Really Robotic Robot Costume - LED Light Animations

Every robot has a good status symbol light. Use maker tape and 10mm LEDs to make an animated LED status light for your Really Robotic Robot.

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INTRODUCTION

Meet Sally Servo - the Really Robotic Robot. :)

In this tutorial, you'll learn how to make an LED status animation like the one on Sally's robot suit.

Every robot has a good status symbol light. Use maker tape and 10mm LEDs to make one for your Really Robotic Robot. This is an easy project and a great introduction to micro:bit with many ways to customize it!

TOOLS:

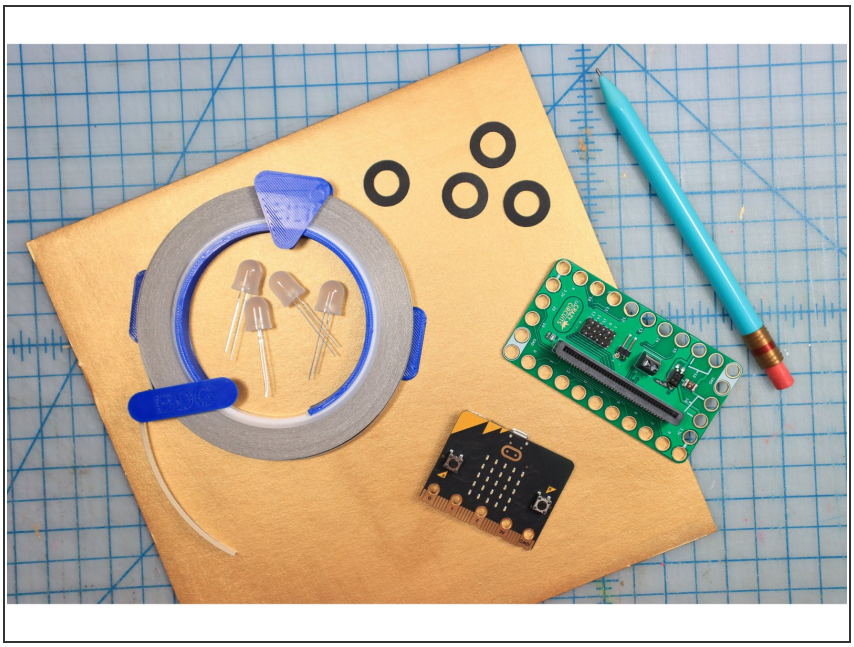
- Utility Knife (1)
- Scissors (1)
- Printer (1)

PARTS:

- Jumbo 10mm Diffused LED (1)
- Crazy Circuits Bit Board (1)
- Maker Tape (1)
- micro:bit (1)
- Misc LEGO Parts (1)
- Hot Glue (1)
- Packing Tape (1)

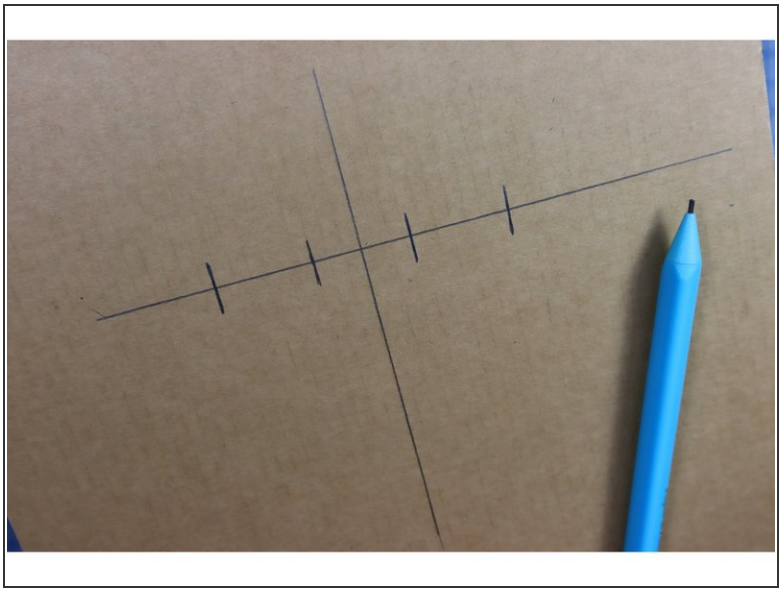
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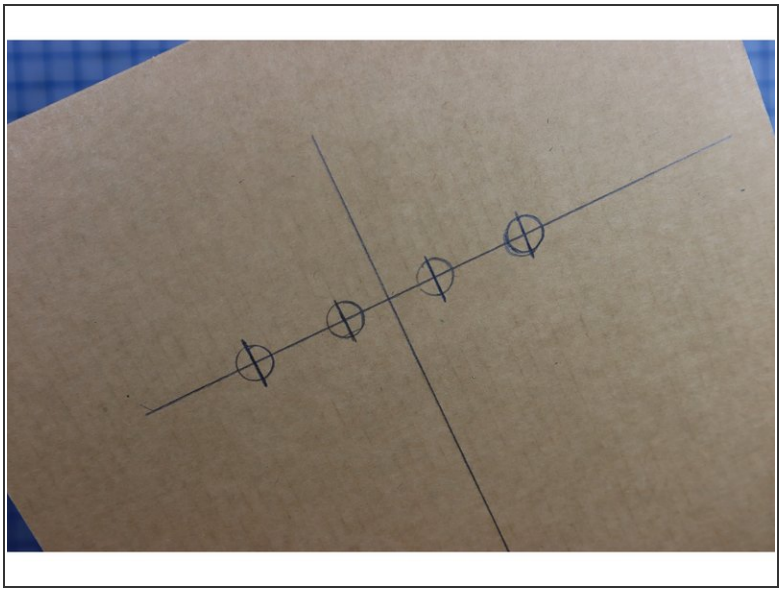
Step 1 — Gather Supplies



- Gather supplies, and print the template (optional).

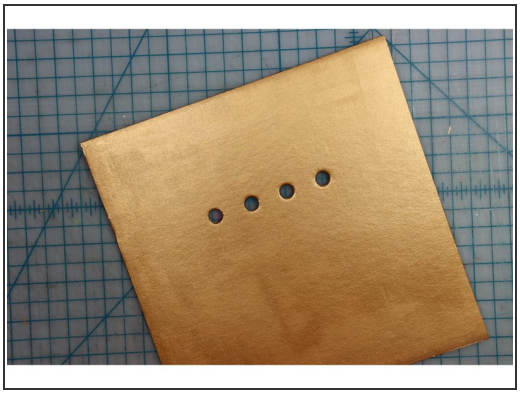
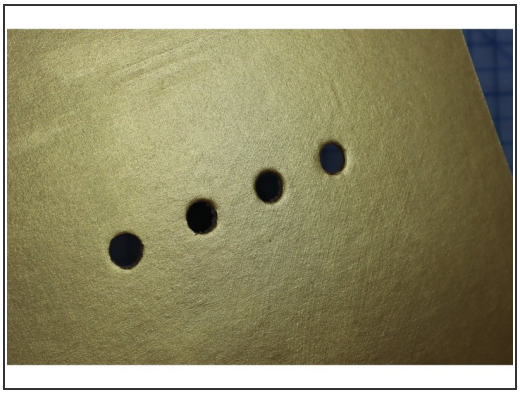
Step 2 — Mark the holes





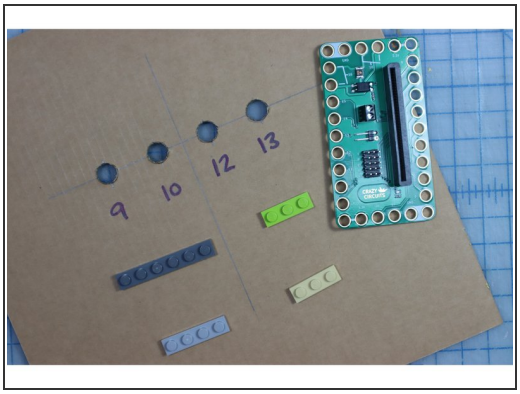
- Mark the locations of the four holes for the LEDs. This photo shows the holes 1-inch apart. You could also use the template to mark the locations if you like the spacing.

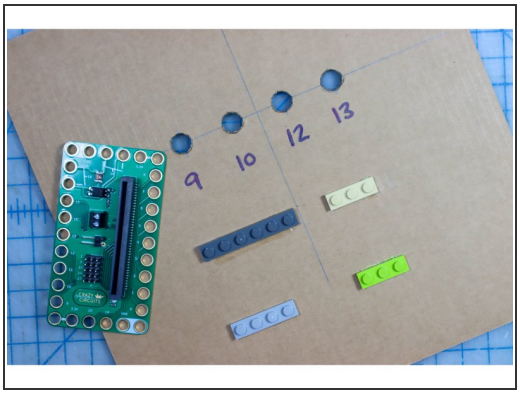
Step 3 — Cut the holes

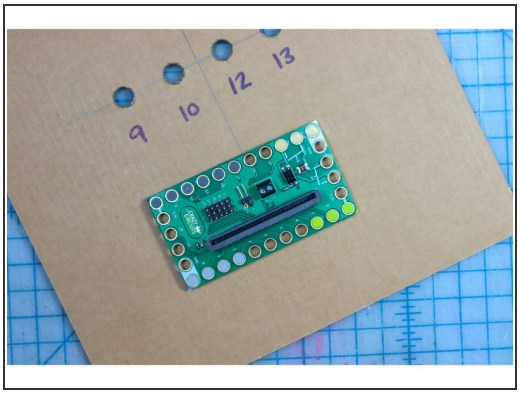




- To cut the holes, we used a craft knife to mark the circles from the back side and then cut out the holes from the front.
- Tip: You can poke the 10mm LED through the holes from the front side to make the edges nice and smooth.

Step 4 — Glue the LEGO

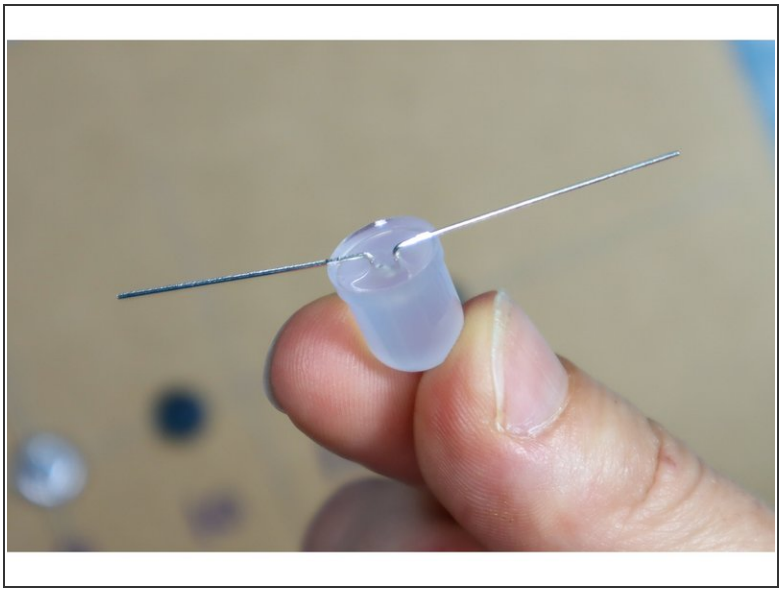


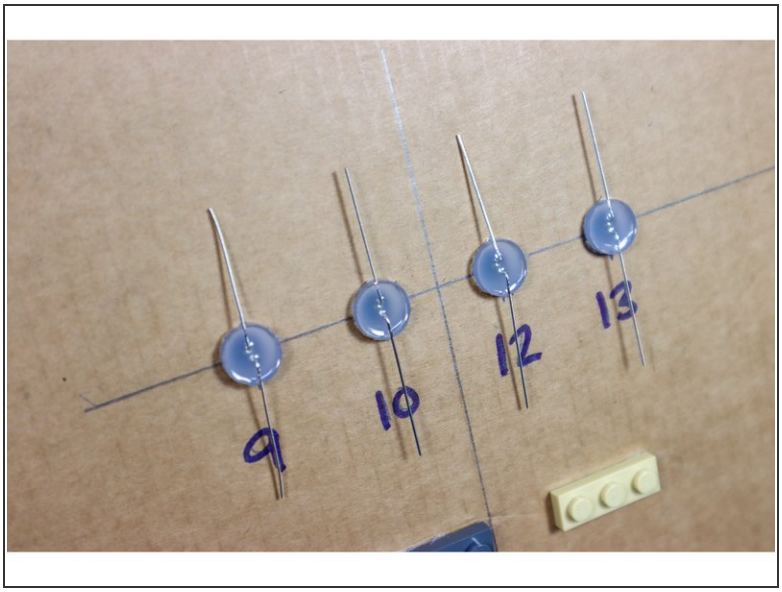




- Position the bit board so that Pins 9-13 are facing the holes.
- Glue LEGO in place, making sure that the holes for pins 9, 10, 12, 13, and GND have a LEGO peg inside them. The other LEGO are just for support.

Step 5 — Place the LEDs

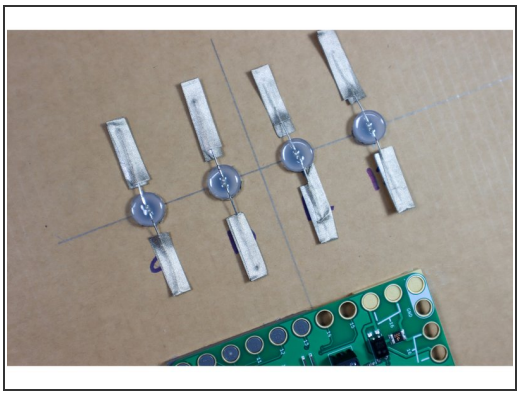
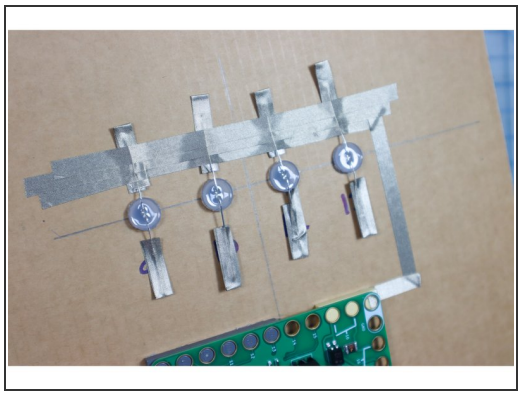
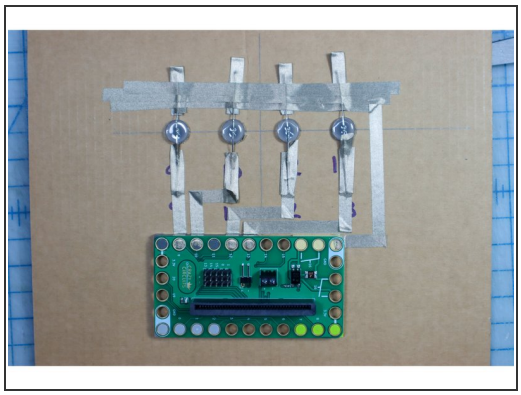




- Make note of the shorter, negative leg of the LED.
- Bend the legs open and flat.
- Place the LEDs in the holes with the negative legs facing away from the bit board.

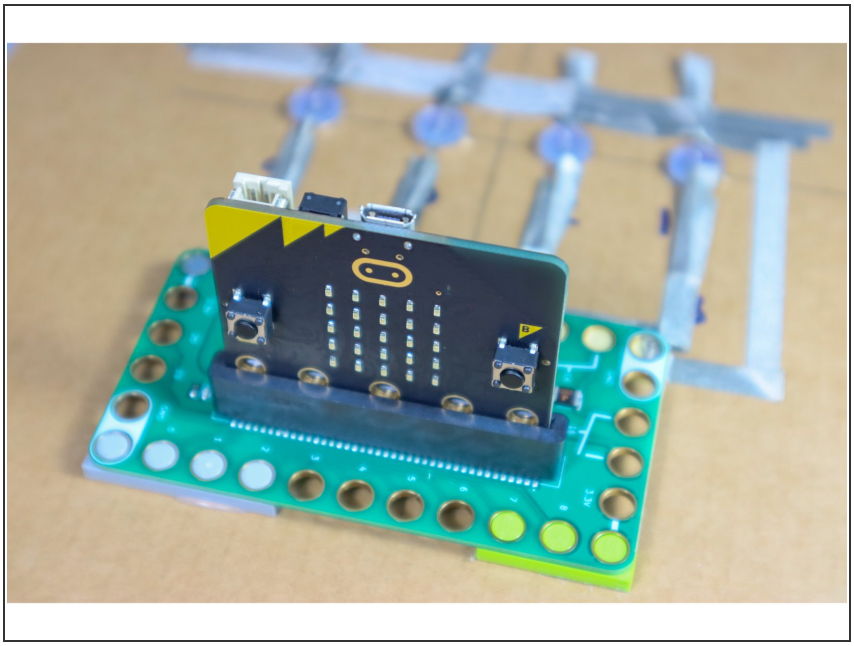
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Step 6 — Add Maker Tape

- Fold a piece of Maker Tape around the LED legs as shown.
- Connect a piece of Maker Tape to the Ground Pin and run it across the ground leg of all 4 LEDs. Add extra Maker Tape to secure it.
- Connect each positive leg of the LEDs to pins 9, 10, 12, and 13. Don't use Pin 11 as it is reserved for another process on the micro:bit.

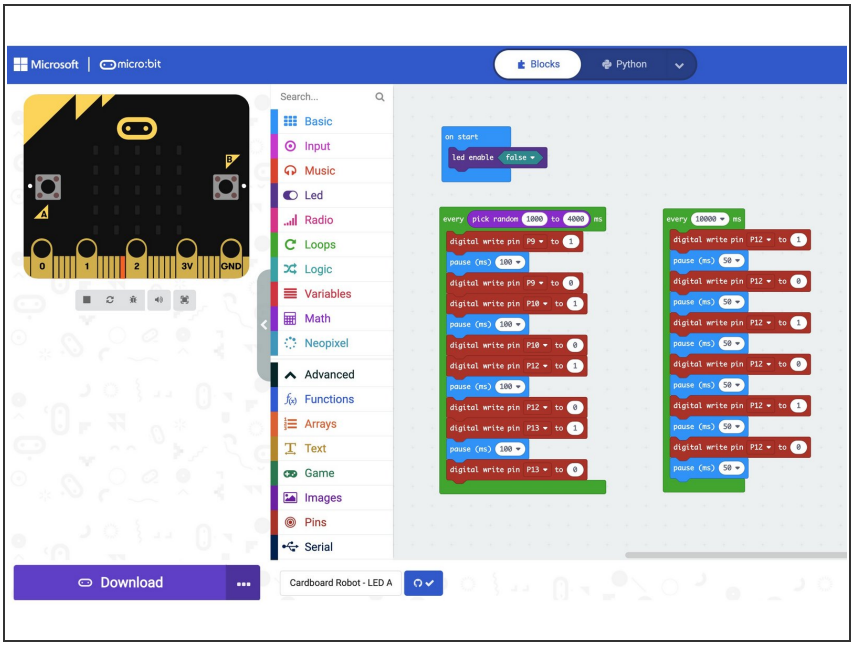
Step 7 — Add the micro:bit



- Insert the micro:bit into the bit board.

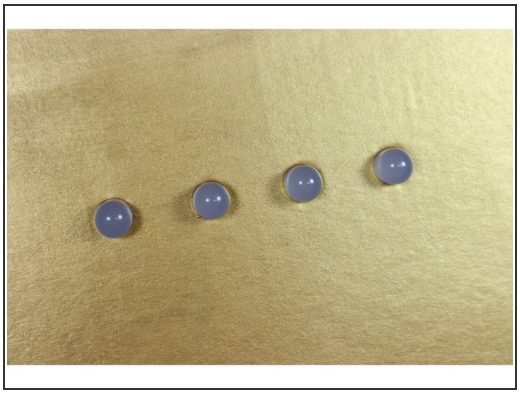
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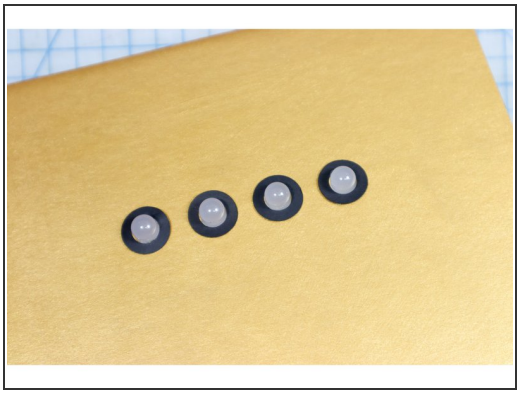
Step 8 — Code the micro:bit

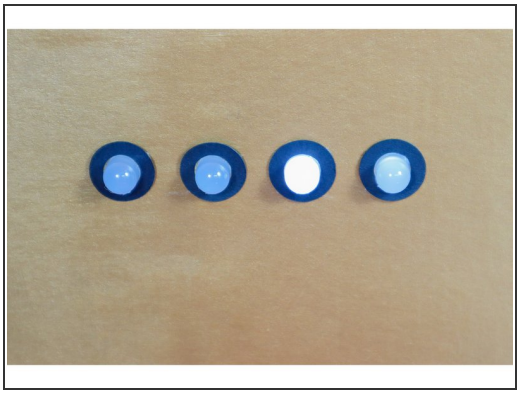


- Download code to the micro:bit, [available here.]
- This code will create an LED animation of the LEDs blinking in order every 1-4 seconds. In addition, one of the LEDs blinks quickly every 10 seconds to give it a very "robot is computing" vibe.

Step 9 — Embellish the LEDs

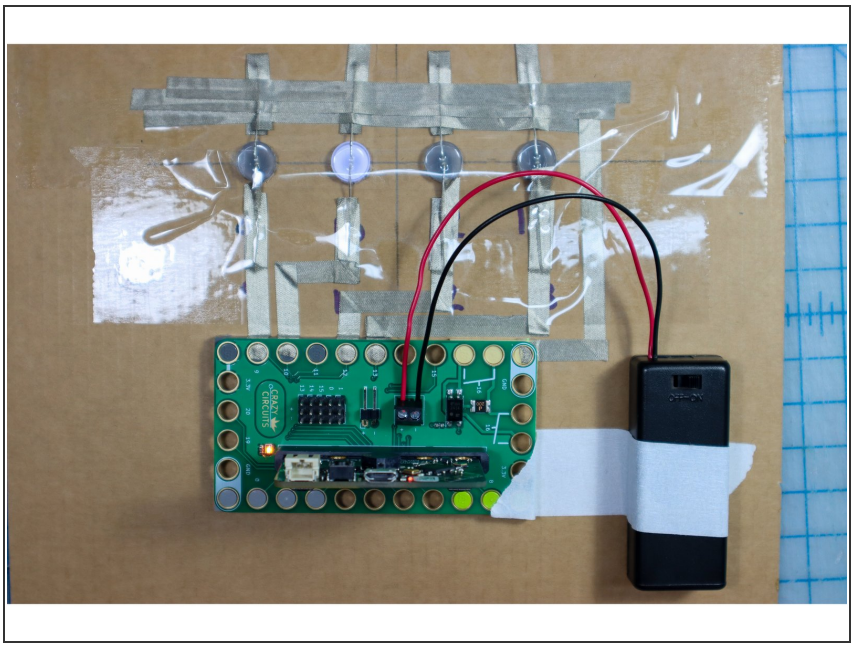






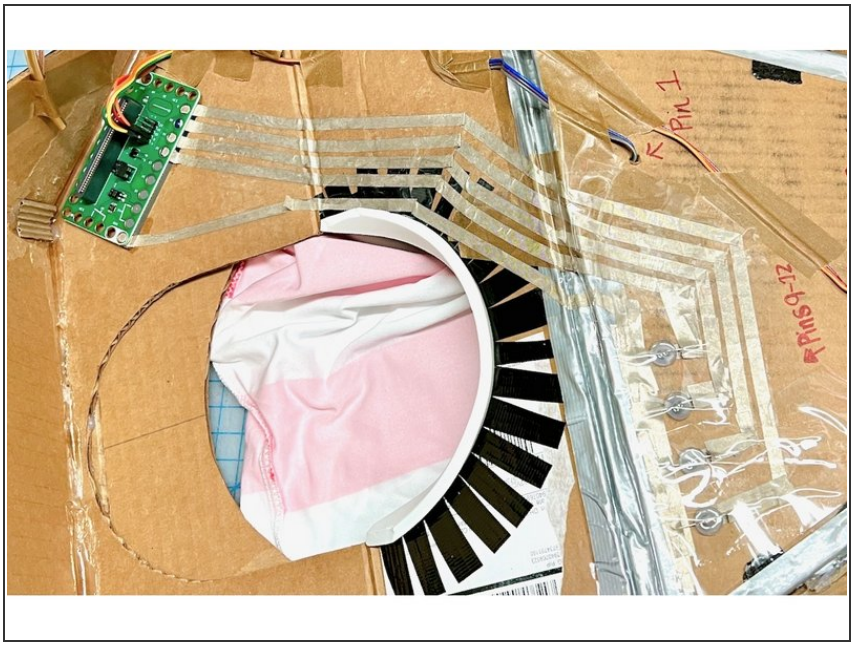
- Use the ring templates to add paper details.

Step 10 — Add a Battery Pack



- Add a battery pack to make it portable.
- We also added clear packing tape over the entire circuit. When wearing a costume, it's easy to snag a loose piece of Maker Tape, so this is a good way to secure it while still being able to see the circuit.

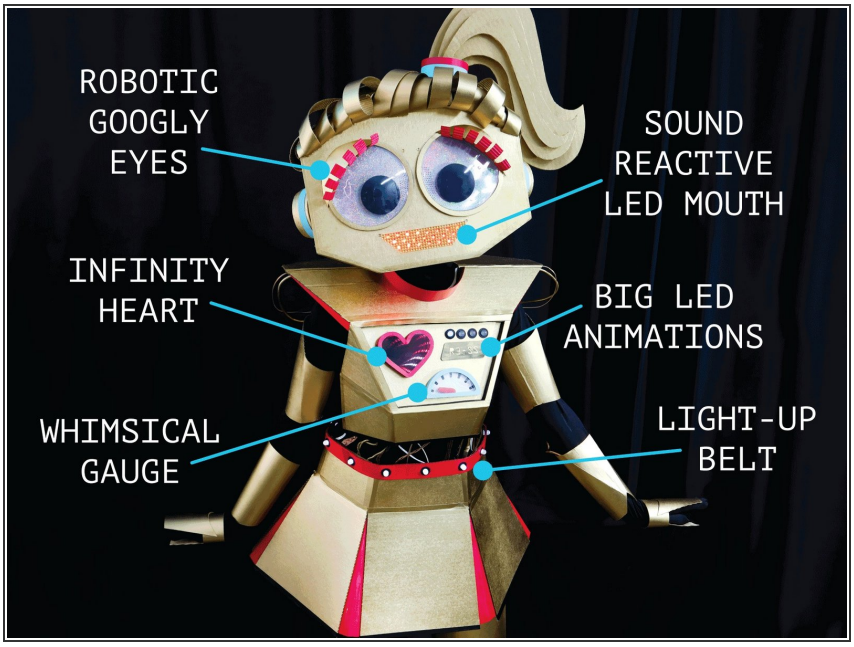
Step 11 — It can go anywhere!



- In our Sally Servo costume, we ran the traces all the way from the front to the back of the costume. This

gave us the chance to place the micro:bit in a comfortable spot for the wearer.

Step 12 — Create the rest!



- Continue to build your Really Robotic Robot costume! For more, view these guides:
  - LED Belt
  - Whimsical Robot Gauge
  - Robotic Googly Eyes
  - Infinity Mirror Robot Heart
  - Sound Reactive Robot Mouth