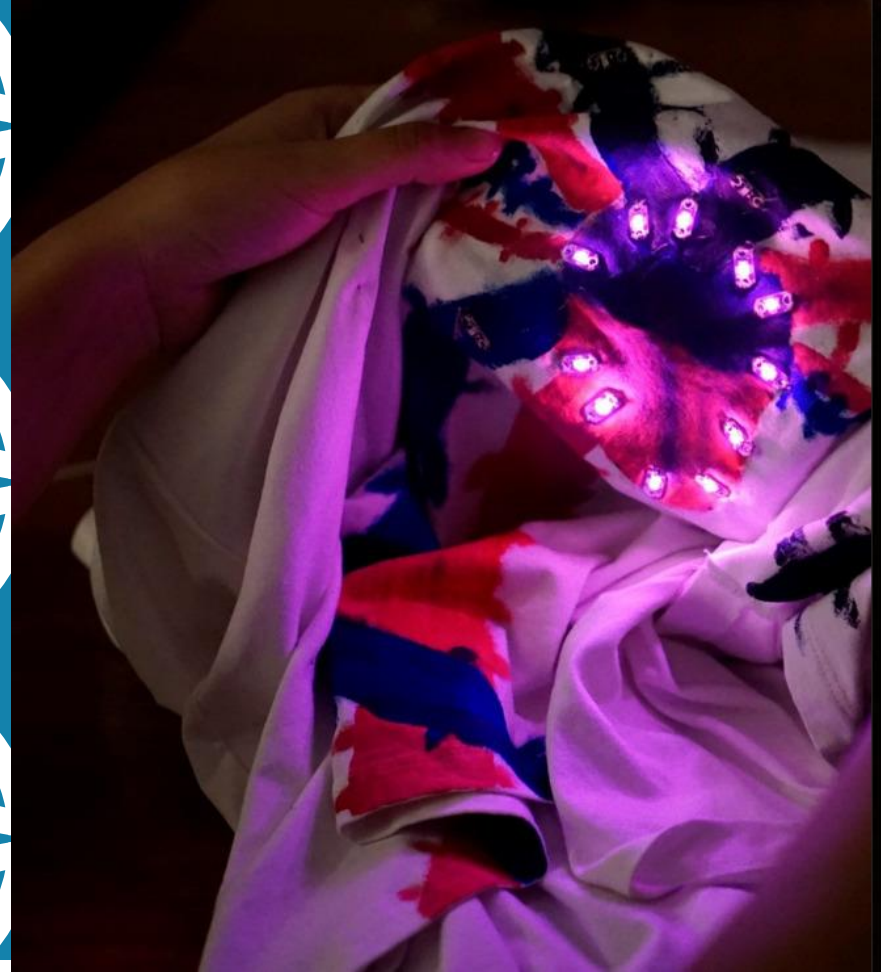


WEARABLE TECHNOLOGY

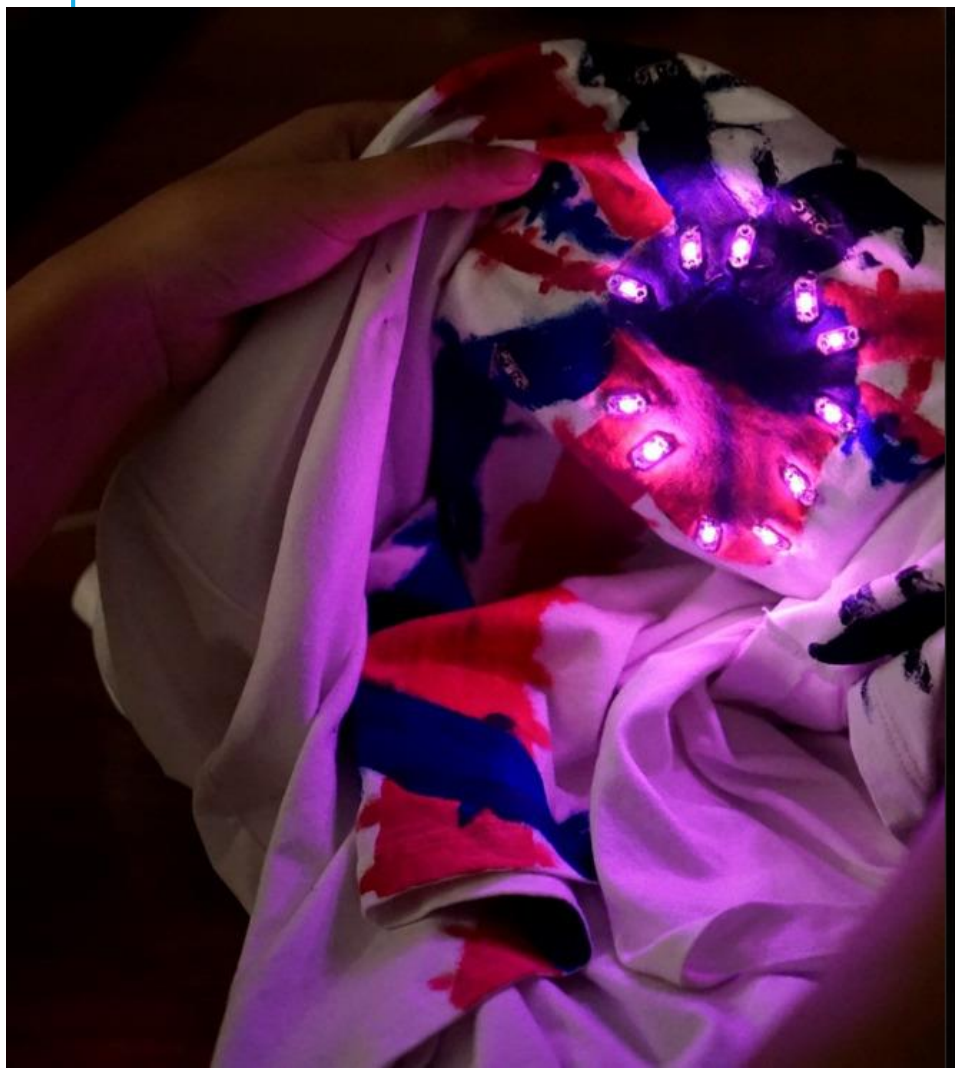
ART
FASHION

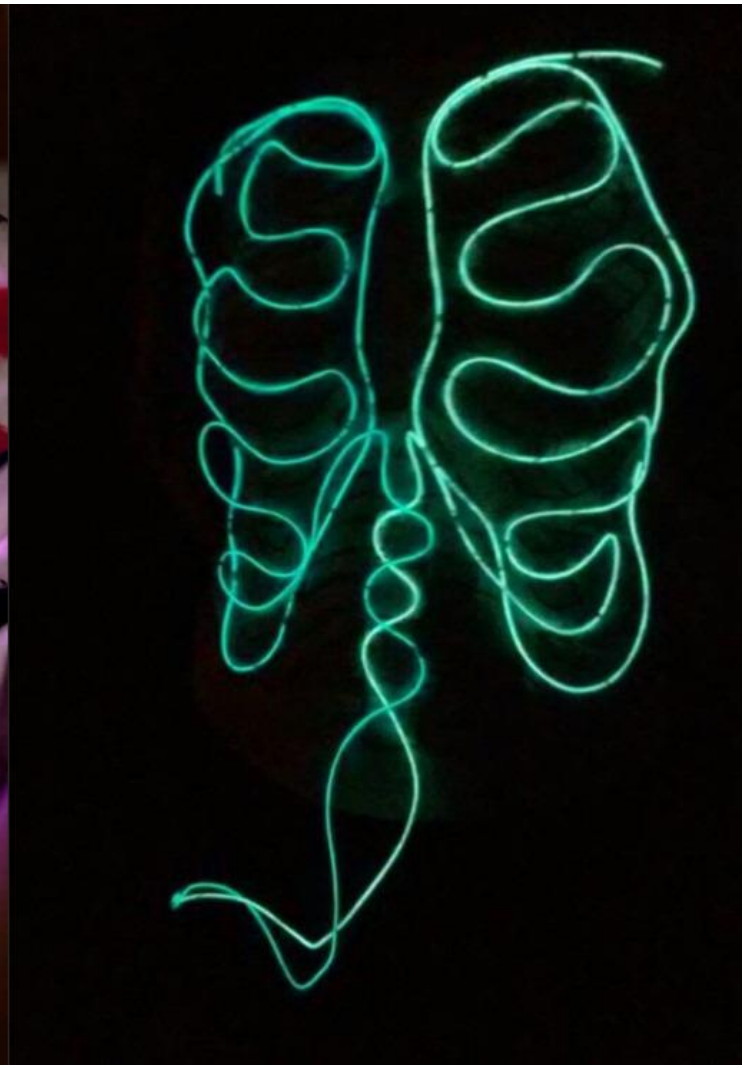
Dannie Wei
danniepLan@gmail.com

MAKE YOUR IMAGINATION GLOW

Hi Everyone! My name is Dannie Wei. I am a Science teacher and I like to bring Science/Technology and Art together. I think light is pretty and I like to tinker electronics to make pretty light. Here are some stuff I have made:

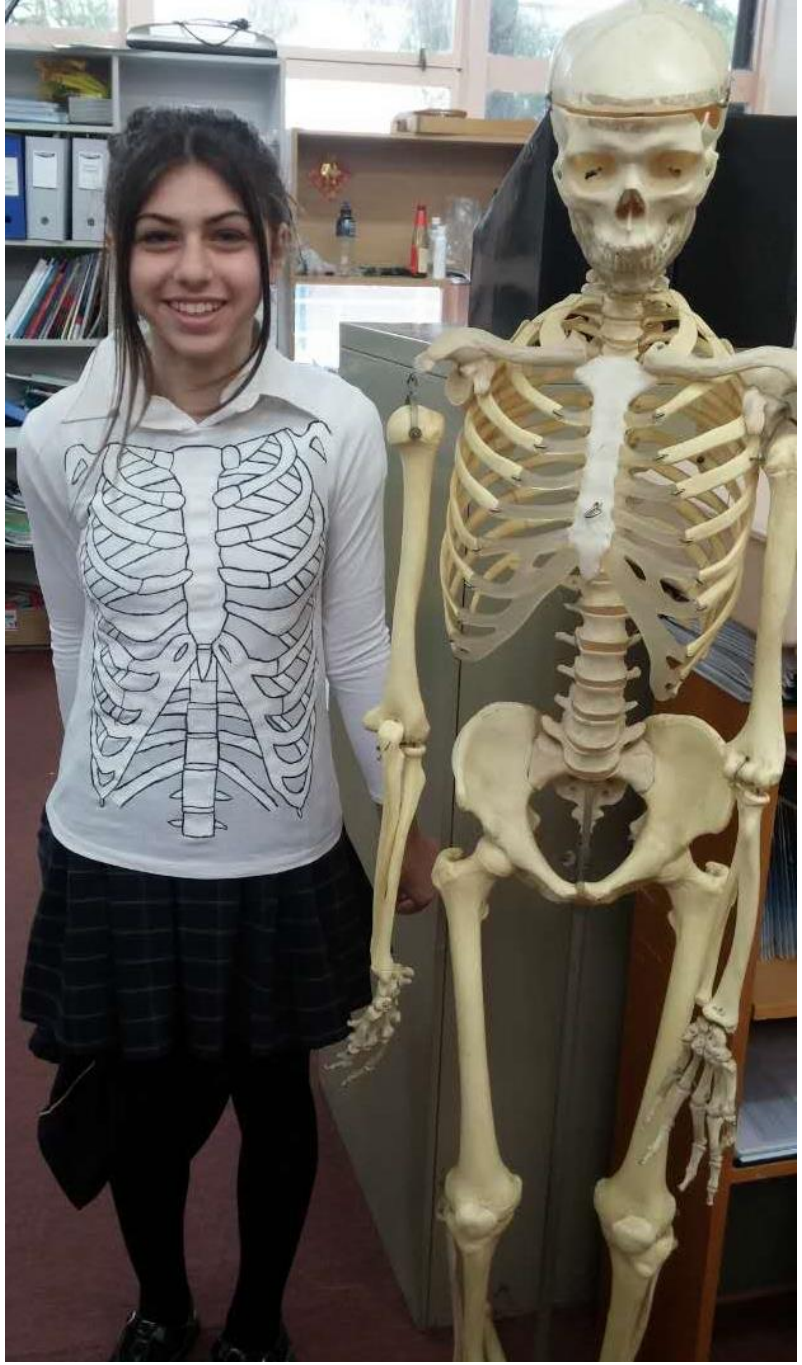
I like to make pretty light





How did I start on Wearable Tech Art?

When I was teaching in a high school I led my Year 8 Science students to a fashion show in Melbourne in front of hundreds of people. Our work is called Energized Human Body. We first drew different human body systems on t-shirts.



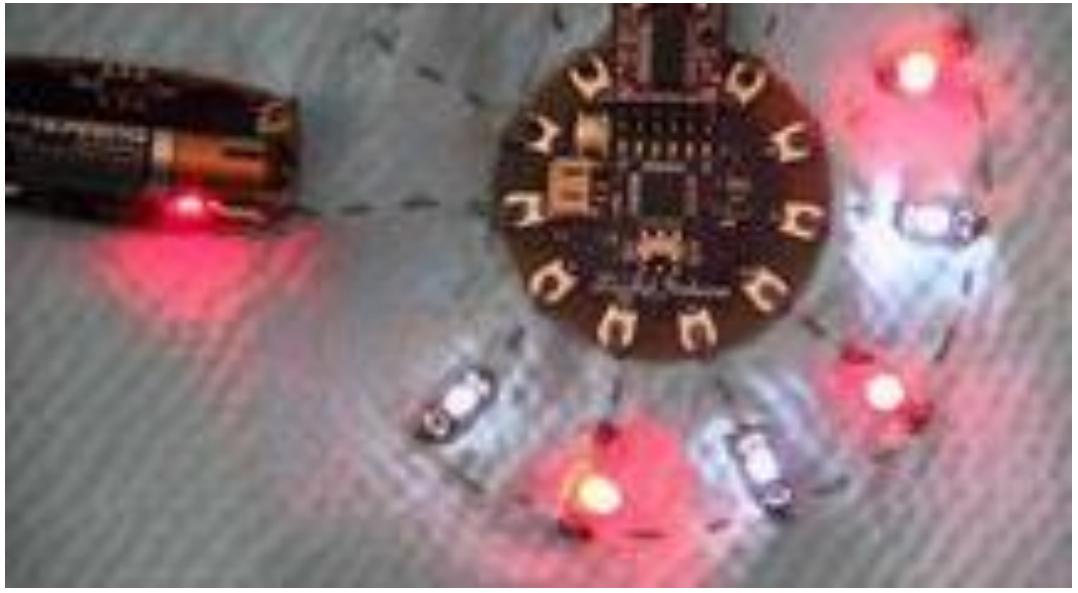
It is not just a normal fashion show it is a wearable technology fashion show! All of our t-shirts can flash and interact with the wearer and the environment. For example, this heart t-shirt can flash according to the wearer's heartbeat.

How can we do this? We used Lilypad to create all these smart garments. Lilypad is a set of sewable electronics which allow you to embed light, sound and sensors into your jewelry and fabrics.

WHAT IS LILYPAD?

LilyPad is a set of sewable electronics designed to help you build interactive textiles. A set of sewable electronic modules–including a small programmable computer called a LilyPad Arduino–can be stitched together with conductive thread to create interactive garments and accessories.

LilyPad can sense information about the environment using inputs like light and temperature sensors and can act on the environment with outputs like LED lights, vibrator motors, and speakers.



Project 1: Art Pin

In my video tutorials I will teach you how to make two projects. This first one is an art pin which is simply a circuit with two LED lights. Everyone likes presents especially unique ones. The presents made by your hands either for yourself or your loved ones can't be found anywhere else. During this workshop I will show you how to sew electronics to textiles to make art pins. It will be up to you what you would like to draw and make! Make your imagination glow and tell your stories through your unique art pins.

Here are some examples of my students' work.

WEARABLE TECH FASHION PROJECT 2

Project 2: Adventure Time T-shirt. Jack's eyes are shooting light, one eye is blinking and other one is glowing. This requires using Lilypad Arduino to control the LED lights and the lights are programmable so you can decide how the light is flashing.

http://lilypadarduino.org/

More Lilypad projects

http://lilypadarduino.org/?cat=15

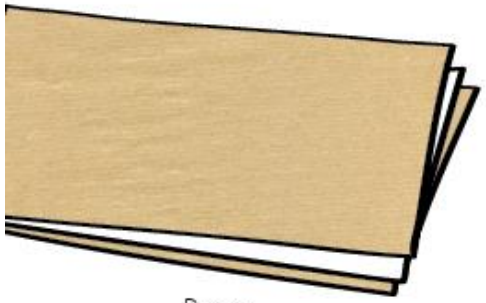
http://highlowtech.org/?p=2286

STEP 1: GATHER YOUR MATERIAL

CRAFT MATERIALS & TOOLS:

Chalk or pen for marking fabric

Felt



Paper

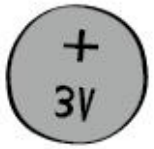
Needle

Glue

Scissors

Colored pencils for drawing design sketches

ELECTRONIC MATERIALS:

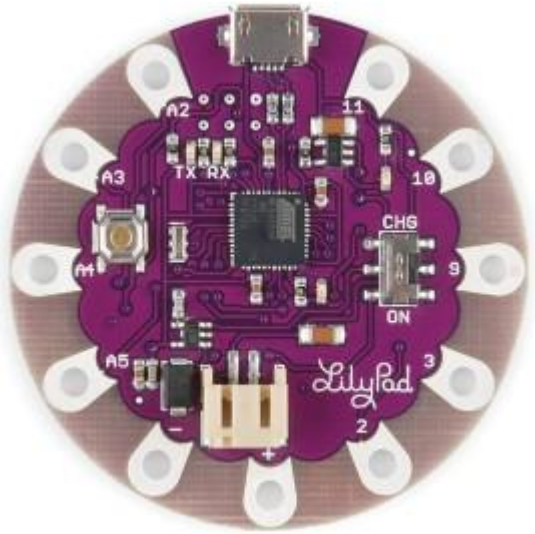


Coin cell battery

LilyPad LED

Coin cell battery holder

Conductive Thread



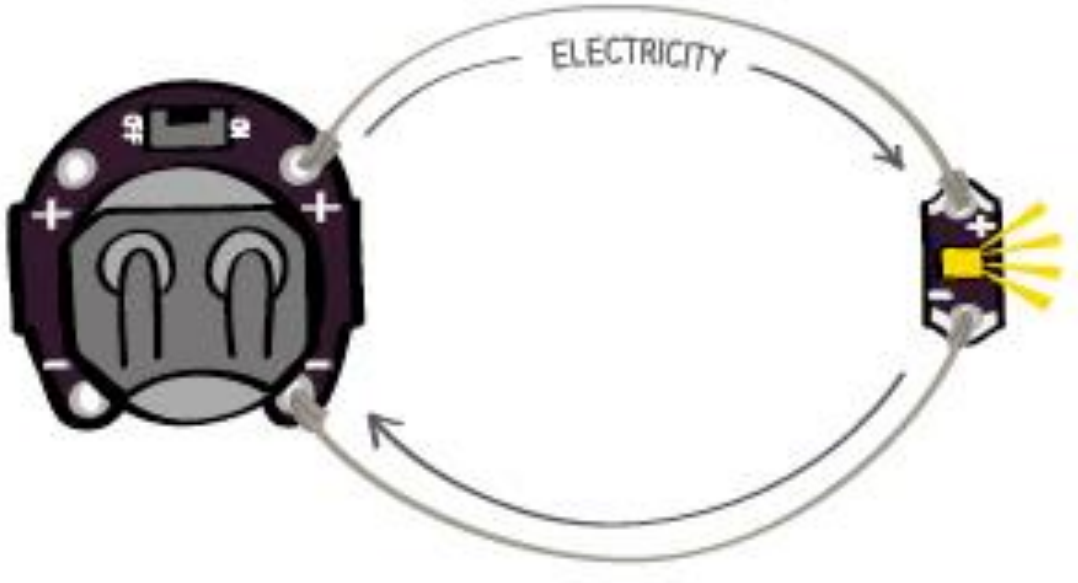
LilyPad Arduino is used for programming your LED and making your projects interactive

LET'S MAKE IT TOGETHER!

Step 2: Art Design

Step 3: Circuit design

Draw your connections. Lay out all the components on the fabrics and use a pencil to draw the electrical connections between LEDs and Arduino board.



The (-) on the LED should be attached to the (-) on the Arduino board or the battery. The (+) on the LED should be attached to the (+) on the board or the battery.

LET'S MAKE IT TOGETHER!

Step 4: Begin building

Thread the needle and tie a knot on the back of the fabrics at the(-) hole on the LED or the board.
Sew tightly through the holes and make at least two loops through the holes to attach the LED to the fabric.
Stitch away from the pinhole to the board.
The (-) on the LED should be attached to the (-) on the Arduino board. The (+) on the LED should be attached to the (+) on the board.
When you finish tie a knot on the back of your fabric, trim its tails and seal them with a dab of glue.

CIRCUIT DESIGN GUIDING RULES

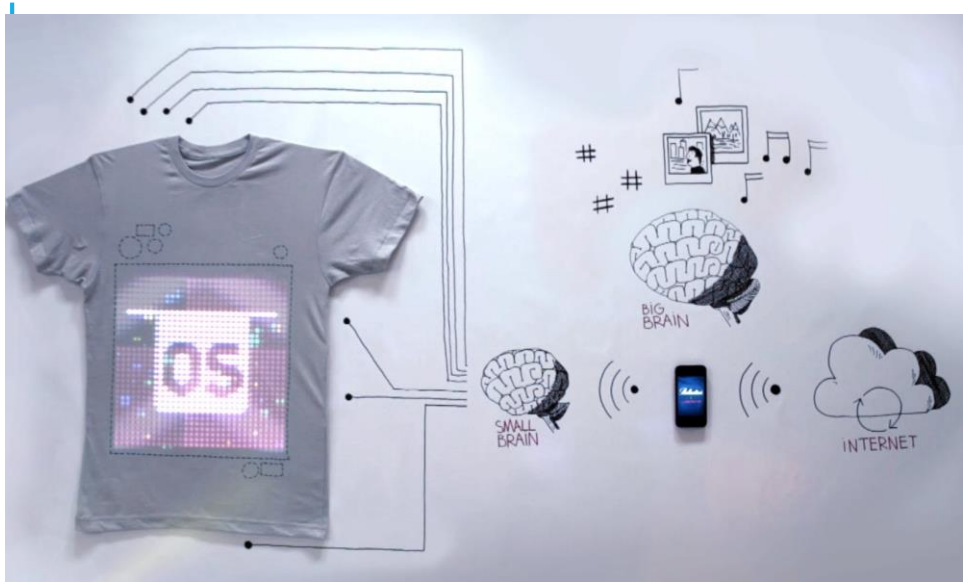
Whenever you are stitching through the pinholes of LED or Arduino board, sew tightly and make at least two loops through the holes to secure the components to the fabric.

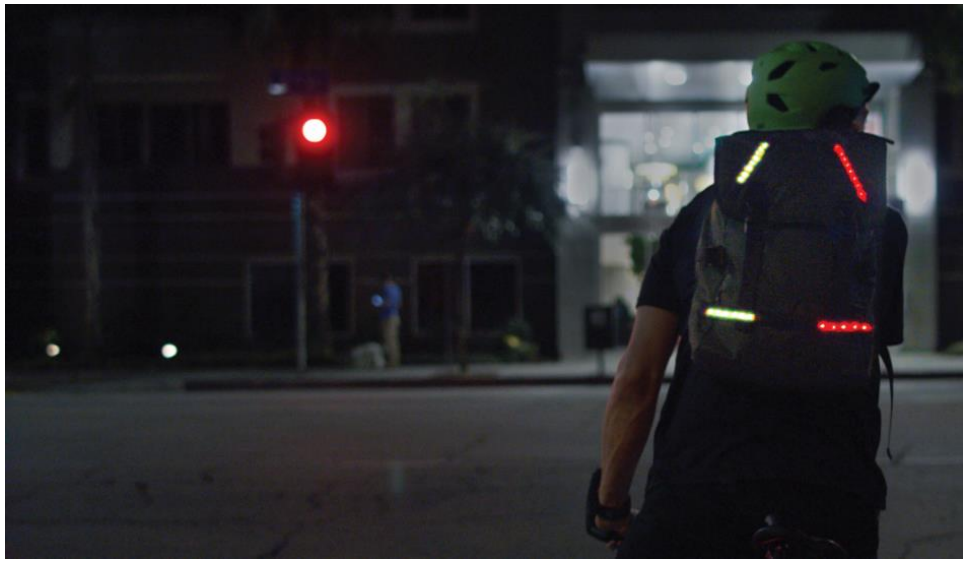
Don’t let traces from different pins cross each other or get too close to each other. Because this will create a short circuit causing the components to malfunction.

Ensure the switch is turned off throughout the sewing.

Make sure you plan out your circuit before you start building. Without careful planning, you will end up creating short circuits, sewing unnecessarily long traves.

WEARABLE TECHNOLOGY IN REAL LIFE





GPS tracking collars for the pets are useful to find your missing pets back.

This flashing backpack indicates the cyclists' turning and stopping. It makes safe to ride bikes at night.

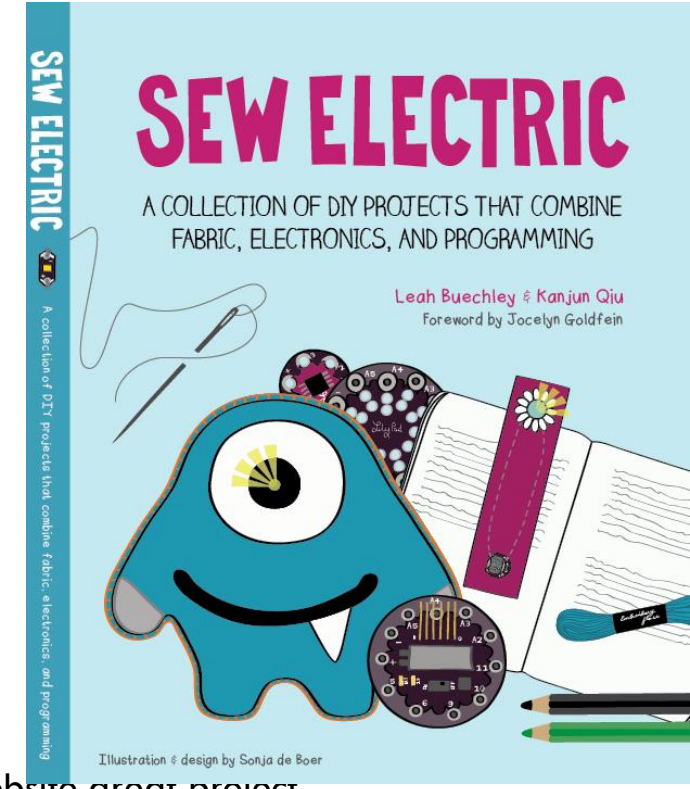
OS T-shirt is made by Cutecircuit, an expressive t-shirt to wear.

Amazing Wearable Fashion. I love watching these!

http://cutecircuit.com/#accessories

https://www.youtube.com/watch?v=uhztuWTXYoY

WHERE TO PURCHASE ELECTRONICS AND LEARN MORE ?



Online stores in Australia. Convenient to contact them if you have questions:

http://www.pakronics.com.au/collections/wearable-starter-kits

https://littlebirdelectronics.com.au/collections/wearables

This US online store has a huge variety of electronics and often has a cheaper price. Check out this website great project ideas and tutorials!

https://www.sparkfun.com/

Want to learn more?

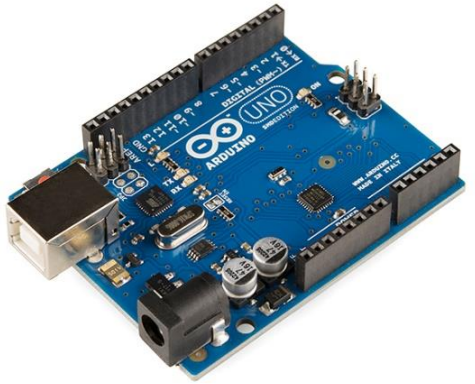
http://www.instructables.com/ This is an online community for creative people from 0 to 100 years old who enjoy sharing what they made. Read the instructions of how to make everything, including craft, electronics, costumes and woodwork.

http://lilypadarduino.org/?cat=15

http://highlowtech.org/?p=2286

GLOSSARY

Arduino is an open-source computer hardware and software company, project and user community that designs and manufactures microcontroller-based kits for building digital devices and interactive objects that can sense and control objects in the physical world.



Wearable Technology uses clothing and accessories incorporating computer and advanced electronic technologies. Wearable devices such as activity trackers are a good example of the Internet of Things, since they are part of the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable objects to exchange data with a manufacturer, operator and/or other connected devices.

https://www.youtube.com/watch?v=ONKhW12onpw