# Required Components

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| *Diagram  Description automatically generated with medium confidence* | **BOM**   1. Spinning Wand Toy 2. 3D Printed Base 3. 3D Printed Base Bottom Cover 4. 3.5 mm Mono jack 5. 2X 20 cm 26AWG multi-core wire or stranded wire (24-26 AWG) |

# Required Tools

* #0 Phillips Screwdriver
* Flat head screwdriver
* Soldering Iron
* Hot Glue Gun
* Solder
* Hot Glue Sticks
* Super Glue

# Required Personal Protective Equipment (PPE)

* Safety Glasses

# Assembly Instructions

## Step 1

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| Loosen the screw and remove the battery cover and batteries.  **CAUTION!** The springs on the battery contacts may cause the batteries to be ejected forcibly. | A picture containing indoor  Description automatically generated |

## Step 2

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| --- | --- |
| Unscrew the four (4) screws on the back of the Spinning Light Wand. Reference the image below. Store the screws for later reassembly.  CAUTION! Don’t lose the screws. | A picture containing wall, indoor, cup, plastic  Description automatically generated |

## Step 3

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| Gently pry apart the two halves of the handle along the seam using a flat head screwdriver. |  |

## Step 4

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| Remove the screw holding the motor down. marked in photo and remove the piece of metal contact. Keep the screw for later reassembly.  CAUTION! Don’t lose the screw or the metal contact. |  |

## Step 5

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| Gently pry the clear globe free from the button half of the handle The motor and the clear globe is part of the same assembly, carefully lay all the part out, and try and avoid putting strain on any of the solder joints. |  |

## Step 6

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| De-solder the wires at points marked on the photo. For the bottom red wire, it may be easier to you unscrew and remove the metal clip from the plastic shell first |  |

## Step 7

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| Unscrew the screws attached to the yellow piece shown below. Remove and discard the entire button assembly. They are no longer needed. |  |

## Step 8

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| Split 5 cm of the wires. If you are using multi-conductor wire, strip the red wire. |  |

## Step 9

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| Solder the red wire to the bottom metal clip and route the wire as shown below. |  |

## Step 10

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| Trim back the black wire, the length of black wire should reach the battery clips in the middle of the handle. Strip the black wire. |  |

## Step 11

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| Solder the black wire to the battery clip. |  |

## Step 12

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| Thread the wires through the hole that the button occupied. Avoid leaving too much slack on the wires inside as it might interfere with the moving bits. |  |
| Route the wires through the inside of the handle as shown. |  |

## Step 13

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| Apply hot glue to fill up space between the wire and the hole, to add strain relief to the wire |  |

## Step 14

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| Start reassembling the wand by putting the globe and motor assembly back into the half of the handle with the button hole. Note the alignment of the motor and the clear globe. See photos. |  |

## Step 15

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| Reattach the L-shaped metal contact. Replace the screw. |  |

## Step 16

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| Snap close the handle, being careful to not pinch any wire inside. Replace all four screws. Re-insert the battery and tighten the battery cover screw | A picture containing wall, indoor, cup, plastic  Description automatically generated |

## Step 17

Test the switch adaptation. Now is a good time to test the result of the hack.  
Strip the other end of the wire and touch them together. If all goes well, the motor should spin and the light would come on. If not, open up the handle and check:  
– wiring, no cold solder joint or frayed/pinched wire  
– mechanical interference, the axle may be rubbing on some wires  
– The L-shaped metal piece isn’t making good contact against the spring around the motor axle.

## Step 18

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| Slide the wand into the stand. Make sure the battery cover is lined up with the opening in the stand. | A picture containing keyboard, computer, indoor, person  Description automatically generatedA picture containing indoor, red  Description automatically generated |

## Step 19

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| Thread the wire through the opening of the stand. Solder the wires to a mono jack as shown in photo. The wires should attach to the tip and sleeve contacts on the jack. | A picture containing red, table, indoor, cup  Description automatically generatedA picture containing red  Description automatically generated |

## Step 20

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| Insert the jack into the hole in the base. Thread on the nut to secure the jack in place. |  |

## Step 21

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| Superglue something heavy like two hex nuts to the Base Bottom Cover to weigh the stand down. |  |

## Step 22

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| Assemble the base bottom cover into the base. |  |