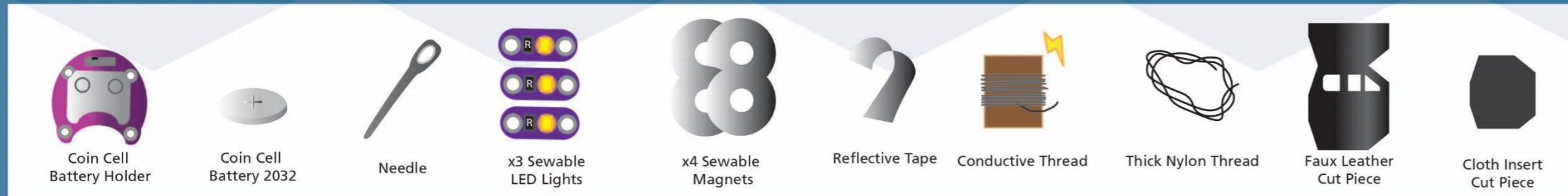


USQ Makerspace Maker Kits: Wearable Tech

Need some help or advice?
Send an email to
makerspace@usq.edu.au

Your kit will include:

Learn to use conductive thread to create a light up reflector for your clothing.



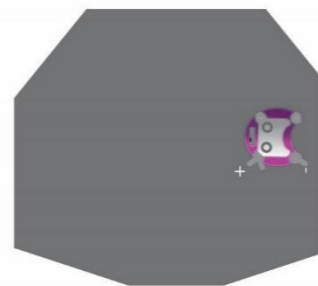
Welcome to the Maker Kits Project! This is an initiative aimed at giving maker skills to students who might not normally be able to use the on-campus Toowoomba Library Makerspace. In this kit, you'll learn how to use conductive thread to stitch a circuit and create a light up reflector for your clothing. Make sure to read the whole first page of instructions before starting to make sure you understand what the steps are leading up to. Let's get started!

1 Thread the needle



Cut off a length of conductive thread the size of your forearm to make it comfortable to work with. thread the eye of the needle and tie a knot in the end of the thread. this makes sure the thread doesn't pull through the fabric when you start stitching.

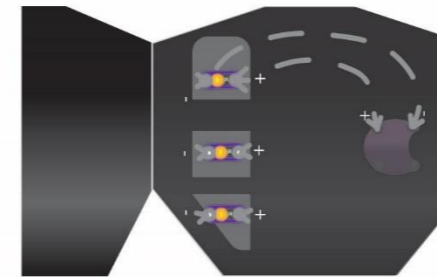
2



With the soft piece of fleece, place the battery module to match the diagram above. The fabric should be woven side down, fleece side up. Start stitching by bringing the needle up through the bottom of the fabric through the hole on the positive side of the battery module. Stitch around this hole at least three times for a strong, tight connection.

3

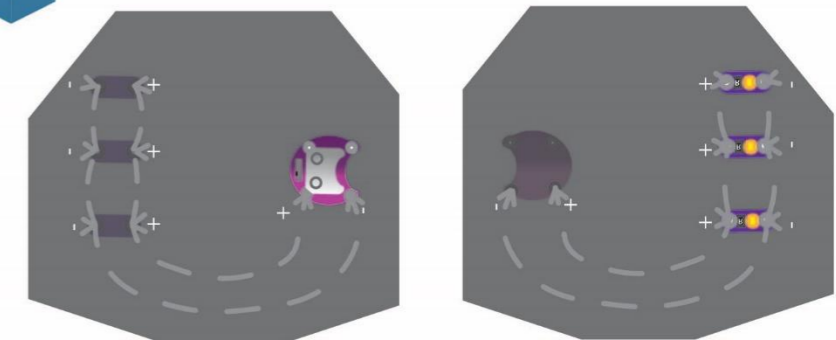
Line up the LEDs with the holes



Before stitching in the LEDs, overlay the faux leather piece to make sure the LEDs will shine through the holes in the right spots.

4

Stitch in the LED Lights

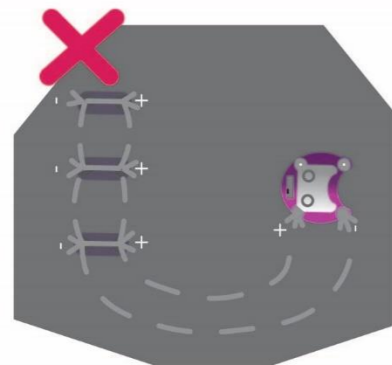


Inside Reflector

Outside Reflector

Use a running stitch to add in the LED lights. Make sure to match up the 'positive/+' and 'negative/-' symbols of the parts to the diagram. LEDs are 'polar' and can only run when powered in the right direction. Make sure to trim any loose ends close to the knot.

5 Stitch to the diagram

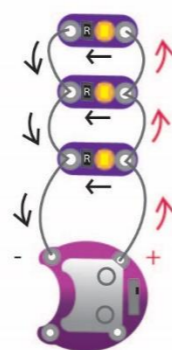


Inside Reflector

Make sure you don't accidentally make connections that shouldn't be there, like these strands that run under the LEDs. These will stop the LEDs from lighting up because electricity will take the path of least resistance around the LED.

6

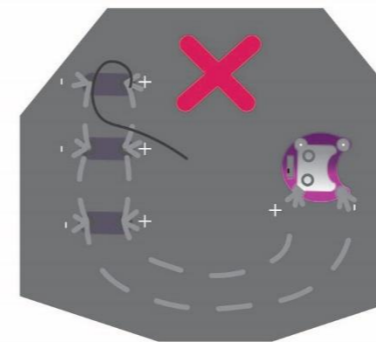
Parallel Circuits



This is another way of looking at our circuit diagram. We're wiring the LEDs 'in parallel', allowing each light to receive an equal share of the current. This makes sure they are all the same brightness.

7

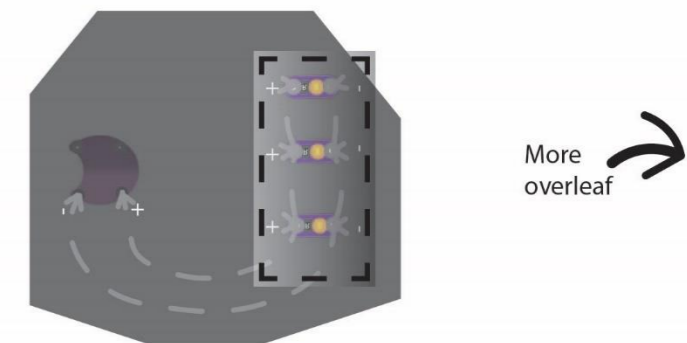
Test the Circuit



Put the coin cell battery in the holder, and slide the switch on the holder to turn the circuit on. If the circuit isn't working, make sure there aren't any loose strands and all threads are trimmed close to the knot.

8

Sew the Reflector



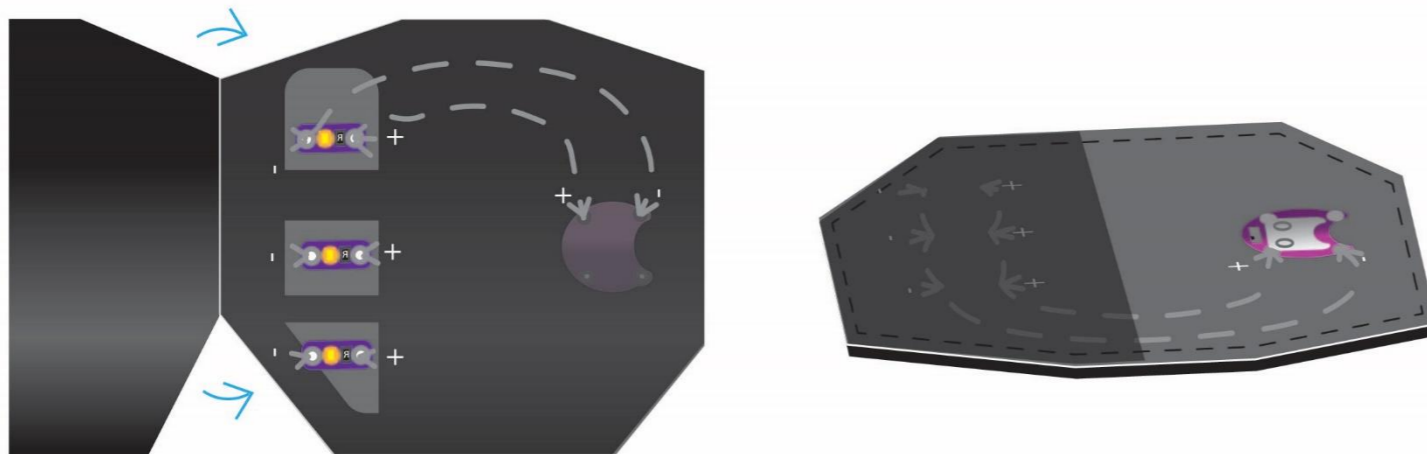
Next, use a running stitch with Nylon thread to sew the clothing reflector over the LEDs, making sure it lines up with the holes in the faux leather. Arrange the reflector to be reflective side up, dull side down. Trim away any excess that overlaps outside the fleece shape.

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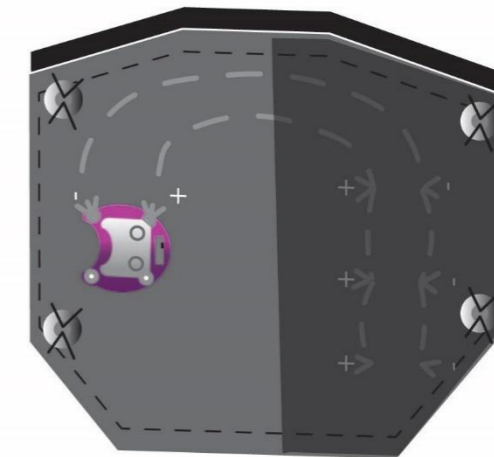
Learn to use conductive thread to create a light up reflector for your clothing.

9 Stitch the fabrics together



The top piece of the leather will fold over on top of the fleece.
Stitch around the outline of the fabrics to sandwich them together. If you have a sewing machine, you can use it for this step.

10 Add in the magnets



Stitch the magnets in to complete the project.
Make sure they line up on either side.
Enjoy!