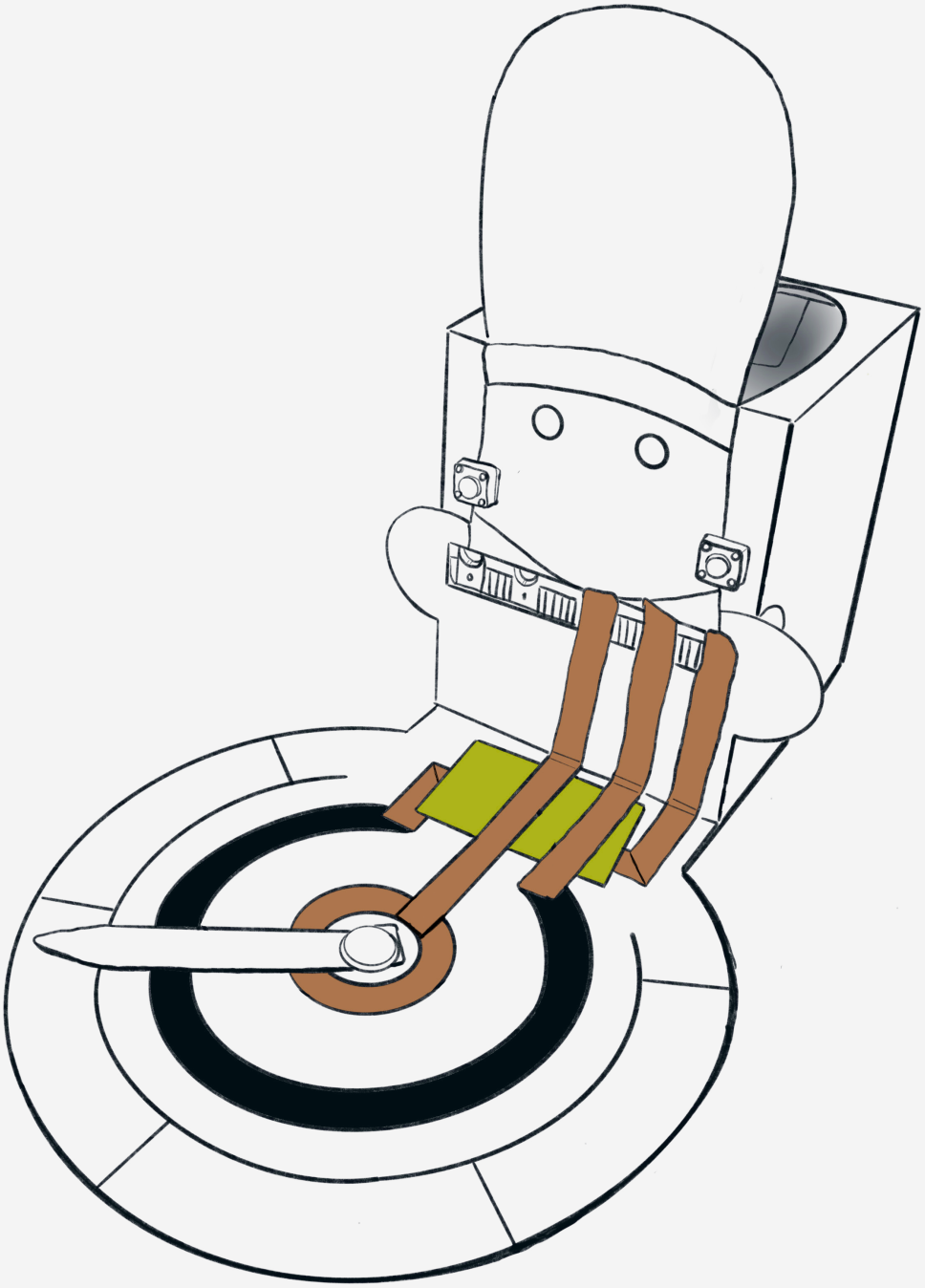
My:Talkies

Assembly Guide



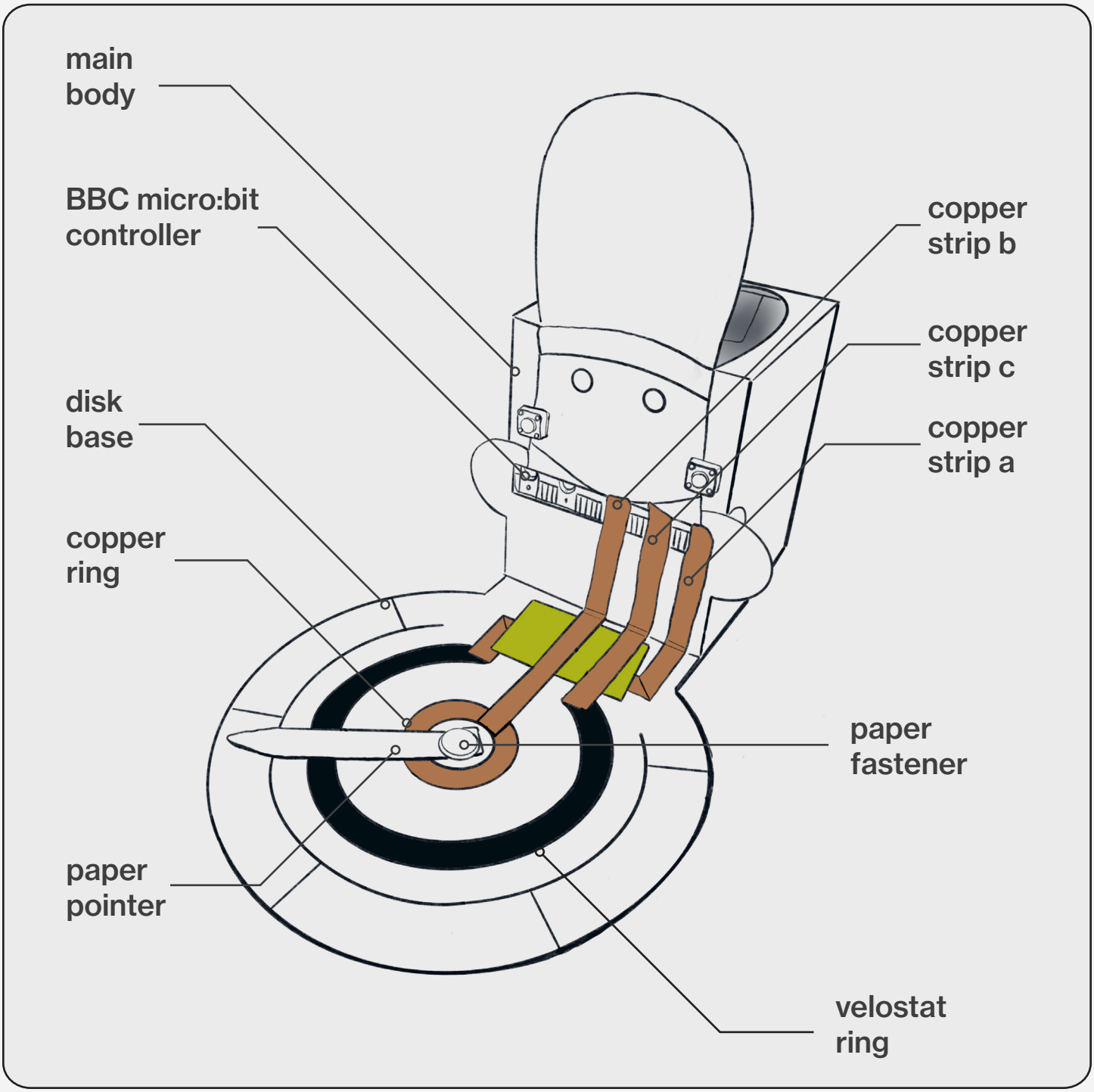
Assembly Time: 30 minutes
Difficulty:
Ages: 11-14

MAKING WAVES
with radio

Description

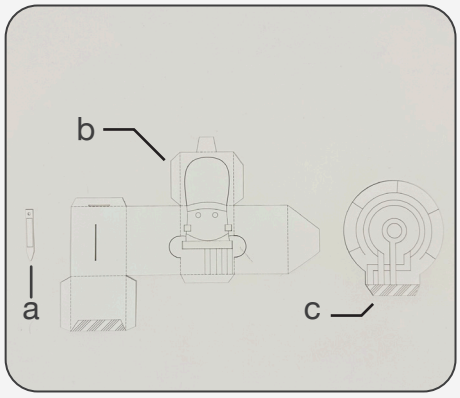
Make a My:Talkie using a BBC micro:bit controller, a DIY paper potentiometer, and paper templates to learn about radio communications. Use a pair of My:Talkies to communicate to each other.

Completed Basic My:Talkie



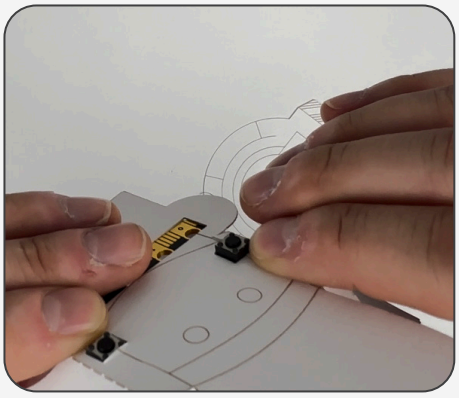
My:Talkies Assembly - Paper Parts

1



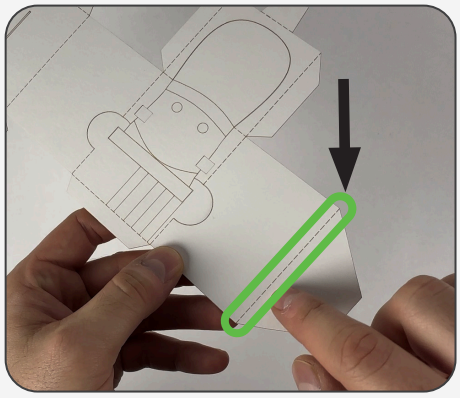
Have ready these three paper components: the paper pointer (a), the main body (b), and the disk base (c)

2



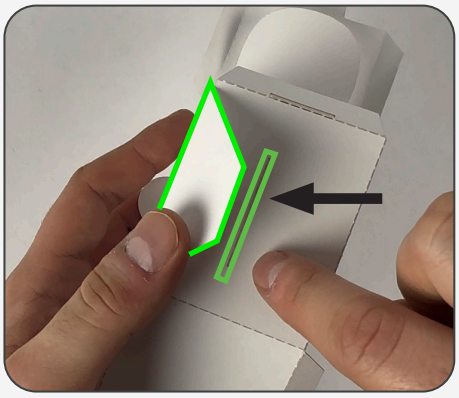
Grab your micro:bit controller and insert the square push buttons into the square cutouts until you have a secure fit

3



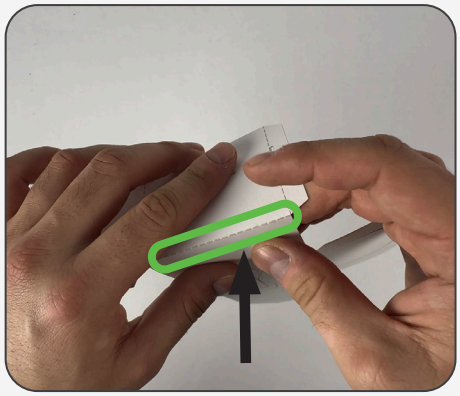
Fold along the dashed lines on the main body component shown in green.

4



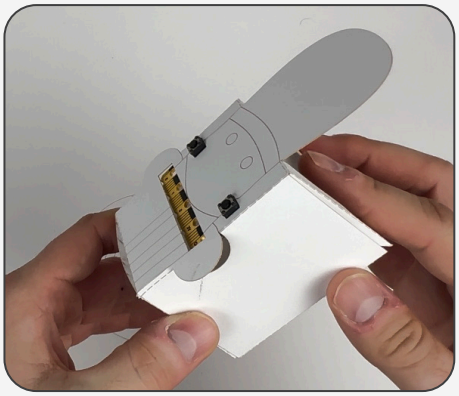
Insert the tabs into the slots to secure the main body, repeat for all tabs and slots

5



Repeat the folding process on all of the edges with the dashed lines

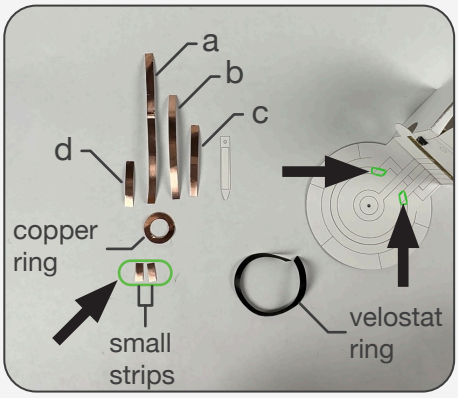
6



Your My:Talkie should look like this.

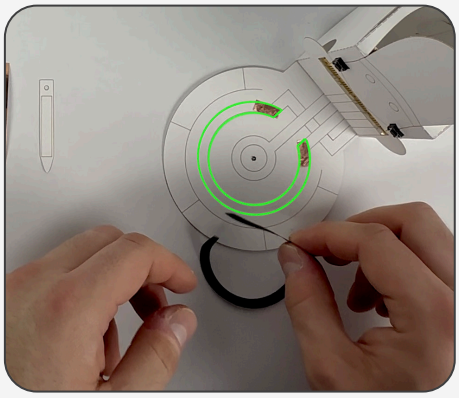
Potentiometer Assembly - Electronic Elements

1



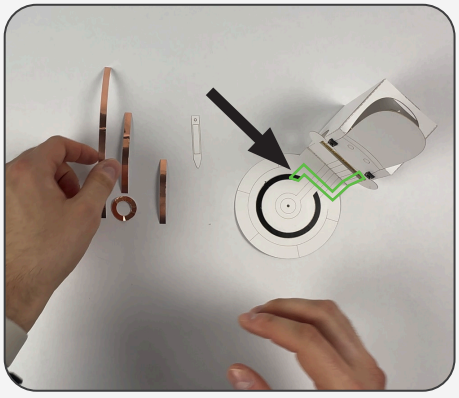
Add the electronic components to the paper parts. Grab your two smallest strips, remove the paper back and attach them to the green area shown in the image.

2



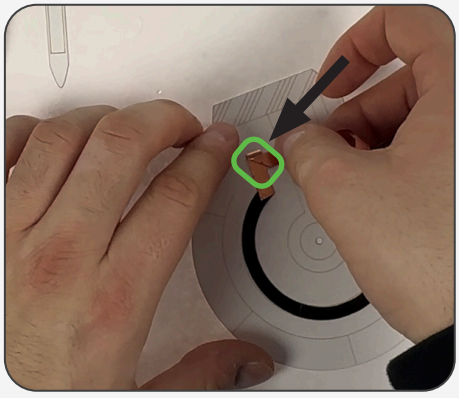
Take the velostat ring. Using the glue stick, apply some glue to section outlined in green and gently place your black ring onto the paper.

3



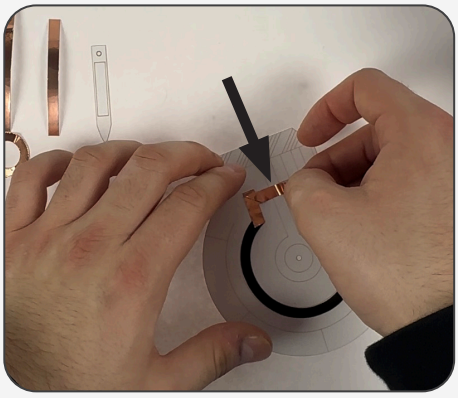
Now grab copper strip “a”, remove the paper backing and tape down along the path outlined in green.

4



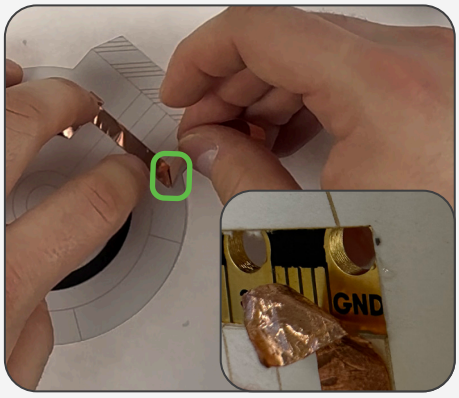
The corners are tricky at first, once you reach a corner, fold the tape slightly back towards you until a diagonal line is formed.

5



Once you create that corner shape, keep placing the copper along the path.

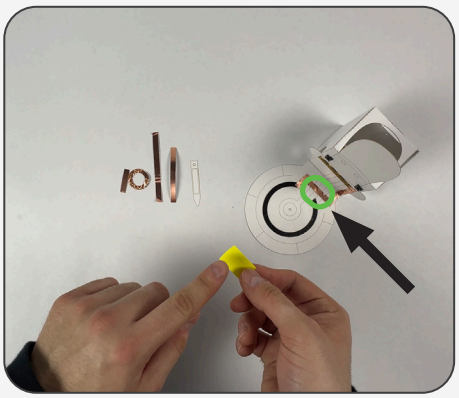
6



Repeat this for the next corner and add copper tape all the way to the micro:bit gold pin that says “GND”

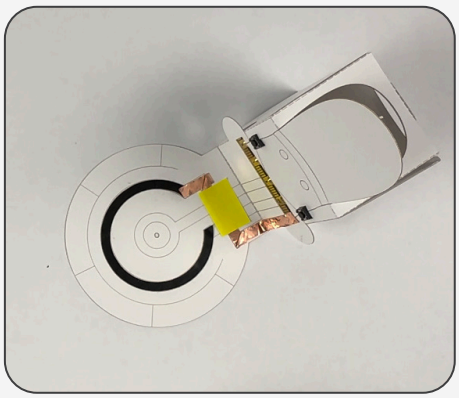
Potentiometer Assembly Continued

7



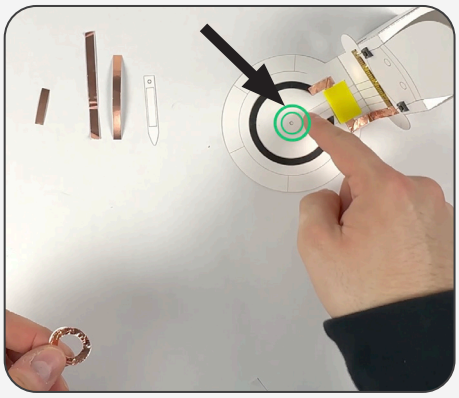
Cut out a small rectangular piece from your Sticky note and tape it down over the section outlined in green. This is to avoid shorting the circuit.

8



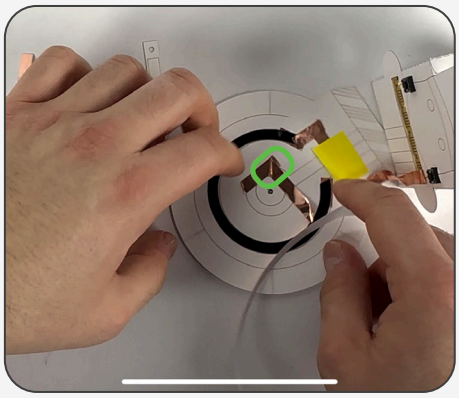
Check that your My:Talkie looks like this.

9



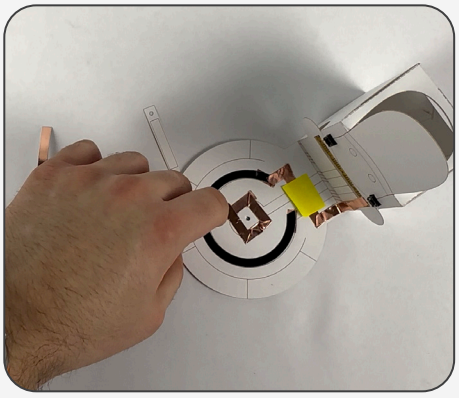
Grab the copper ring, peel the paper back and attach it to its location on the paper disk

10



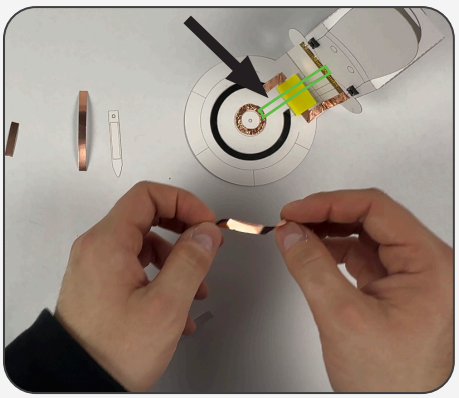
If you don't have a copper ring, use a copper tape strip and the same folding technique as step 4

11



Repeat the folding technique around each corner to form a round path, something similar to the image

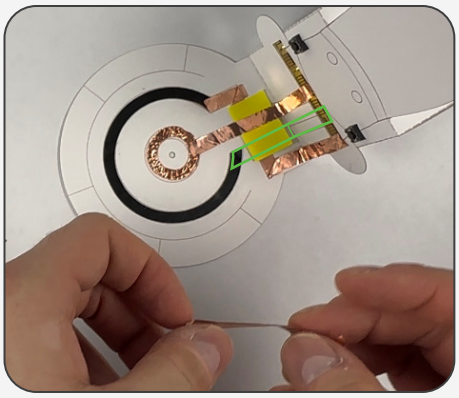
12



Grab copper strip "b", peel the paper off and tape it over the copper ring, all the way to the micro:bit gold pin labeled "2"

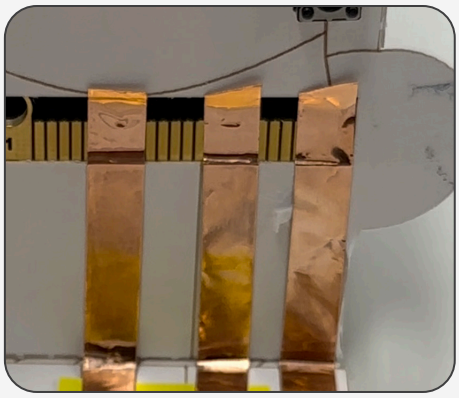
Potentiometer Assembly Continued

13



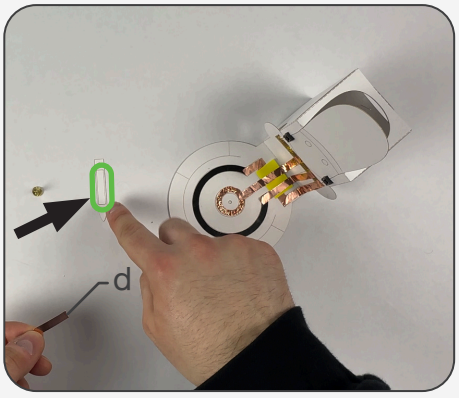
Repeat previous steps, now for copper strip “c”. This strip goes along its path all the way to the micro:bit gold pin labeled “3V”.

14



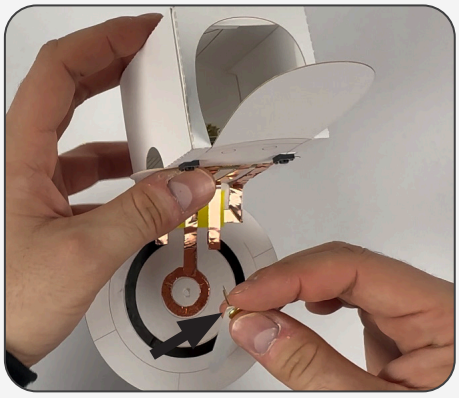
Your My:Talkie should now look like this. Check all the copper tape connections are well attached.

15



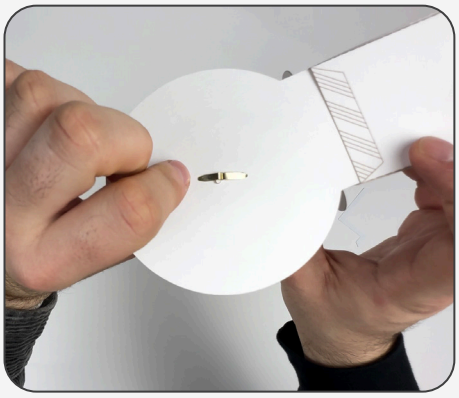
Grab your paper pointer, copper strip “d” and your paper fastener, remove paper backing and attach copper strip d to the outlined section.

16



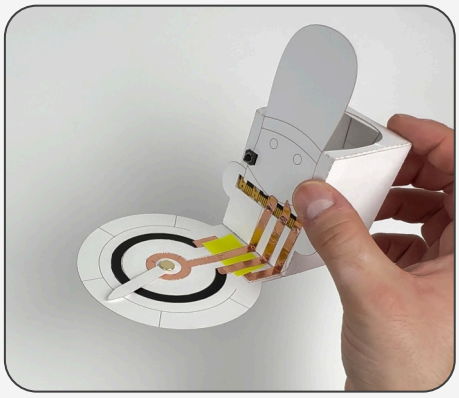
Make sure the side of the paper pointer with the copper strip is facing down to touch the paper disk base, then put the fastener through the pointer and the disk base.

17



Once through the base, bend the fasteners “legs” outwards to secure your pointer!

18



The assembly of your My:Talkie is done! You can personalize it with colored markers or craft materials.