

# Switch-Operated Rotating Phone Stand

## Assembly GUIDE

### Overview

This document contains the necessary information to build the Switch-Operated Rotating Phone Stand, a rotating stand controlled by switches.



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### Maker Checklist

This list provides an overview of the steps required to build and deliver the Rotating Phone Stand .

### Maker To Do List

- **Read through this guide**  
Make sure you understand the parts, tools, and steps needed to build the device.
- **Gather the parts**  
Collect all the 3D printed components and electronic parts needed for the build.
- **Assemble the phone stand**  
Build the device step by step. Break it into smaller sections if helpful.
- **Upload the code**  
Use the Arduino software to load the code onto the board.
- **Test the device**  
Check that the rotation and switches work as expected.
- **Provide the User Guide**  
Give the user a printed copy or send the PDF, depending on what they asked for.

### Items to Give to User

Provide the following items to the user:

- The assembled Switch-Operated Rotating Phone Stand
- Two wired switches
- USB cable or battery pack
- User Guide



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### Supplies List

#### Supplies

Item ID	Description	Quantity	Required/Recommended	Notes
T01	Wire Stripper	1	Required	Strip wire insulation
T02	Wire Cutter	1	Required	Cut wires
T03	Soldering Iron	1	Recommended	For strong wire connections
S01	Solder	As Needed	Recommended	Use with soldering iron
T04	Multimeter	1	Optional	Test connections
S02	Wires	As Needed	Required	For wiring
S04	Arduino board	1	Required	Arduino Uno
S05	Servo motor	1	Required	180 or 360
S06	Switches	2	Required	Interact/Touch
S07	Resistors	As Needed	Conditional	For switches
S08	Breadboard	1	Optional	For easy wiring
S09	Power Source	1	Required	(USB or battery)



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Building the Switch-Operated Rotating Phone Stand involves assembling the 3D printed components and connecting the electronic components. These stages are covered in the following steps.

#### 1. Assembling the 3D Printed Parts

- Start by printing all the required parts.
- Check that each part looks clean and fits together properly.
- Build the main base of the phone stand using these parts.

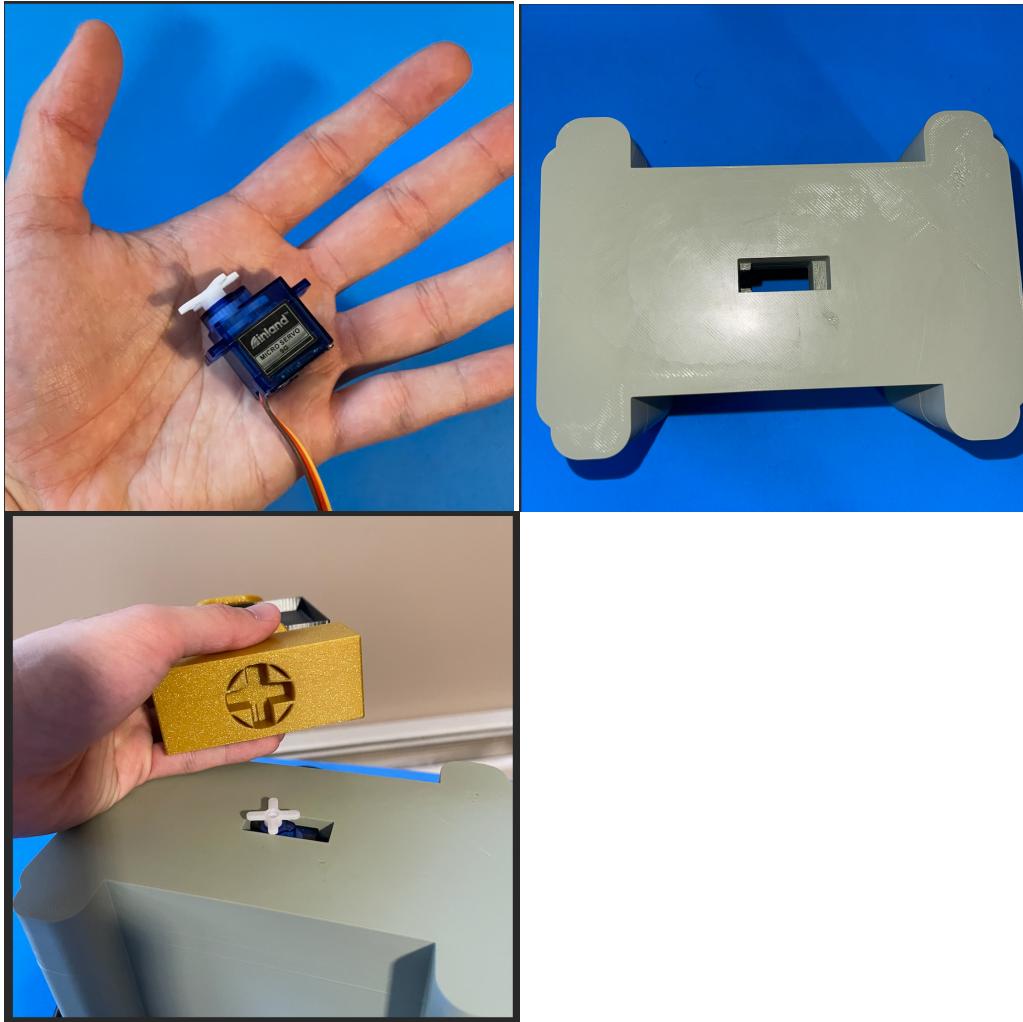
#### 2. Installing and Connecting the Servo Motor

##### *2.1 Attach the Servo Motor*

- Place the servo motor into its spot on the printed base.



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### 2.2 Connect the Servo Motor to the Arduino

The servo motor has three wires. For a more secure connection, the servo motor wires can be soldered to wires leading to the Arduino. Connect them like this:

Red Wire 1 (Power): Connect to 5V on the Arduino

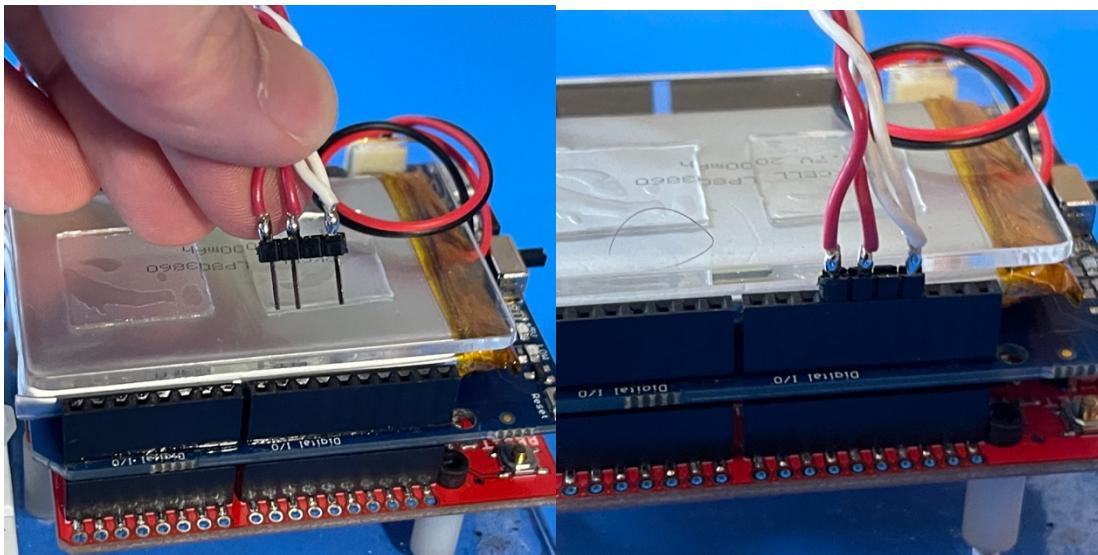
Red Wire 2 (Ground): Connect to GND on the Arduino

White Wire (Signal): Connect to a digital pin on the Arduino (D9)

Make sure the pin you choose matches what's written in your Arduino code.



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### 3. Connecting the Switches

#### 3.1 Wiring the Switches

Each switch has two pins (metal legs). Set them up like this:

- **Switch 1:**
  - One pin to an Arduino digital pin (like **D2**)
  - One pin to **GND**
- **Switch 2:**
  - One pin to another digital pin (like **D3**)
  - One pin to **GND**



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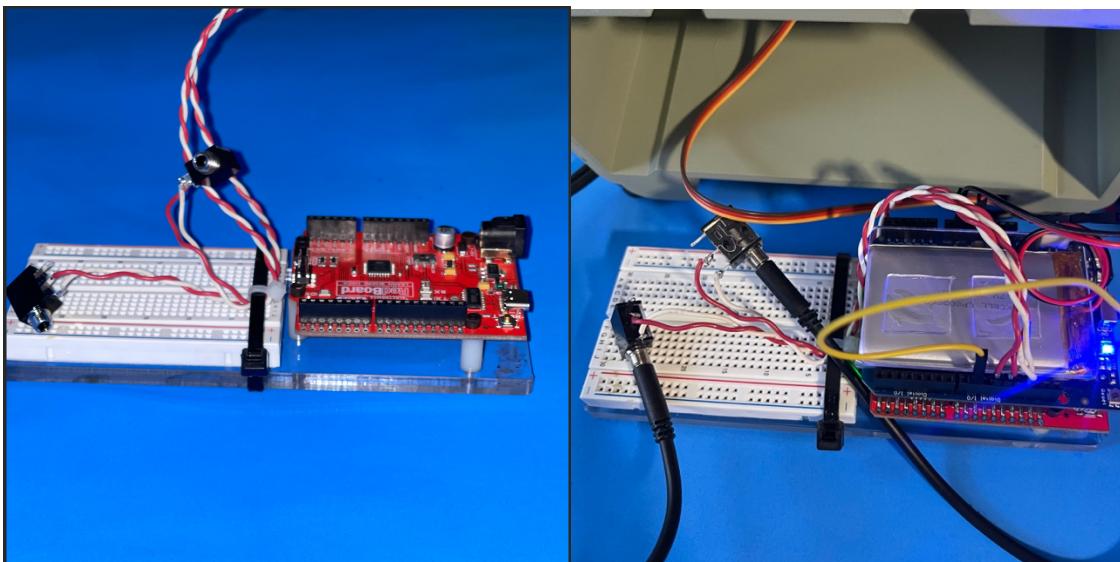
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A printed pair of switches compatible with the RPS

### 3.2 Add a Resistor (If Needed)

- To help the Arduino read the switch correctly, you may need a **10kΩ resistor**.
- This resistor should go between the Arduino pin and **5V** (for pull-up) or **GND** (for pull-down), depending on how your switch is set up.



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### 4. Uploading the Code to the Arduino

#### 4.1 *Install the Arduino Program*

- Download and install the Arduino IDE from: <https://wwwarduino.cc/en/software>

#### 4.2 *Open the Code*

- Open the file named Servo180MotorAngleProgram.ino in the Arduino IDE.

#### 4.3 *Choose the Right Settings*

- In the **Tools** menu, choose your Arduino board (Arduino Uno).
- Select the correct port under **Tools > Port**.

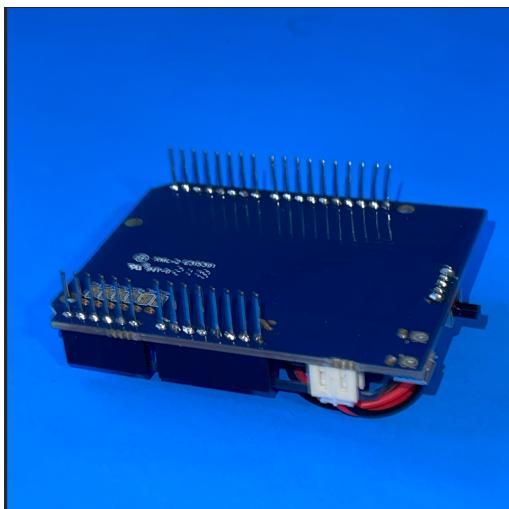
#### 4.4 *Upload the Code*

- Click the **Upload** button to send the code to your Arduino.

### 5. Final Steps

#### 5.1 *Power the Arduino*

- Plug the Arduino into a power source using a USB cable or a battery.



A batter pack compatible to power the arduino & servo motors



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### 5.2 Attach the Electronics to the Base

- Secure the Arduino and other parts onto the 3D printed base.
- Make sure all wires are out of the way and nothing blocks the rotating parts.

### Testing

To check if the device works, first, look for lights on the Arduino chip to make sure it's getting power. Then, press each of the switches to see if they make the phone holder turn.>

### Troubleshooting

If the device isn't working, try uploading the code again to the Arduino chip using the Arduino program. Then, test it again. If it still doesn't work, try using different switches to see if the old ones are not responding.

