# Really Robotic Robot Costume - Infinity Mirror Robot Heart

Even robots can show love when they have a 3D robot heart made with WS2812B LEDs and micro:bit.

Written By: Natasha Dzurny



# INTRODUCTION

Meet Sally Servo - the Really Robotic Robot. :)

In this tutorial, you'll learn how to make an infinity mirror beating heart like the one on Sally's robot suit. This is an intricate project that is best completed with two advanced tools: a laser cutter and soldering iron.

## TOOLS:

- Laser Cutter or Box Cutter + Patience (1)
- Soldering Iron (1)
- Printer (1)

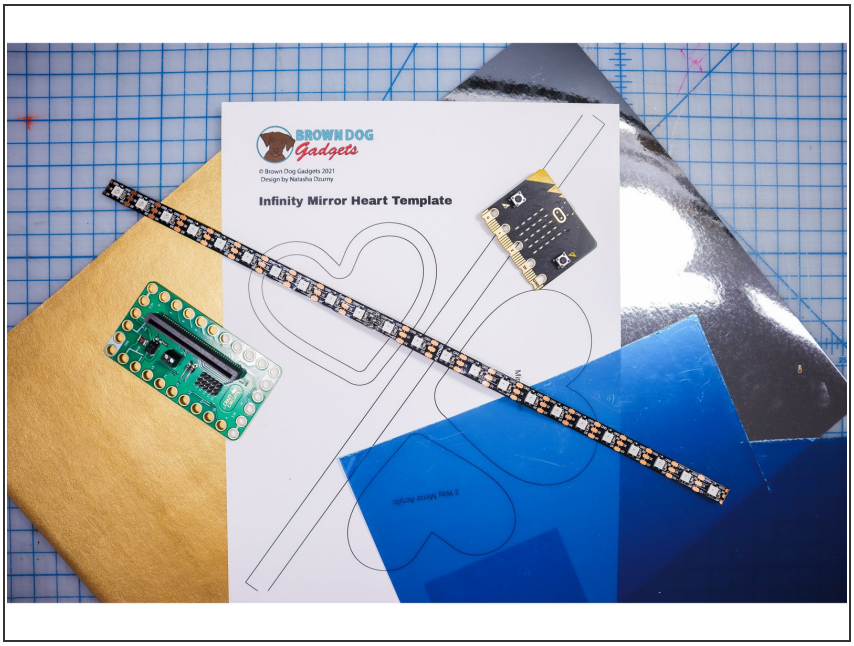
## PARTS:

- Crazy Circuits Bit Board (1)
- micro:bit (1)
- Jumper Wires (1)
- 2 AAA Battery Holder (1)
- Cardboard (1)
- 60 LED/meter Neopixel Strip (1)
  *(18 pixels)*
- Acrylic Paint (1)
- Paint Brush (1)
- 2-Way Mirror Acrylic (1)
- Silver Mirror Paper (1)



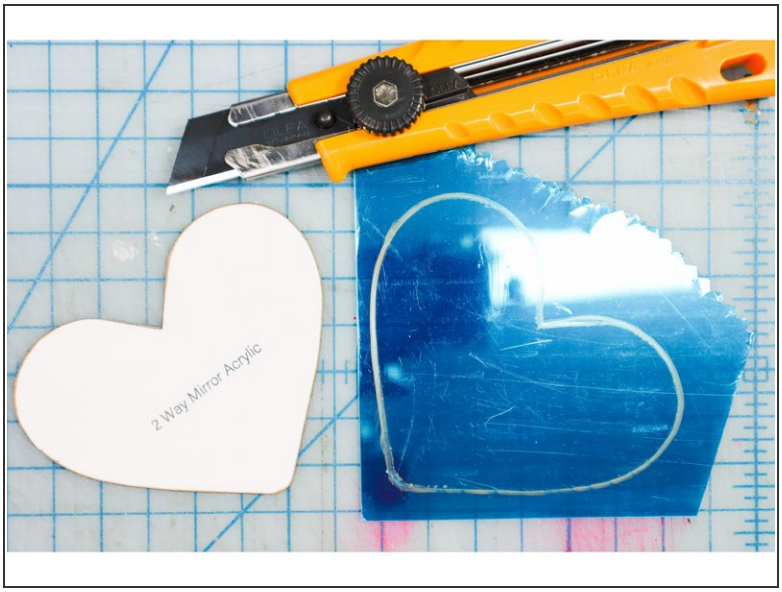
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## Step 1 — Download Template




- Download and print the template.

## Step 2 — Cut the two-way mirror

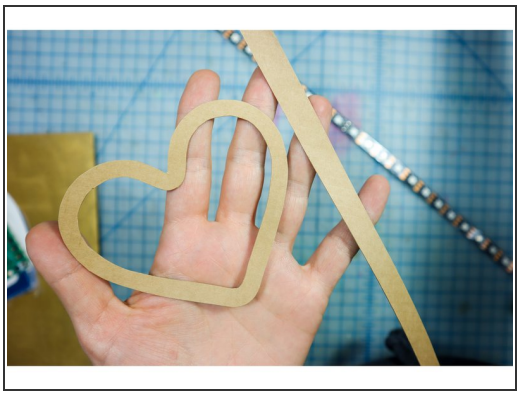






- The easiest way to cut the mirror piece would be with a laser cutter.
- If you don't have access to a laser cutter, slowly and carefully go over the heart shape with a box cutter, and use pliers to chip the excess away. The edge of the heart doesn't have to be perfect because it will be inside the box, but be careful not to crack the mirror.

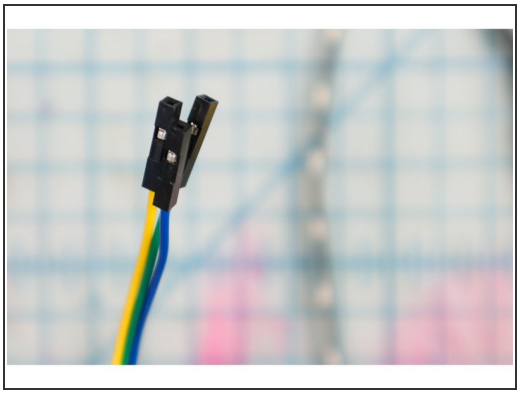
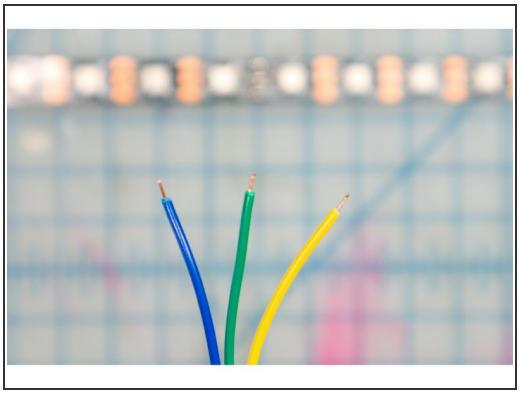
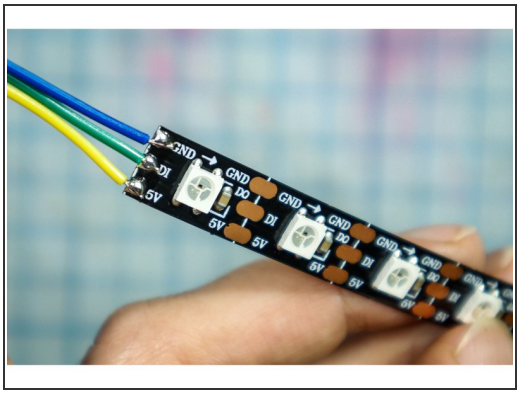
## Step 3 — Make the Heart Box





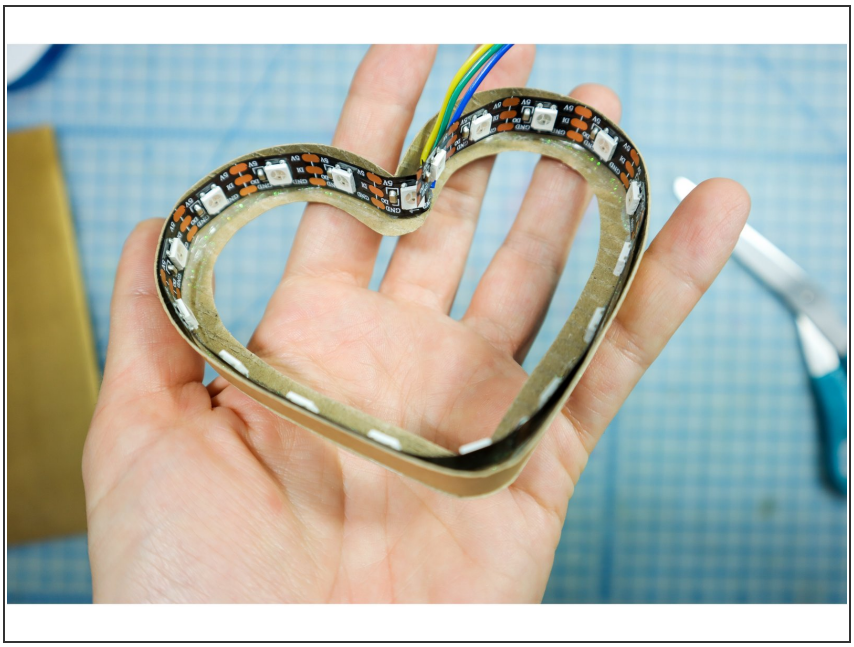
- Cut out the template pieces as shown.
- Use hot glue to adhere the strip to the exterior of the heart. Start at the point of the heart and slowly work your way around. Only apply glue to the inside to keep things tidy.

## Step 4 — Solder the Wires


- Solder three hookup wires to the +5V, DI, and GND pads on the LED strip.

## Step 5 — Glue the strip in place



- Glue the LED strip into the interior of the heart.
- Allow the wires to escape behind the strip.

## Step 6 — Paint the Heart



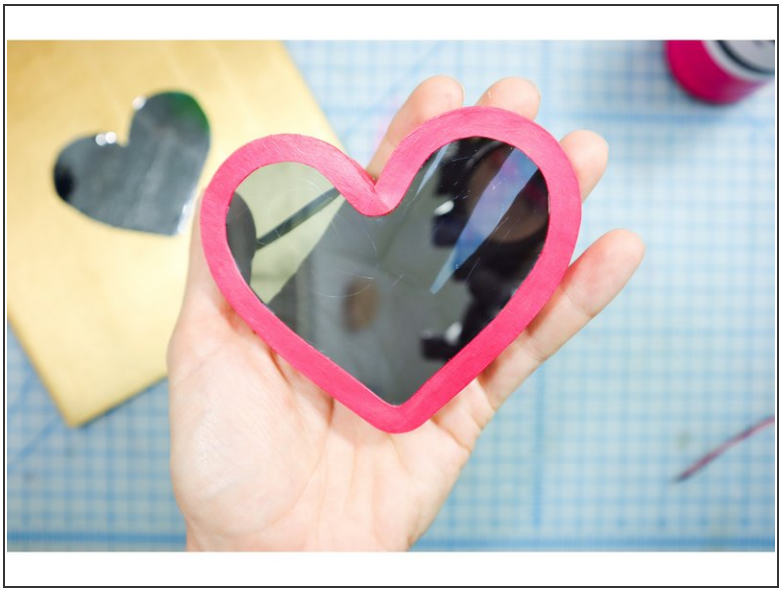
- Paint the box pink!

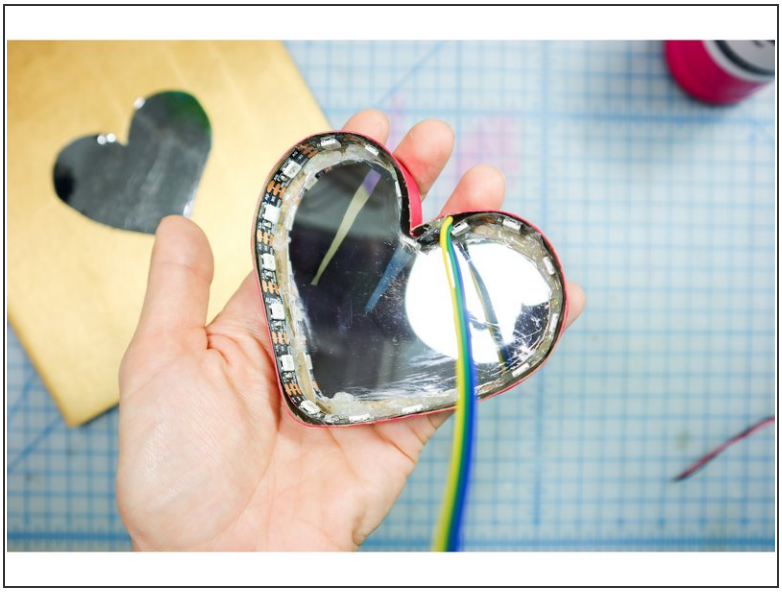
## Step 7 — Add the mirror heart



- Cut the template from mirror paper and glue it to the cardboard.

## Step 8 — Add the two way mirror



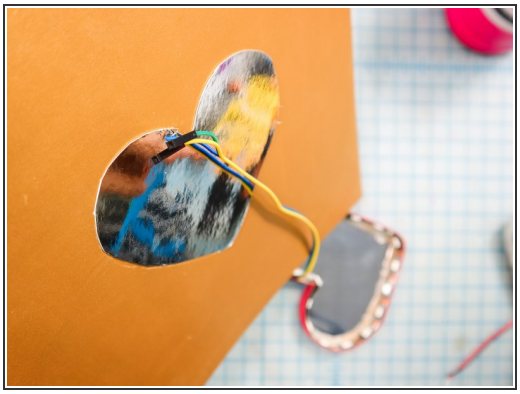


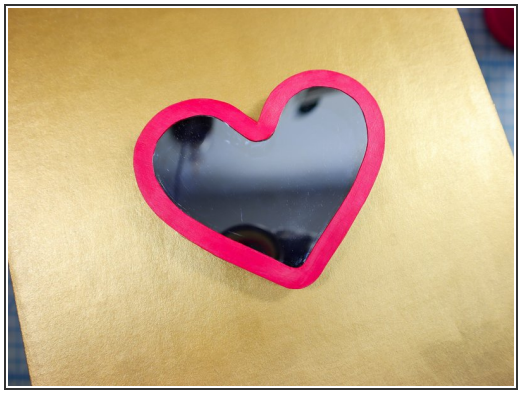
- Glue the two-way mirror piece inside the heart box. Remove the protective coating, and be careful not to scratch it.



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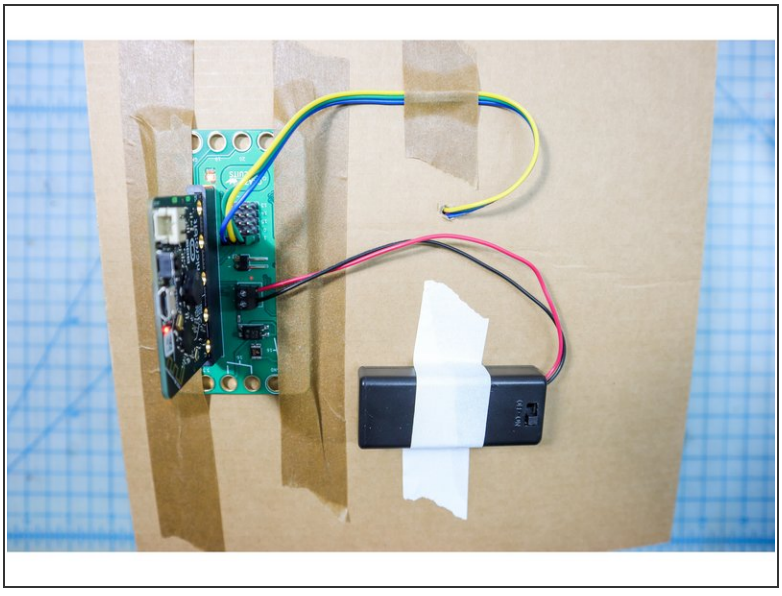
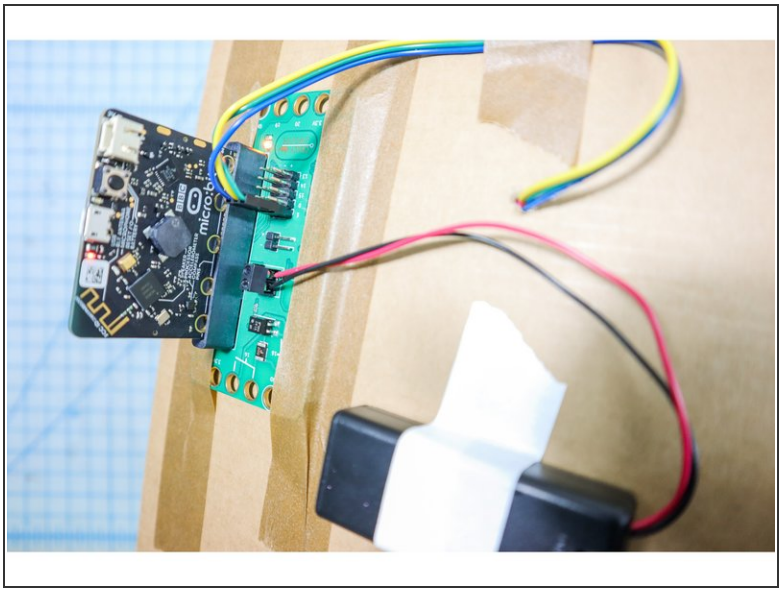
## Step 9 — Glue the hearts together





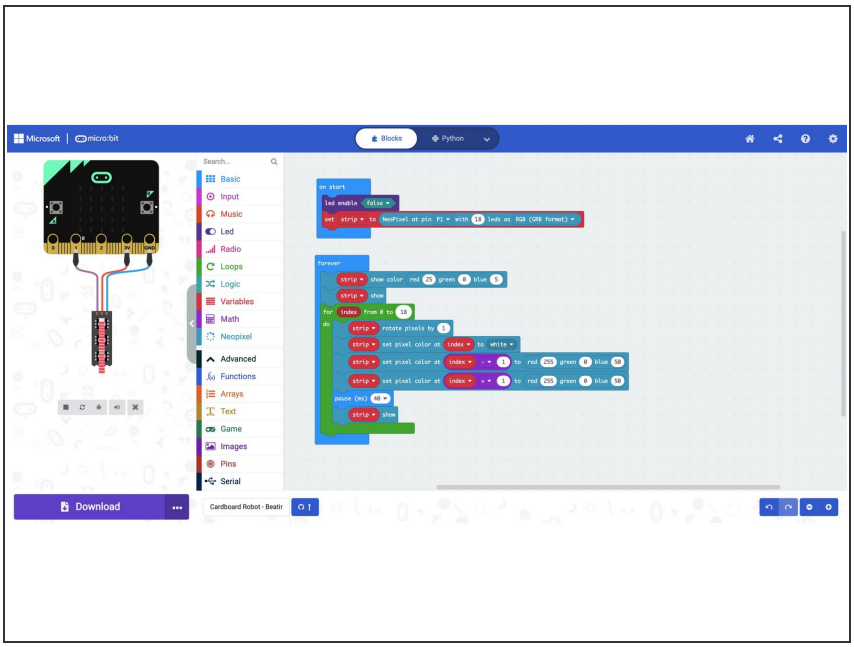
- Make a hole in the cardboard to thread the wires through to the back.
- Then position the heart box over the mirror paper heart and glue it in place. Remove any excess glue from the outside of the heart.

## Step 10 — Connect the Circuit

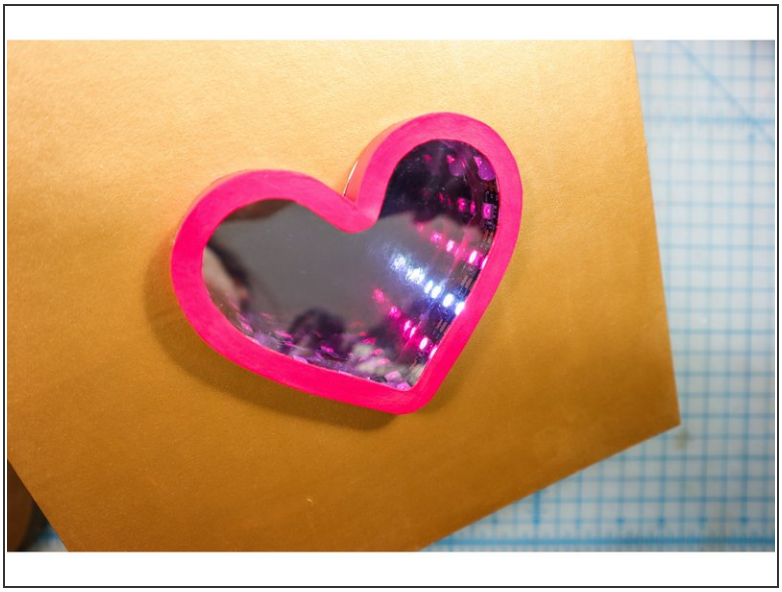
- Tape the Bit Board to the back of the project and insert the micro:bit.
- Connect the DI wire to **Pin 1**, +5V to **+** and GND to **-**.
- Add a battery pack to the power terminals.

## Step 11 — Download the Code




- Download the code, [available here.]
- This code lights up the heart in a pink color and circulates white lights around. *It's really neat how the heart shape appears to "pause" as the white light passes the point of the heart, and therefore it looks like it's beating!*

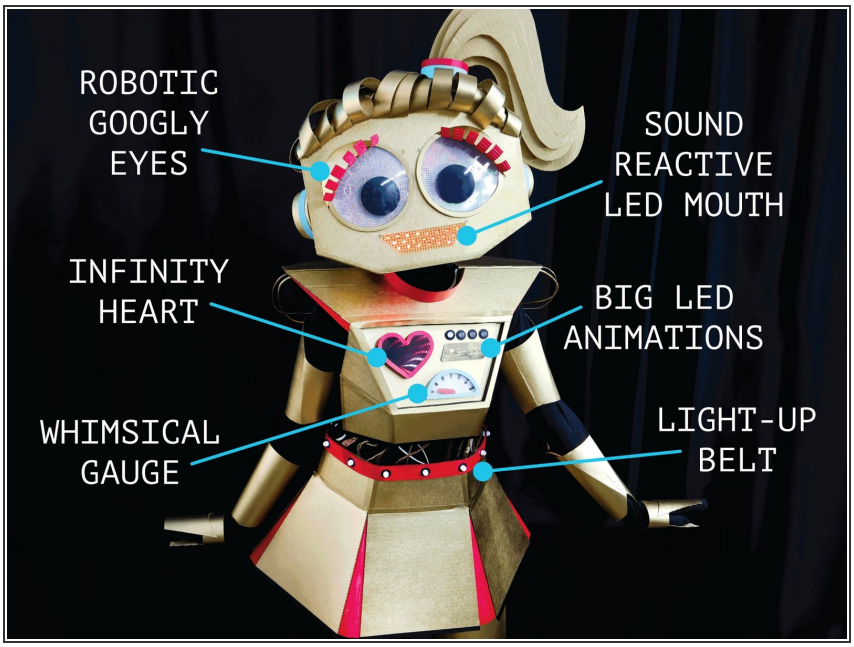
## Step 12 — Watch the Heartbeat!





- With the heart "beating" with the spinning white light, the 3D effect will make it look infinite!
- What can you add to the code to create your own look?

## Step 13 — Create the rest!




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