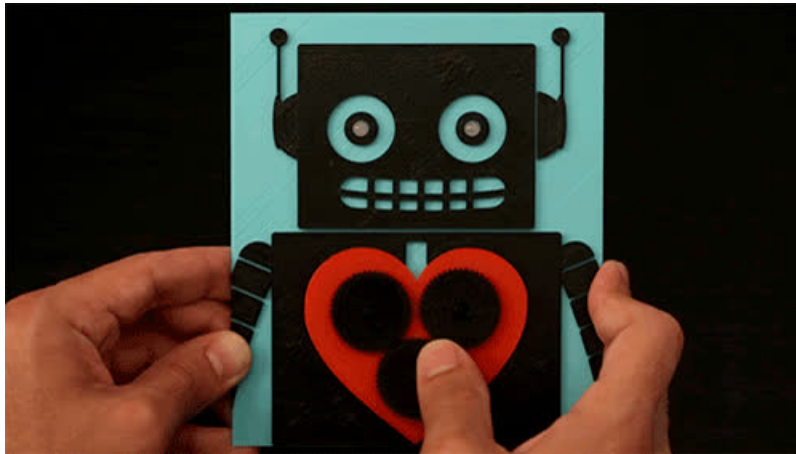




## 3D Printed Valentine with Bare Conductive Electric Paint

Created by Ruiz Brothers

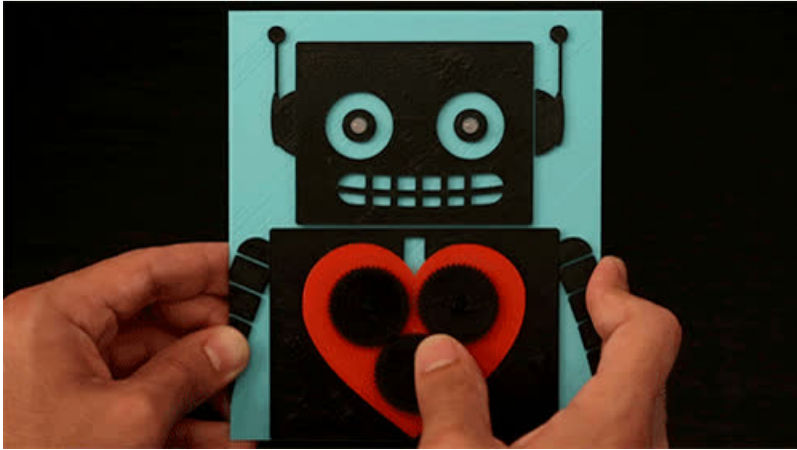


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## Overview



Light up your valentine's geeky heart, with our 3dprinted AdaBot card, using LEDs and [Bare Conductive Paint](http://adafru.it/1306) (<http://adafru.it/1306>).

Turning the gears applies pressure to the [batteries](http://adafru.it/654) (<http://adafru.it/654>) hidden inside heart, lighting up the LEDs.

This guide will show you how to print with two colors and connect LEDs with paint!

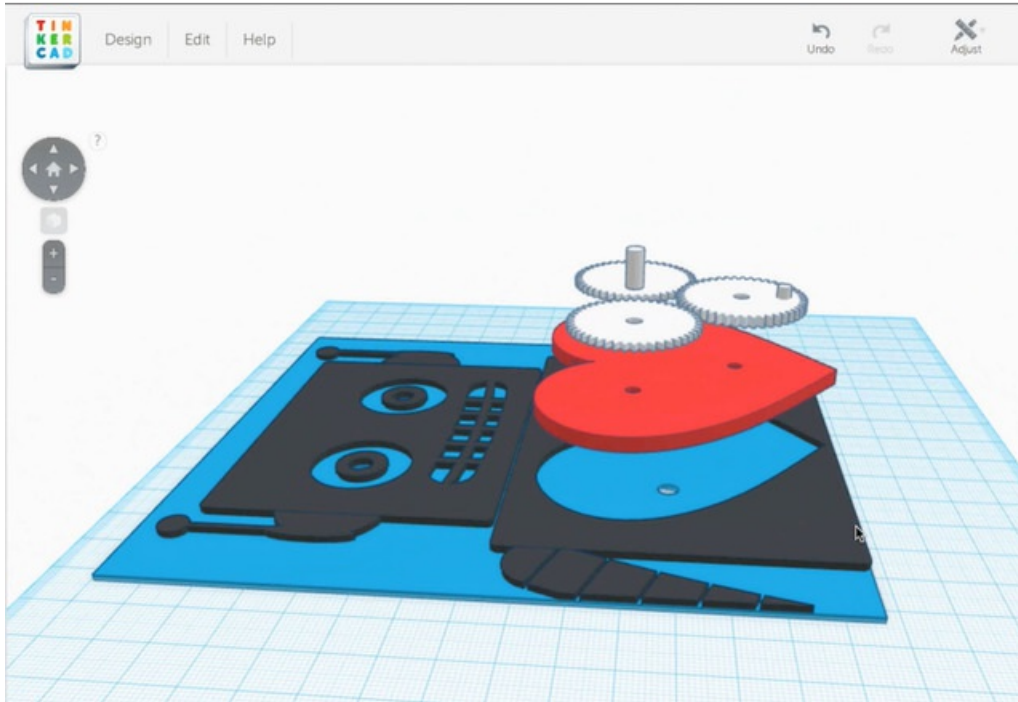
We even included a paper version!



Parts List:

- [5mm](http://adafru.it/297) (<http://adafru.it/297>) LEDs or [3mm](http://adafru.it/777) (<http://adafru.it/777>) LEDs for paper
- [Coin Cell Batteries](http://adafru.it/654) (<http://adafru.it/654>)
- [Bare Conductive Paint](http://adafru.it/1306) (<http://adafru.it/1306>)
- [Copper Foil Tape](http://adafru.it/1128) (<http://adafru.it/1128>)
- 3D Printer or Paper

## 3D Printing



### Download or Edit files

You can print out our design from thingiverse

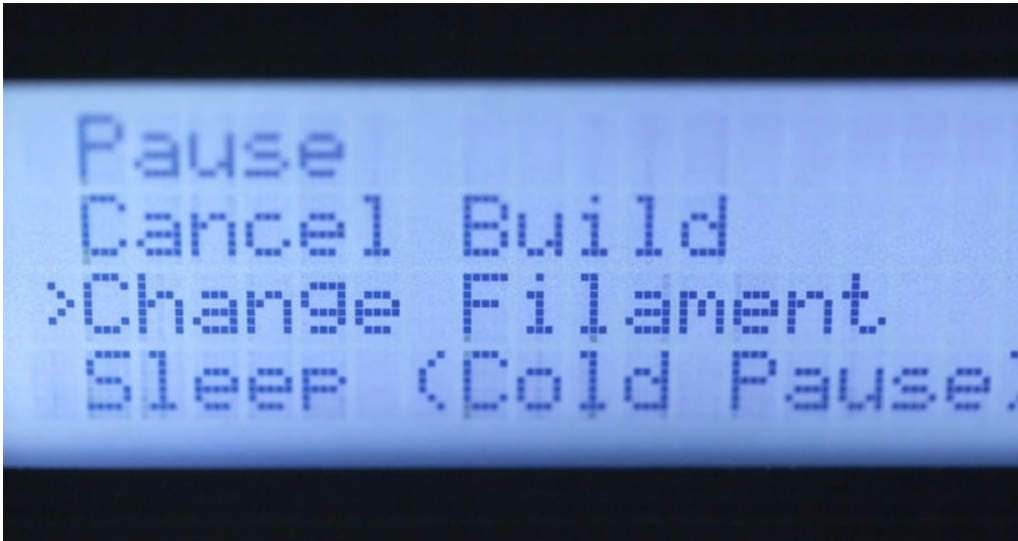
<https://adafru.it/d7Y>

<https://adafru.it/d7Y>

or customize to make it your own on tinkercad

<https://adafru.it/d7Z>

<https://adafru.it/d7Z>



## Dual Color Printing

### Change Filament Option

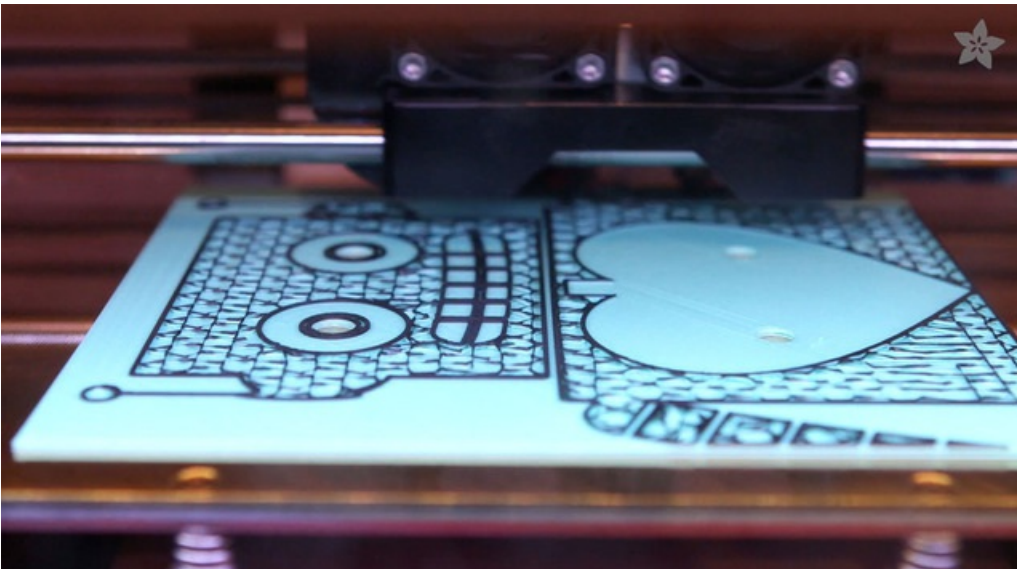
Print your card in multiple colors by using the change filament option available in most FDM 3d printers. The first 1mm takes about 50 mins to print. At this point we can select the change filament option to swap out our color.

### Z Pause Height

Z Pause Height allows you to pause your print at a set height. When you select this option, you will see two additional settings: Z Position and Pause Active.

Set the pause height to 1.1mm

Toggle the settings to ON. When Pause Active is set to ON, a Z height pause will be triggered, even if the Z Position is set to 0.



You can get filament from:

- [Inventibles \(https://adafru.it/d5T\)](https://adafru.it/d5T)
- [Makerbot \(https://adafru.it/d5U\)](https://adafru.it/d5U)

- Ultimachine (<https://adafru.it/d5V>)
- Amazon (<https://adafru.it/Bp2>)

## Print Settings

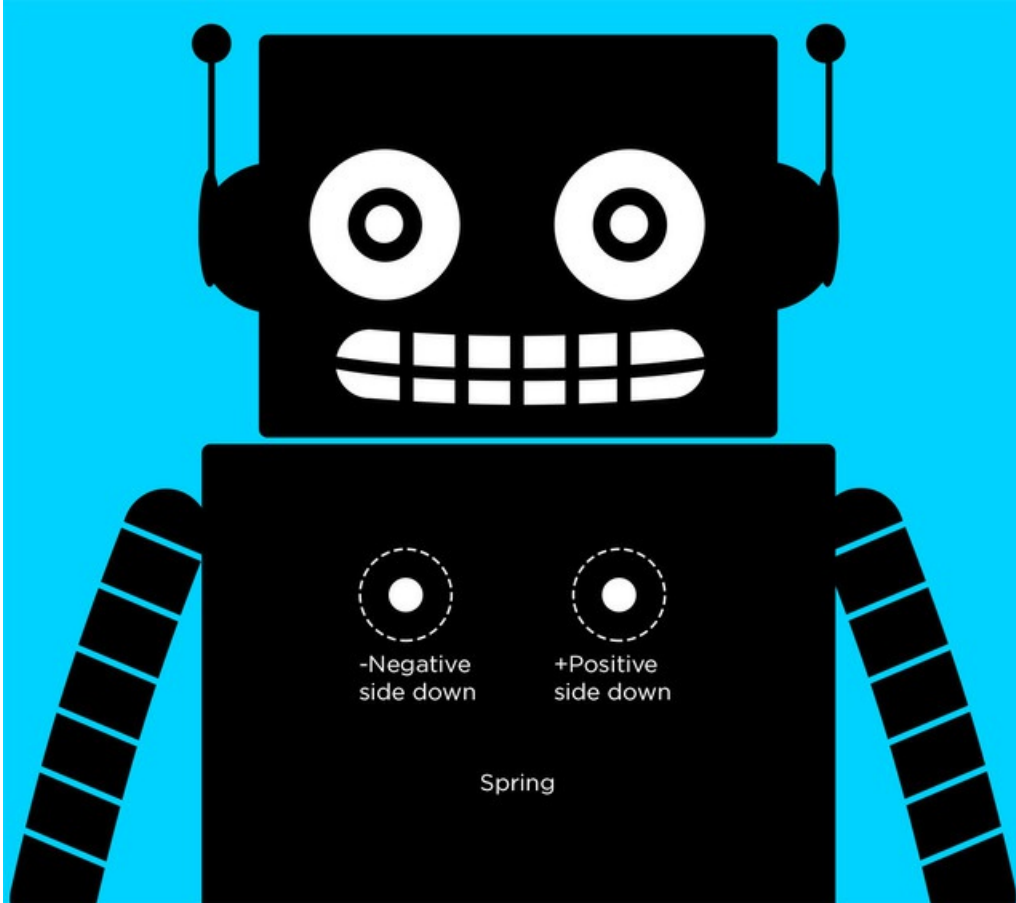
Card About 50mins for the first color layer	No Raft No Support	2 Shells 20% infill 2.0 Layer Height 90/150mm/s
Gears 5 mins	No Raft No Support	2 Shells 10% Infill 2.0 Layer Height 90/150mm/s
Heart 15 mins	No Raft No Support	2 Shells 10% Infill 2.0 Layer Height 90/150mm/s
Pins 3 mins	No Raft No Support	2 Shells 10% Infill 2.0 Layer Height 90/150mm/s

## 2D Printing

If you don't have a 3D printer or want a simple card, you can print out our design on paper!

Just print and cut out the the heart. You can build a simple spring from paper and glue together.

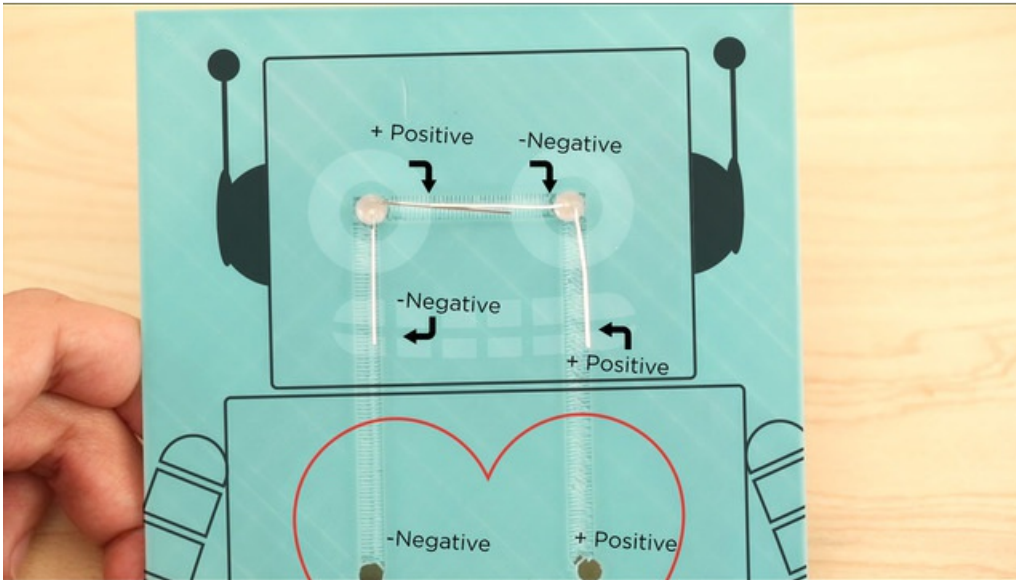
You can use smaller [3mm LEDs](http://adafru.it/777) (<http://adafru.it/777>) for the eyes







## Circuit Diagram



Follow the diagram above to align the LEDs and bend for connecting with [Bare Conductive Paint \(http://adafru.it/1306\)](http://adafru.it/1306).

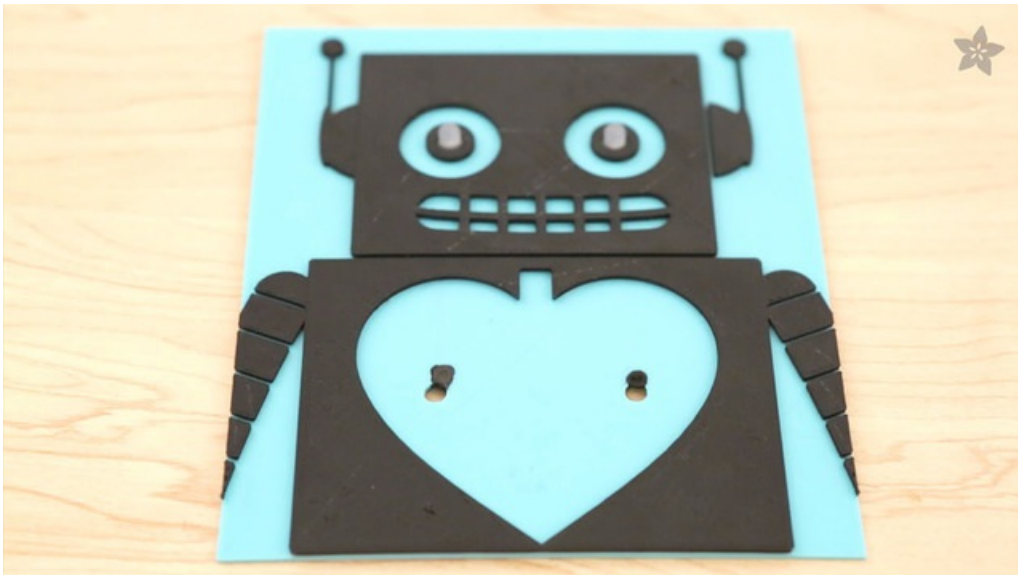
## Assembly



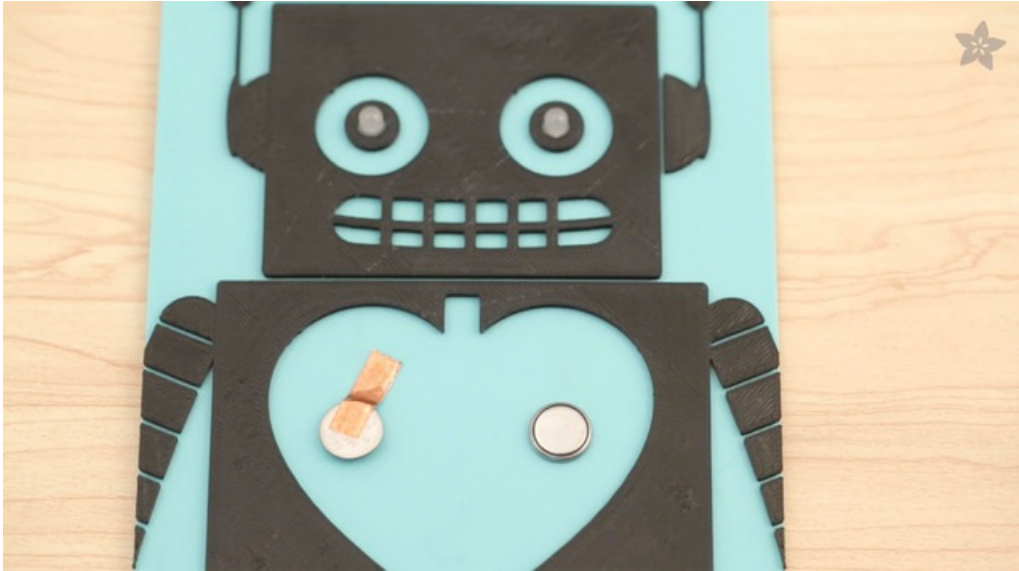
Pop in both LEDs and align the wires. Bend the LEDs into the channels on the back of the card. Make sure to bend close to the card to insure the ink sticks to both the wires and has good adhesion to the plastic.

Carefully squeeze the pen to apply a generous amount of ink. Draw a thick line from one battery hole to the LED and then connect both LEDs together.

Don't worry if you get some on your hand or on some spots around the card, it washes right off with water!



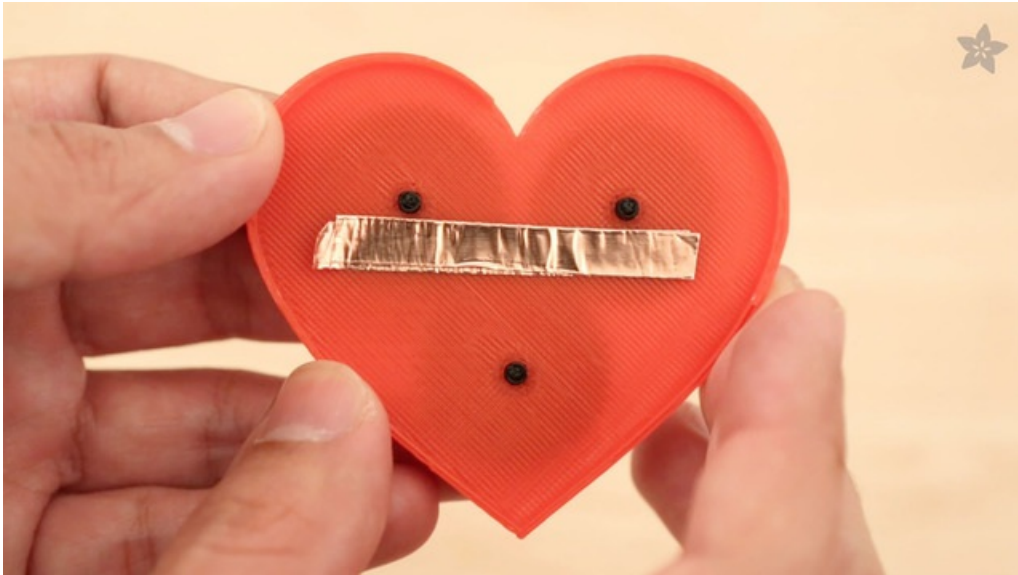
Apply a good amount to the inside of the holes and on to the front of where the batteries will sit.



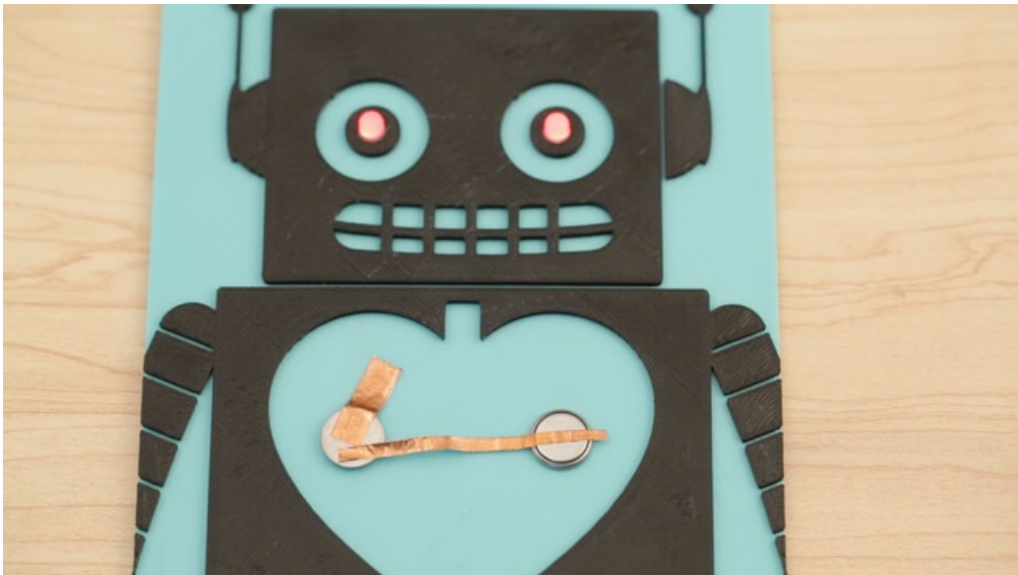
You can use a drop of ink to hold the batteries or a piece of [Copper Foil Tape \(http://adafru.it/1128\)](http://adafru.it/1128).



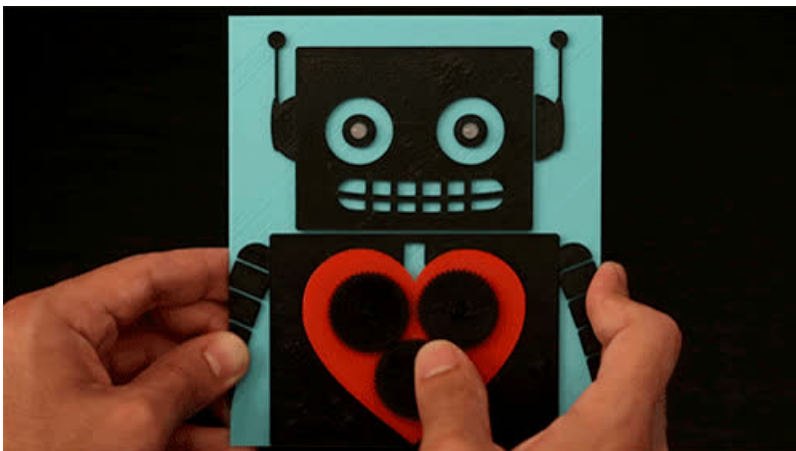
Snap the pins into the heart. Place the two nub-less gears into the top pins. The pressure applied to the bottom gear will push the copper foil tape underneath and bridge the connection between the batteries.



Apply a strip of [Copper Foil Tape](http://adafru.it/1128) on the back of the heart, underneath the top two pins.



To keep the LEDs lit, you can bridge the connection by simply applying tape the top of the batteries.



Snap in the assembled heart just in time to lighten up your valentine's geeky heart!