A0             →    PDA20H Signal Output
D5 (GPIO14)    →    Green LED (+)
D6 (GPIO12)    →    Red LED (+)
D7 (GPIO13)    →    Buzzer (+)
3.3V           →    PDA20H VCC
GND            →    PDA20H GND, LED (-), Buzzer (-)
```

PDA20H Sensor Connections

```
PDA20H Pin    →    Connection
Signal Out    →    ESP8266 A0 (through voltage divider if needed)
VCC           →    ESP8266 3.3V
GND           →    ESP8266 GND
```

Signal Conditioning (Optional)

For optimal performance, use a voltage divider if PDA20H output exceeds 3.3V:

```
PDA20H Output → R1 (10kΩ) → ESP8266 A0
                 ↓
               R2 (10kΩ)
                 ↓
               GND
```

Power Supply Requirements

- Input Voltage: 5V DC (via USB or external adapter)

- ESP8266 Operating Voltage: 3.3V (regulated on-board)

- Current Consumption: ~200mA (including sensor)

Layout Considerations

1. Keep analog signal paths short
2. Use proper grounding techniques
3. Shield from electromagnetic interference
4. Ensure stable power supply

PCB Design Notes

- Use ground planes for noise reduction
- Separate analog and digital sections
- Include decoupling capacitors (100nF, 10µF)
- Consider temperature compensation circuits