

# Medibox Hardware Schematic

## Pin Connections

### ESP32 Pin Mapping

Component	ESP32 Pin	Purpose
OLED SDA	GPIO 21	I2C Data
OLED SCL	GPIO 22	I2C Clock
DHT22 Data	GPIO 12	Temperature/Humidity Sensor
Button UP	GPIO 33	Navigation Button
Button OK	GPIO 32	Selection Button
Button DOWN	GPIO 35	Navigation Button
Button CANCEL	GPIO 34	Cancel/Back Button
LED	GPIO 15	Status/Alert Indicator
Buzzer	GPIO 5	Audio Alert

## Component Details

### 1. ESP32 Development Board

- Microcontroller: ESP32-WROOM-32
- Clock Speed: 240 MHz
- Memory: 4MB Flash, 520KB SRAM

### 2. OLED Display

- Model: SSD1306
- Resolution: 128x64 pixels
- Communication: I2C
- Address: 0x3C

### 3. DHT22 Sensor

- Temperature Range: -40 to 80°C
- Humidity Range: 0-100%
- Accuracy: ±0.5°C, ±2-5% RH

## 4. Buttons

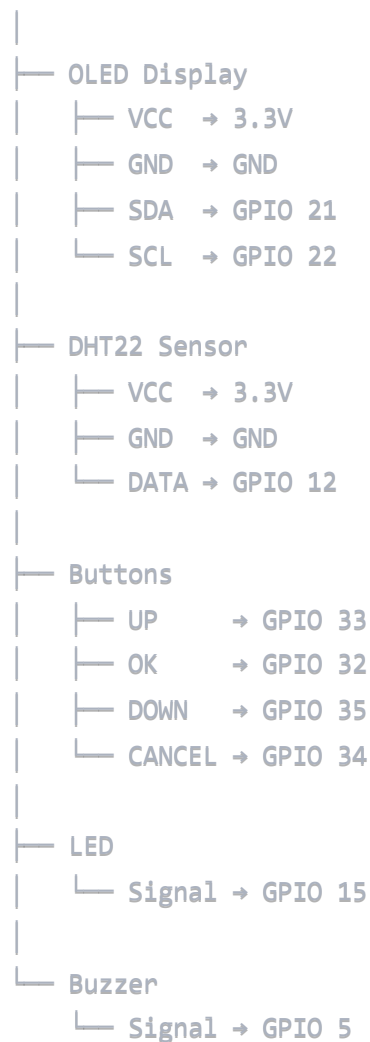
- Type: Momentary Push Buttons
- Configuration: Active LOW with Internal Pull-up

## 5. Additional Components

- LED: Standard 3mm/5mm LED
- Buzzer: Active Buzzer Module
- Voltage Regulator: 3.3V Supply

## 🔌 Wiring Diagram Explanation

### ESP32 Board



## ⚡ Power Considerations

- Operating Voltage: 3.3V
- Recommended Power Supply:

- USB Power Bank
- 3.7V LiPo Battery with Boost Converter

## 🔧 Assembly Tips

1. Use breadboard for prototyping
2. Implement pull-up resistors if needed
3. Ensure clean power supply
4. Use short, direct connections
5. Consider PCB design for final version

## 🔬 Calibration Notes

- Calibrate DHT22 sensor periodically
- Verify button responsiveness
- Check I2C communication stability
- Monitor power consumption

## 🚧 Potential Improvements

1. Add voltage regulation stage
2. Implement battery monitoring
3. Design custom PCB
4. Add external EEPROM for settings