2018
Monday March 19 - Sunday March 25
Limerick Lifelong Learning Festival
love learning

Introduction to e-textiles

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Interaction Design Centre
University of Limerick

FabLab Limerick, 24 March 2018

e-Textiles

- **Electronic textiles**, also known as **smart garments**, smart clothing, smart textiles, or smart fabrics, are fabrics that enable digital components such as a battery and a light (including small computers), and electronics to be embedded in them. Smart textiles are fabrics that have been developed with new technologies that provide added value to the wearer.
- ”What makes smart fabrics revolutionary is that they have the ability to do many things that traditional fabrics cannot, including communicate, transform, conduct energy and even grow”(Pailes-Friedman, 2017).
- Smart textiles can be broken into two different categories: aesthetic and performance enhancing.

Kimbow-
by Eef Lubbers and Malou Beemer

https://vimeo.com/129483770

ATTIRE

http://attire.ie

My sabbatical last year

Dr. Becky Stewart: Sensing Movement with Textiles

Dr. Becky Stewart will be sharing some of her work in e-textiles that covers a range of applications and explorations. She works with e-textiles and signal processing to build interactive, body-centric wearable computing systems. These systems often incorporate performance, fashion, music and/or design.

Becky is a lecturer in the School of Electronic Engineering and Computer Science at Queen Mary University of London. She was recently awarded the Daphne Oram Award Lecture for Digital Innovation. Becky was the
that ran workshops teachin

Guests who presented at e-stitches London in April 2017, May 2017, Sept 2017, Dec 2017 and March 2018

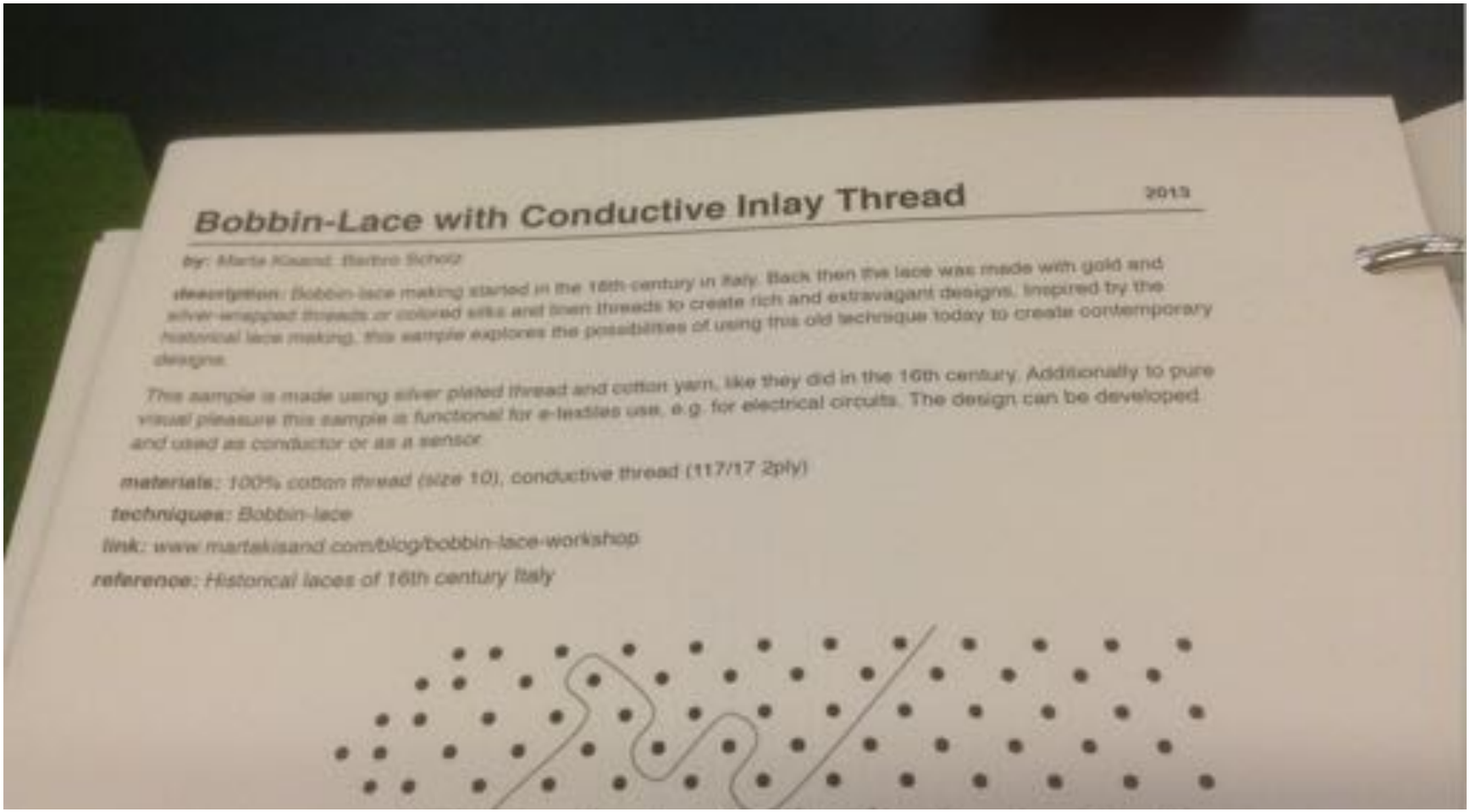
Brooke Roberts

https://www.brinnovationagency.com

Amy Rainbow Winters
https://www.rainbowwinters.com

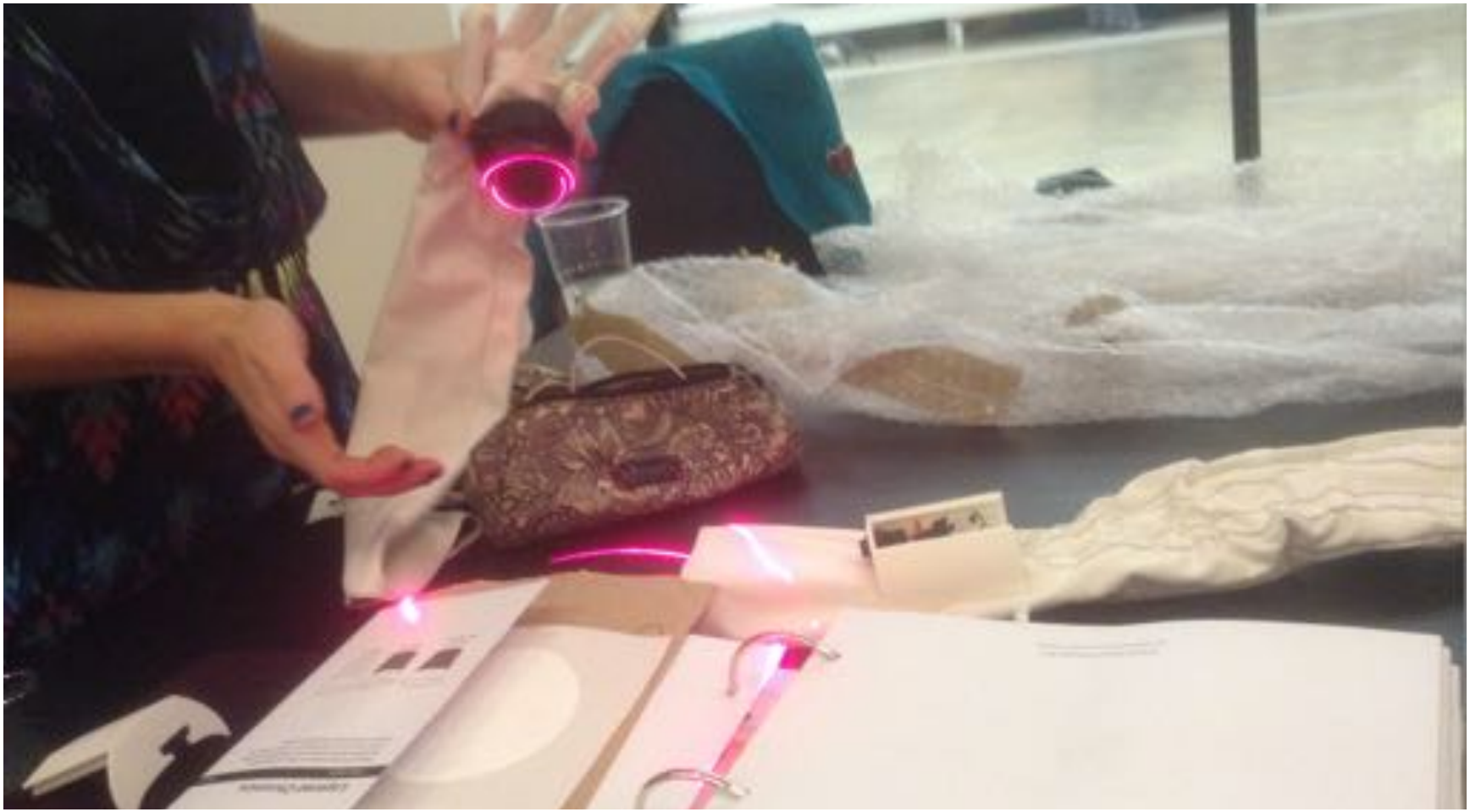
Becky Stewart
http://theleadingzero.com

eSwatches


Bobbin-Lace with Conductive Inlay Thread
2013
by: Marta Kisand, Barbro Scholz
description: Bobbin-lace making started in the 16th-century in Italy. Back then the lace was made with gold and silver-wrapped threads or colored silks and linen threads to create rich and extravagant designs. Inspired by the historical lace making, this sample explores the possibilities of using this old technique today to create contemporary designs.
This sample is made using silver plated thread and cotton yarn, like they did in the 16th century. Additionally to pure visual pleasure this sample is functional for e-textiles use, e.g. for electrical circuits. The design can be developed and used as conductor or as a sensor.
materials: 100% cotton thread (size 10), conductive thread (117/17 2ply)
techniques: Bobbin-lace
link: www.martakisand.com/blog/bobbin-lace-workshop
reference: Historical laces of 16th century Italy

eSwatches

Maria Almena- Kimatica Studio https://kimatica.net



The gloves

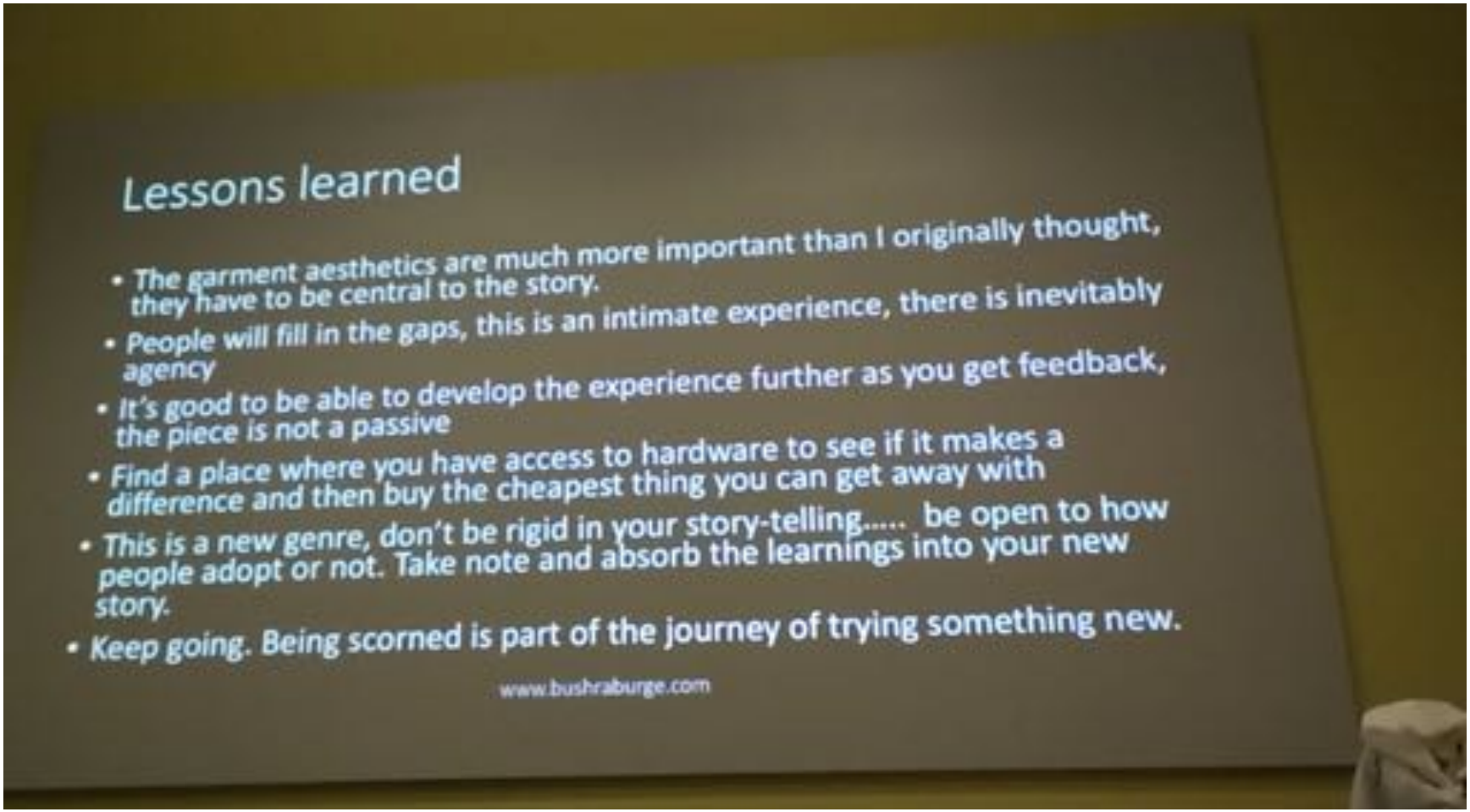
Emilie Giles
http://www.emiliegiles.co.uk

Maria Paneta – Sarotis
http://www.mariapaneta.com

The silicon wearable

Bushra Burge
http://www.bushraburge.com/

Bushra Burge



Rachel Freire
https://www.rachelfreire.com

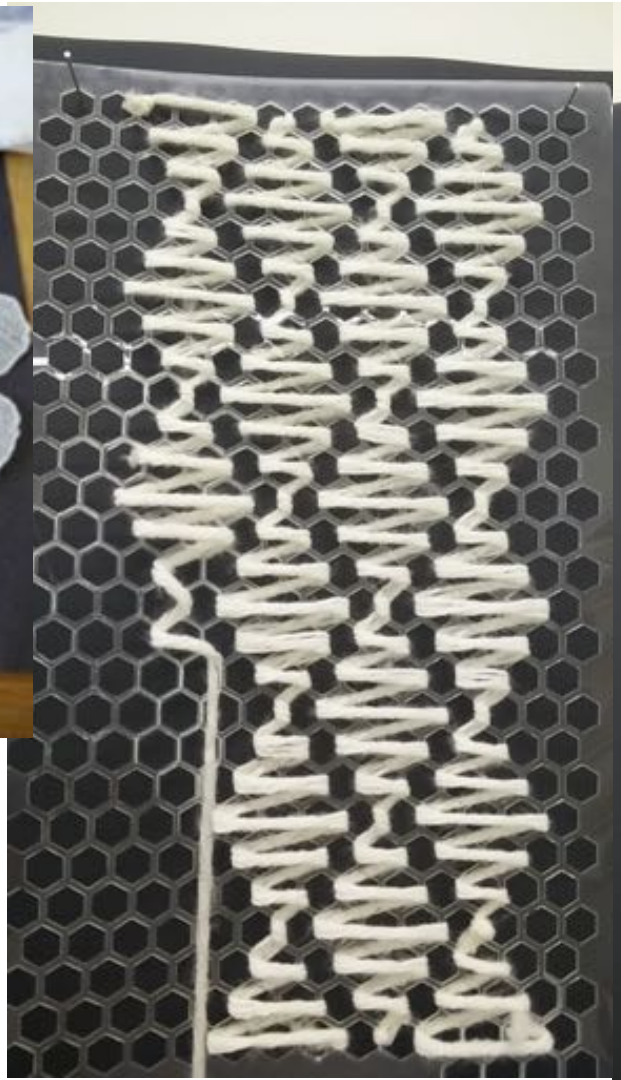
Kasia Molga
http://www.kasiamolga.net

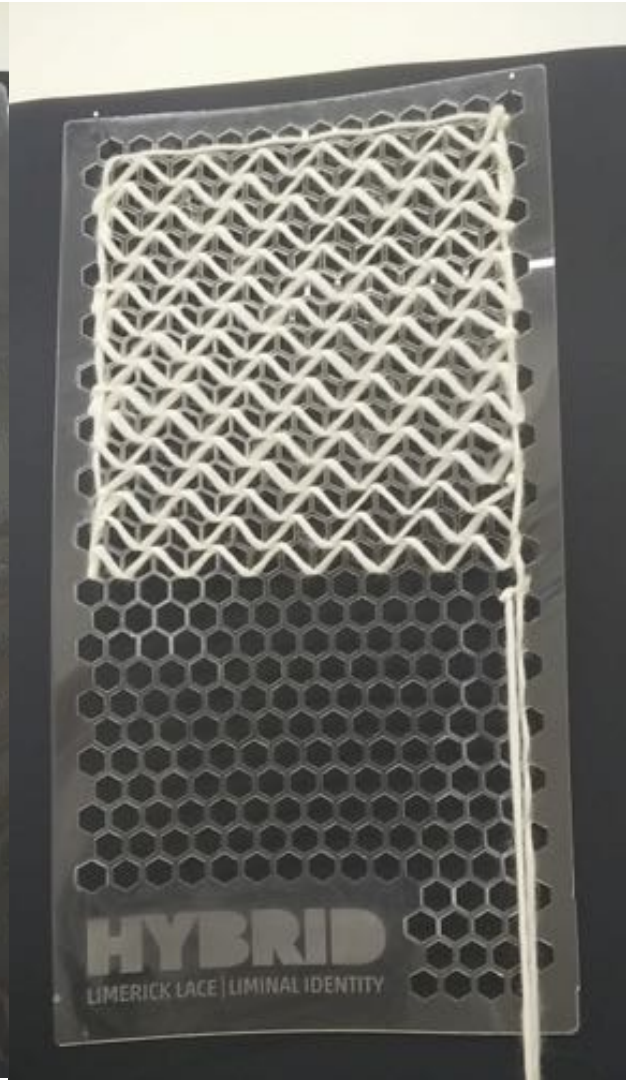
Leonie Tenthof van Noorden
http://leoniesuzanne.com

Tsai Chu Huang
https://www.huangtsaichun.com

Sara Robertson and Sarah Taylor

Giordana Giache- Hybrid 2016





Back to eTextiles!

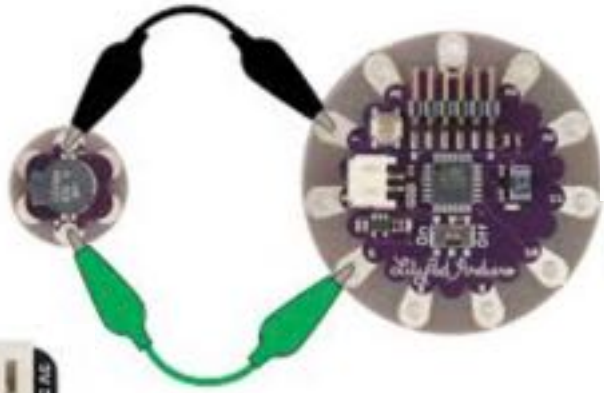
- Passive smart textiles: only able to sense the environment/user, based on sensors;
- Active smart textiles: reactive sensing to stimuli from the environment, integrating an actuator function and a sensing device;
- Very smart textiles: able to sense, react and adapt their behavior to the given circumstances.

Materials

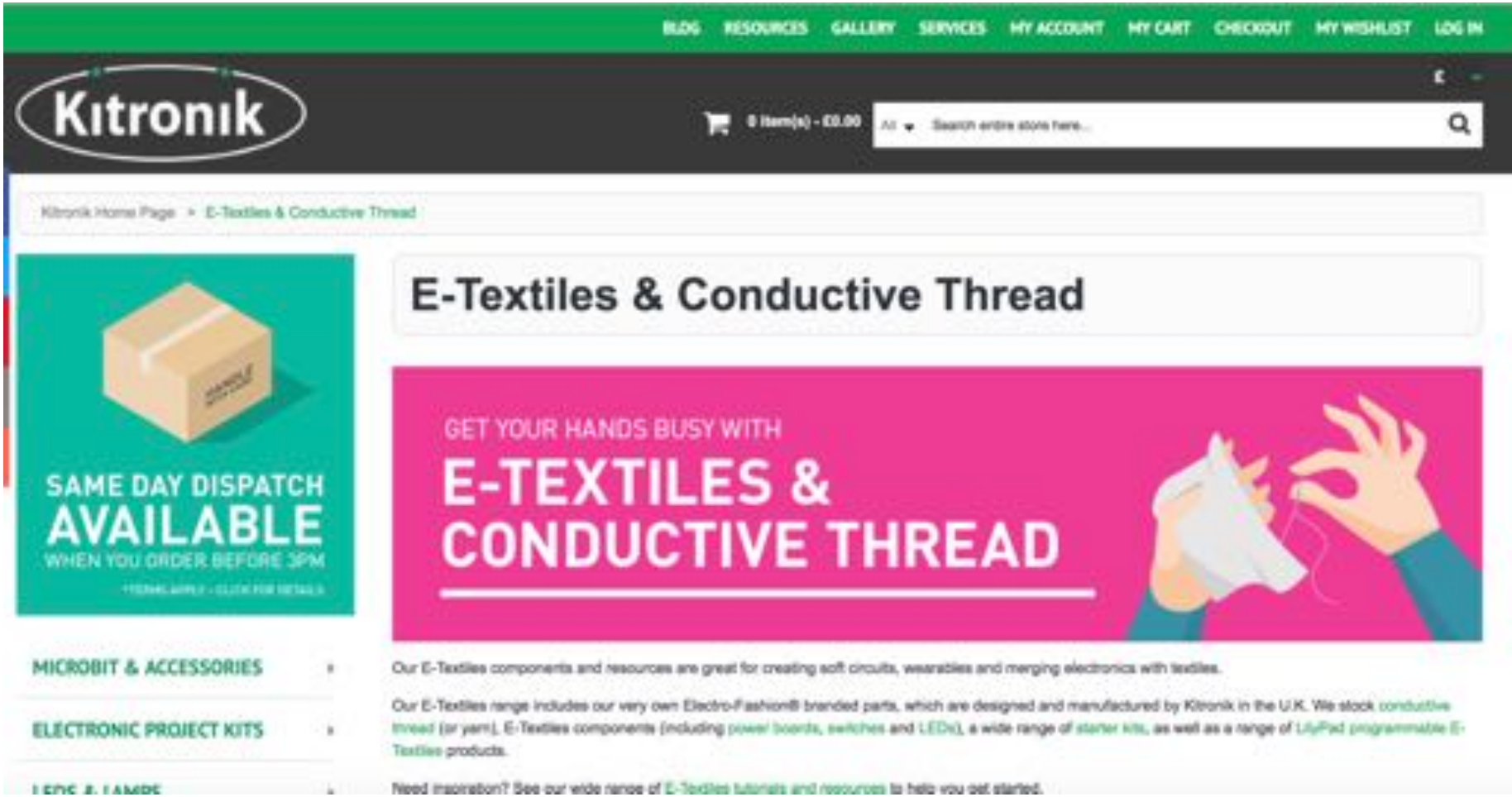
- Conductive Fibers
- Conductive Fabrics
- Conductive inks
- Conductive materials as sensors
  - Stretch sensors
  - Pressure sensors
  - Electrochemical sensors
- Textile Energy Harvesting and Portable Power Supply System
- Wearable Antenna

What about coding?

- Arduino, Lilypad, Microbit, AT tiny, Intel Edison



Kitronic


BLOG RESOURCES GALLERY SERVICES MY ACCOUNT MY CART CHECKOUT MY WISHLIST LOG IN
Kitronik
0 item(s) - £0.00
Search entire store here...
Kitronik Home Page > E-Textiles & Conductive Thread
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AVAILABLE
WHEN YOU ORDER BEFORE 3PM
E-Textiles & Conductive Thread
GET YOUR HANDS BUSY WITH
E-TEXTILES &
CONDUCTIVE THREAD
MICROBIT & ACCESSORIES
ELECTRONIC PROJECT KITS
Our E-Textiles components and resources are great for creating soft circuits, wearables and merging electronics with textiles.
Our E-Textiles range includes our very own Electro-Fashion® branded parts, which are designed and manufactured by Kitronik in the U.K. We stock conductive thread (or yarn), E-Textiles components (including power boards, switches and LEDs), a wide range of starter kits, as well as a range of LilyPad programmable E-Textiles products.
Need inspiration? See our wide range of E-Textiles tutorials and resources to help you get started.

Inspiration: Kobakant.at

- Hannah Perner-Wilson and Mika Satomi
- Based in Berlin
- Their website has plenty of advice and tutorials

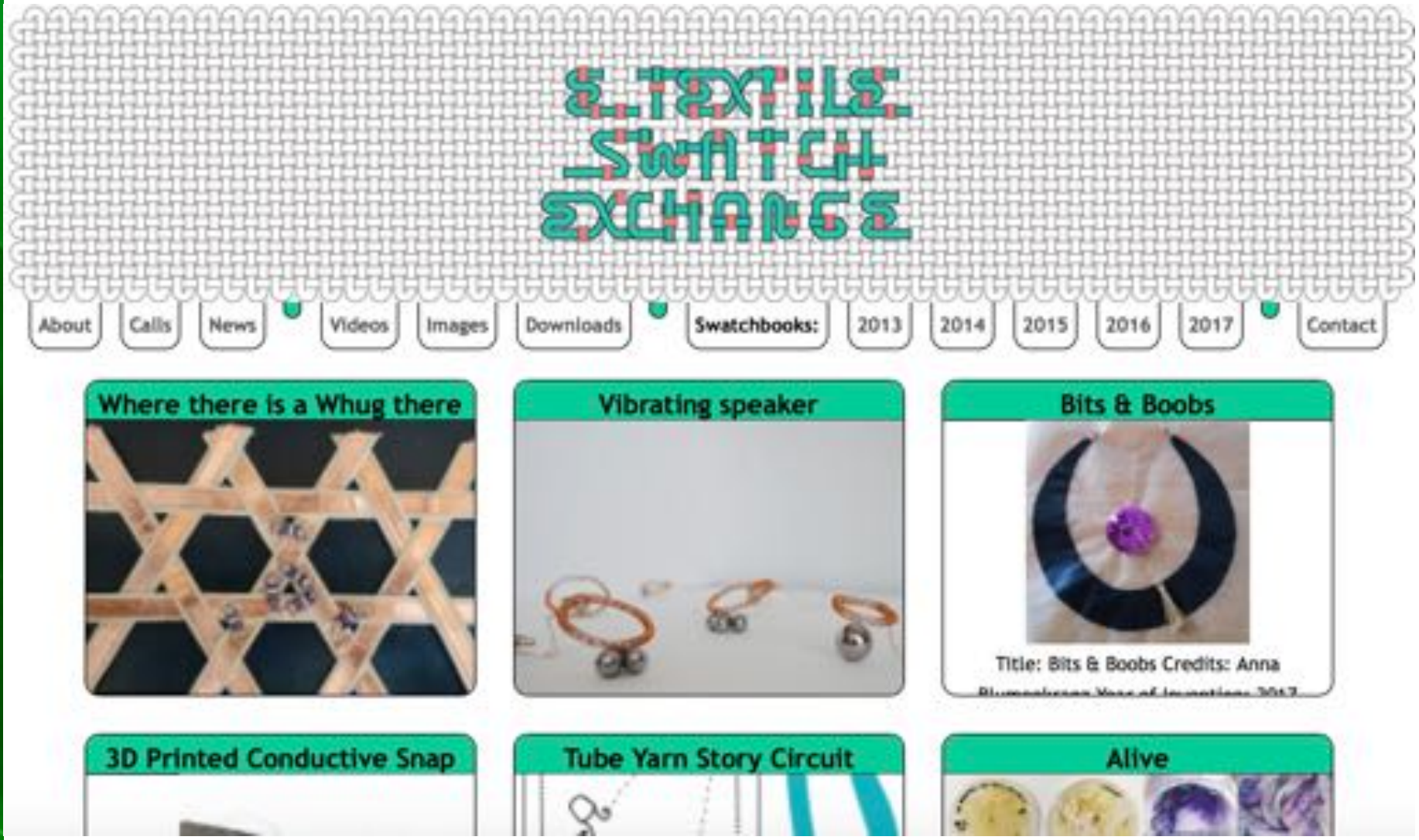
Codasign.com

- Tutorials, suppliers

Local groups

- eStitches London – V&A
- eStitches Bristol
- Lovelace Dublin – lovespace.com

eTextile Swatch Exchange



eTextile spring break


A TASTE OF FABRICADEMY IN 40 INTENSIVE HOURS
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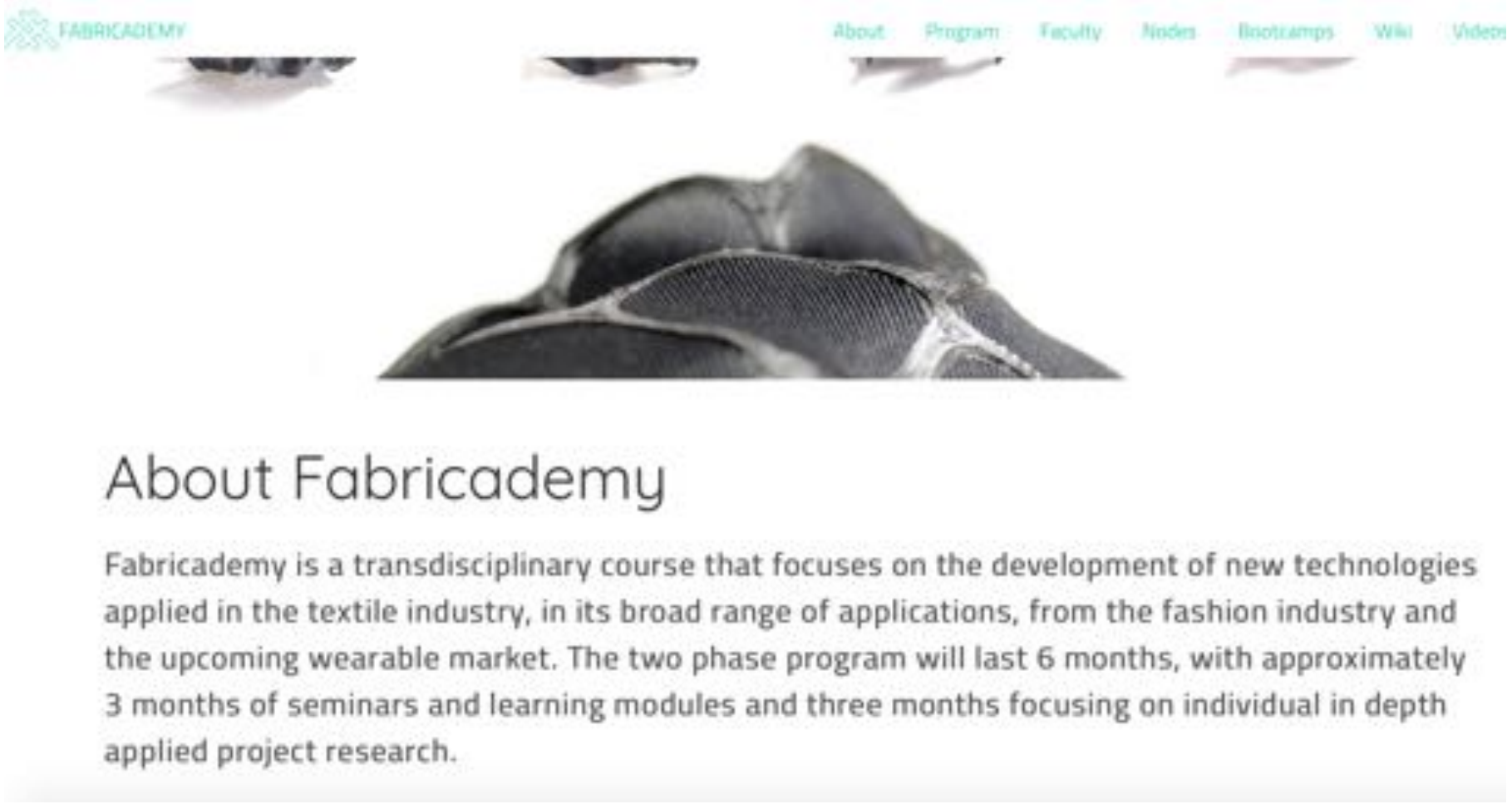
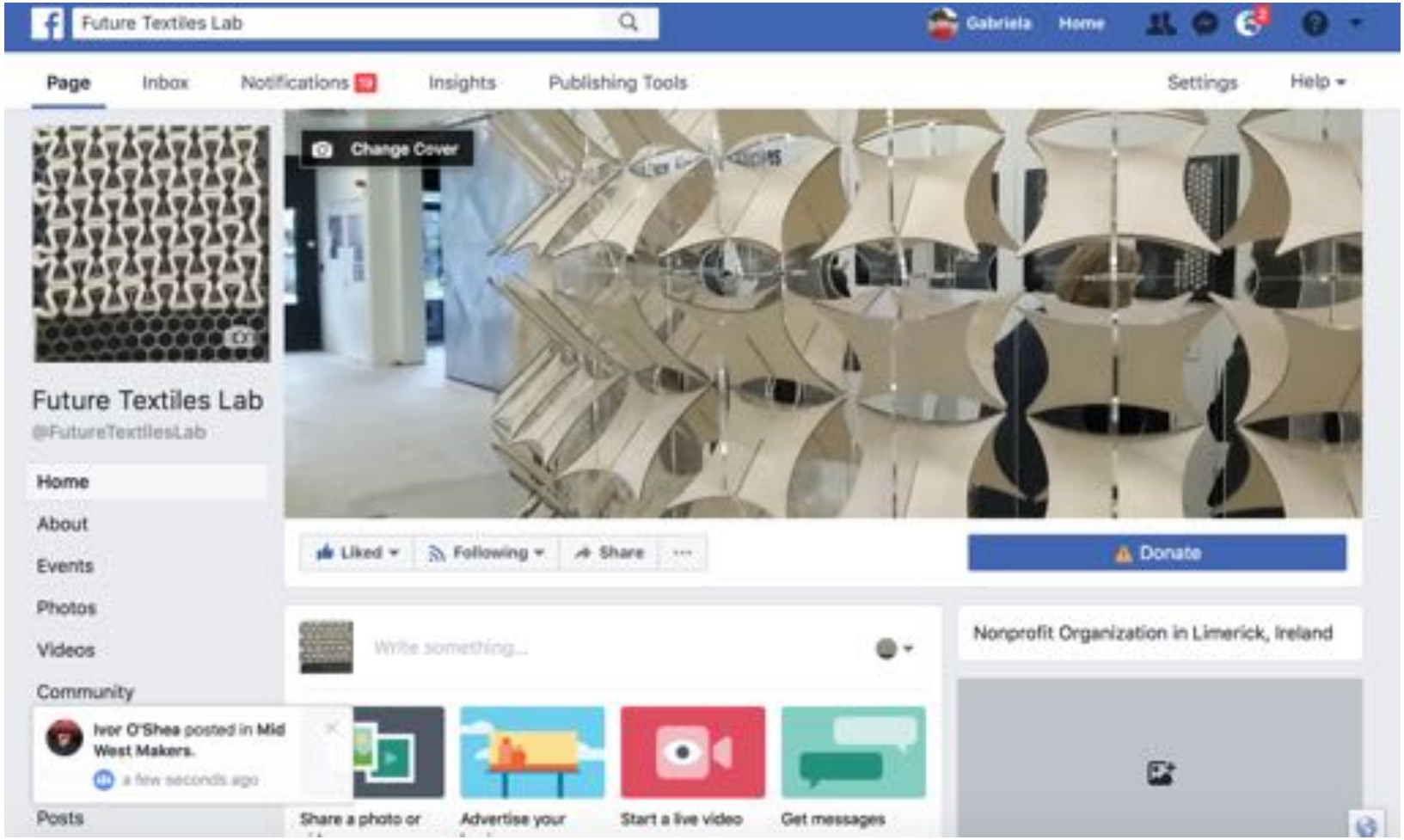


http://textile-academy.org/

Future Textiles Lab



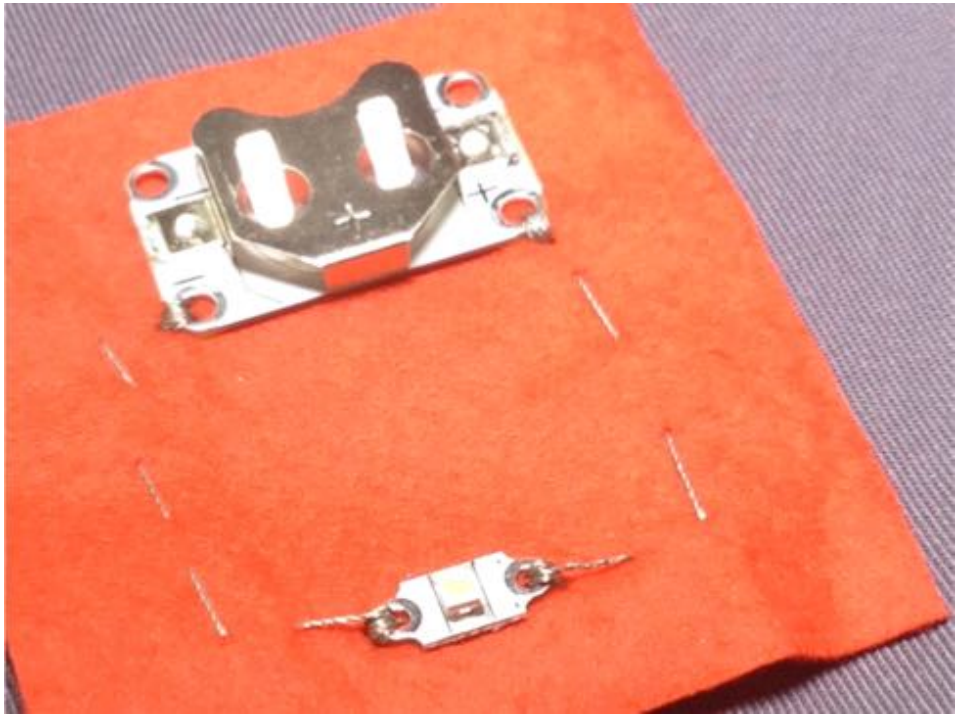
Follow us on Facebook!

Any interest in an eTextiles group?

- Midwest Makers are meeting every Thursday 7:30pm-9pm in the FabLab
- Next meetup for eTextile fans: 12 April 2018

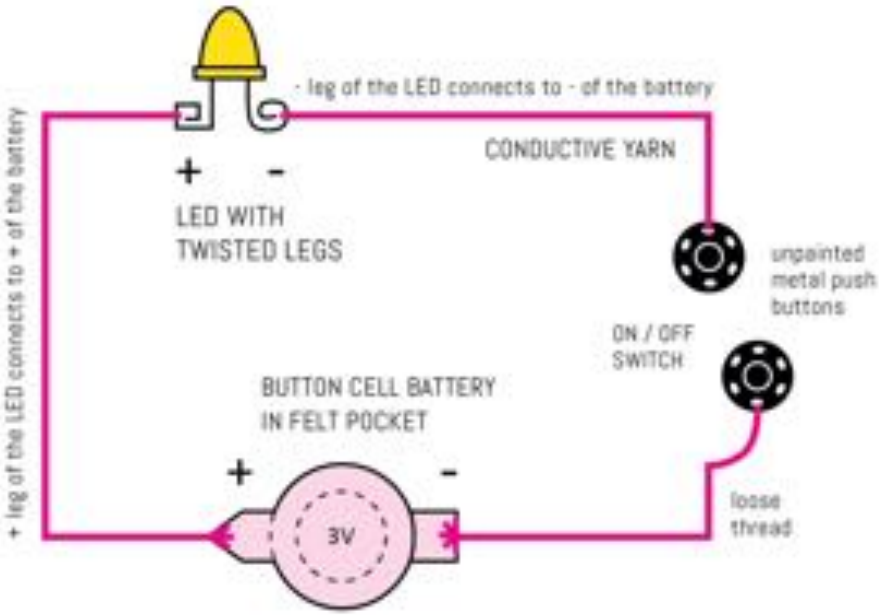
Short exercise

- A very simple circuit -

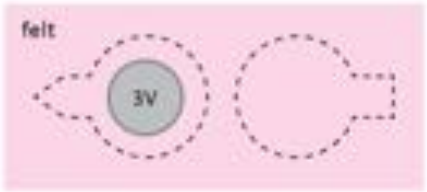


http://www.julieboyd.co.uk/e-textiles/
https://youtu.be/5tBHPiduQMM

Soft battery holder

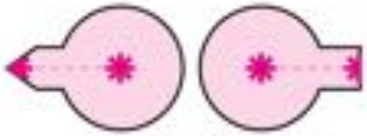


1. CUT OUT POCKET SHAPES



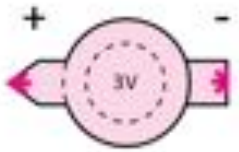
Measure size so that the button cell battery (grey) fits inside.

2. SEW CONDUCTIVE YARN



Sew a lump of conductive yarn (purple) in the middle of each piece, take the yarn inside the felt to the tip and sew another lump. The lumps should

3. PLACE BATTERY INSIDE AND CLOSE



Place the battery in between the pieces so that the conductive yarn lumps are inside, touching the battery. The + of the battery should touch

http://www.julieboyd.co.uk/e-textiles/

You will get:

- An LED – white, red, blue or green
- Conductive thread
- Normal thread
- A needle
- Felt for making your own battery holder
- A 3V battery to try it out; please return it, and on your way home enter the nearest shop and buy one.

Thank you! Keep in touch!

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@gabig58 on Twitter

Coniecto.org

@FutureTextilesLab