Apprendre, Partager, s'Amuser

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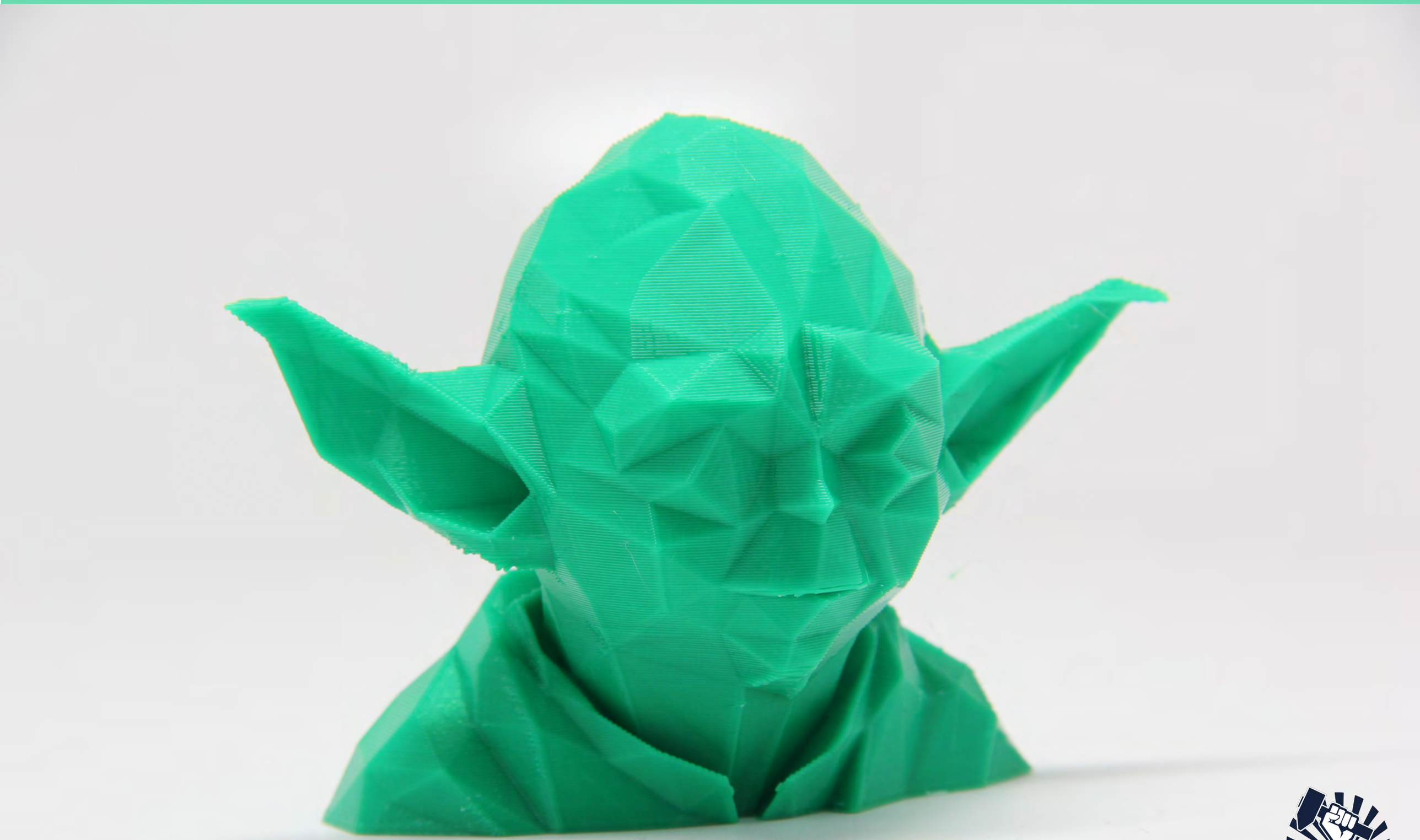
C’est quoi, un Fab Lab?

3 objectives

Fab Lab : à quoi ça sert ? 0



Fab Lab : à quoi ça sert ? I

Fab Lab : à quoi ça sert ? II

Innovation tech & sociale

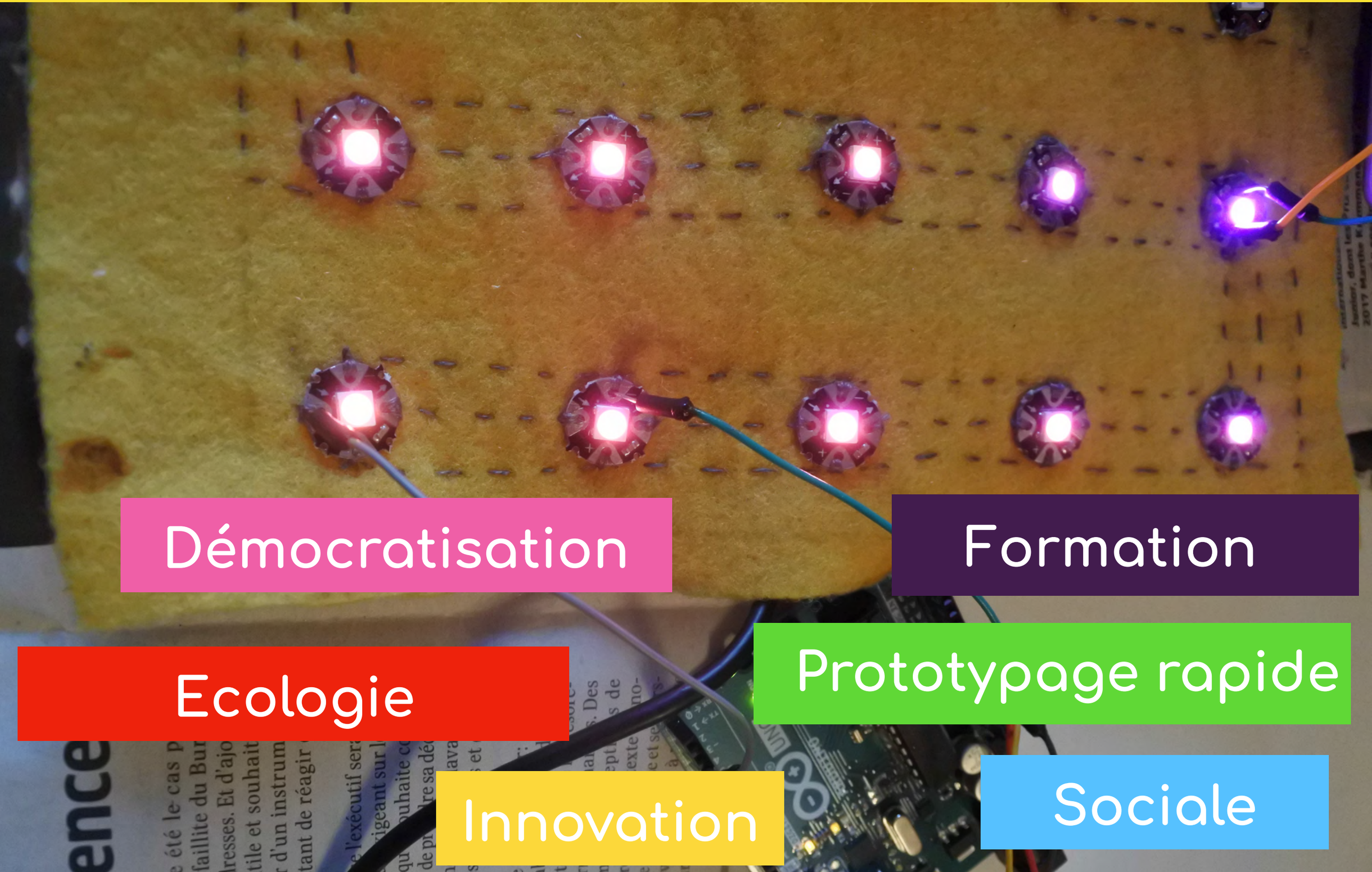
opencare

Démocratisation de la technologie

Prototypage rapide

Formation

Textile et Fab Labs



Démocratisation

Formation

Ecologie

Prototypage rapide

Innovation

Sociale

From Smart Textile to On Demand, Locally Fabricated Design

ZOE ROMANO, WeMake

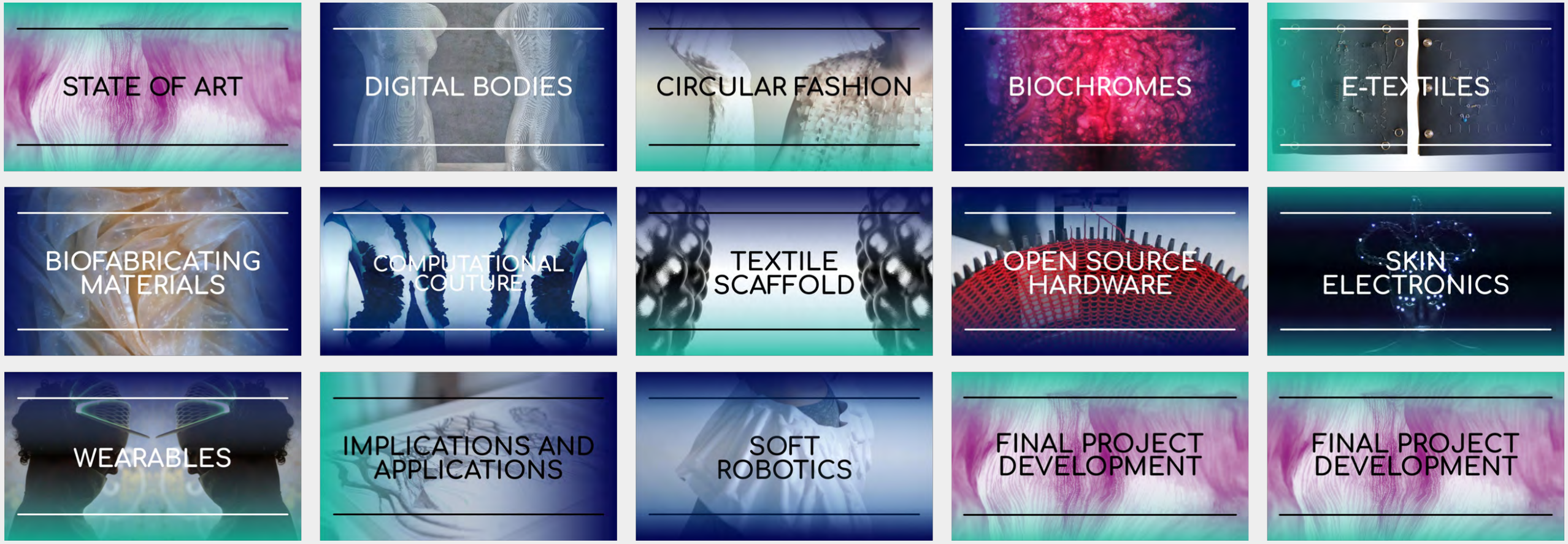
In the last ten years, the mass production of goods has been recognized as being highly responsible of having critical impact on the planet. While institutions and policy makers are pushing companies to embrace circular economy, nevertheless new studies are showing that recycling is not enough, if production does not decrease. In this context, the driving force of digital fabrication research is developing an ability to manufacture multiples of one without loss of complexity. This emerging approach is demonstrating that sustainable, high quality, long lasting and affordable products can be implemented through the set up of new business models based on locally manufactured, hi-tech, on-demand products. This paper highlights a preliminary set of implications of the assumed shift from centralized mass production to a distributed micro-factory model through the presentation of the results of a transnational, EU-funded collaboration funded on design-driven services. The workflow that was implemented during the project focused on digitally fabricated items personalized through a fabrication system based on a hand-woven textile sensor matrix that was able to capture unique data from the body. Moreover, the paper describes the key role of makerspaces for enabling an interdisciplinary work environment and creating bridges between textile craft traditions and digital fabrication processes, in order to lower the barriers for design and fashion enterprises to benefit from technological textile innovation in a sustainable manufacturing environment.

Additional Key Words and Phrases: smart textile, microfactory, digital fabrication

FABRICADEMY
textile and technology academy

UN VOYAGE ENTRE TEXTILE, FABRICATION DIGITALE ET BIOLOGIE

LES waag textilelab amsterdam waag technology & society Iaac | FAB LAB BARCELONA Academany The Academy of (almost) Anything FAB



13 semaines + projet

matériel - connections
microcontrôleurs - capteurs - actionneurs

CONDUCTIVE MATERIALS

KOBAKANT, 2017

Copper Conductive Fabric

Corrosion proof copper-silver plated polyamide ripstop fabric.
Producer: Statex
Distributer: LessEMF

Pure Copper Polyester Taffeta

Pure copper, tarnish resistant finish. High conductivity, resistivity: 0.05 Ohm/sq.
Distributer: LessEMF

VeilShield

Woven 132/inch mesh polyester fibers coated with Zinc-blackened Nickel over Copper for better corrosion resistance. Nickel allergy! 70% light transmission. 0.1 Ohm/sq. Distributer: LessEMF

SantSilver

Double side weave, one side is highly conductive (<1 Ohm per sq) pure Silver, the other side is pure cotton (~100 Ohm/sq)
Producer: Statex
Distributer: LessEMF

Eeontex Non-Woven

Carbon doped Polyester/Nylon with a conductive polymer formulation.
Producer: Eeonyx
Distributer: Sparkfun

Eeontex Stretch Fabric

A conductive knitted nylon/elastane fabricwith a conductive polymer formulation. Stretch in both direction.
Producer: Eeonyx
Distributer: Sparkfun

Eeontex Twill Fabric

Woven polyester fabric coated with a conductive polymer formulation.
Producer: Eeonyx

Ripstop Silver Fabric

Pure Silver coated onto nylon RipStop. Comfortable and safe against the skin. Resistivity is less than 0.25 Ohm/sq.
Producer: Statex
Distributer: LessEMF

Silver Stretch Conductive Fabric

Silver plated knitted fabric., 78% Polyamide + 22% Elastomer plated with 99% pure silver.
Producer: Statex
Distributer: LessEMF

Safety Silk

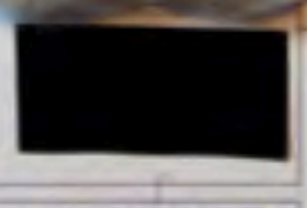
Natural Silk plus Pure Silver. <1 Ohm/sq.
Distributer: LessEMF

Soft&Safe Shielding Fabric

70% bamboo fiber and 30% Silver. high conductivity (<1 Ohm per sq).
Distributer: LessEMF

onductive Wool

80% stainless steel fiber 20%. Resistive crimi. Suitable for felting.
Bekaert



Velostat

Piezoresistive carbon impregnated plastic sheet material.
Producer: 3M
Distributor: LessEMF

ESD Foam

Anti-static foa

Elitex

Karl Grimm

Bekinox

Adafruit Stainless Steel

Silverspun Yarn

From Kobakant >

Materiel

(A) Use a crimp bead to connect to thread

(B) Use pliers to create a sewable hole in a wire

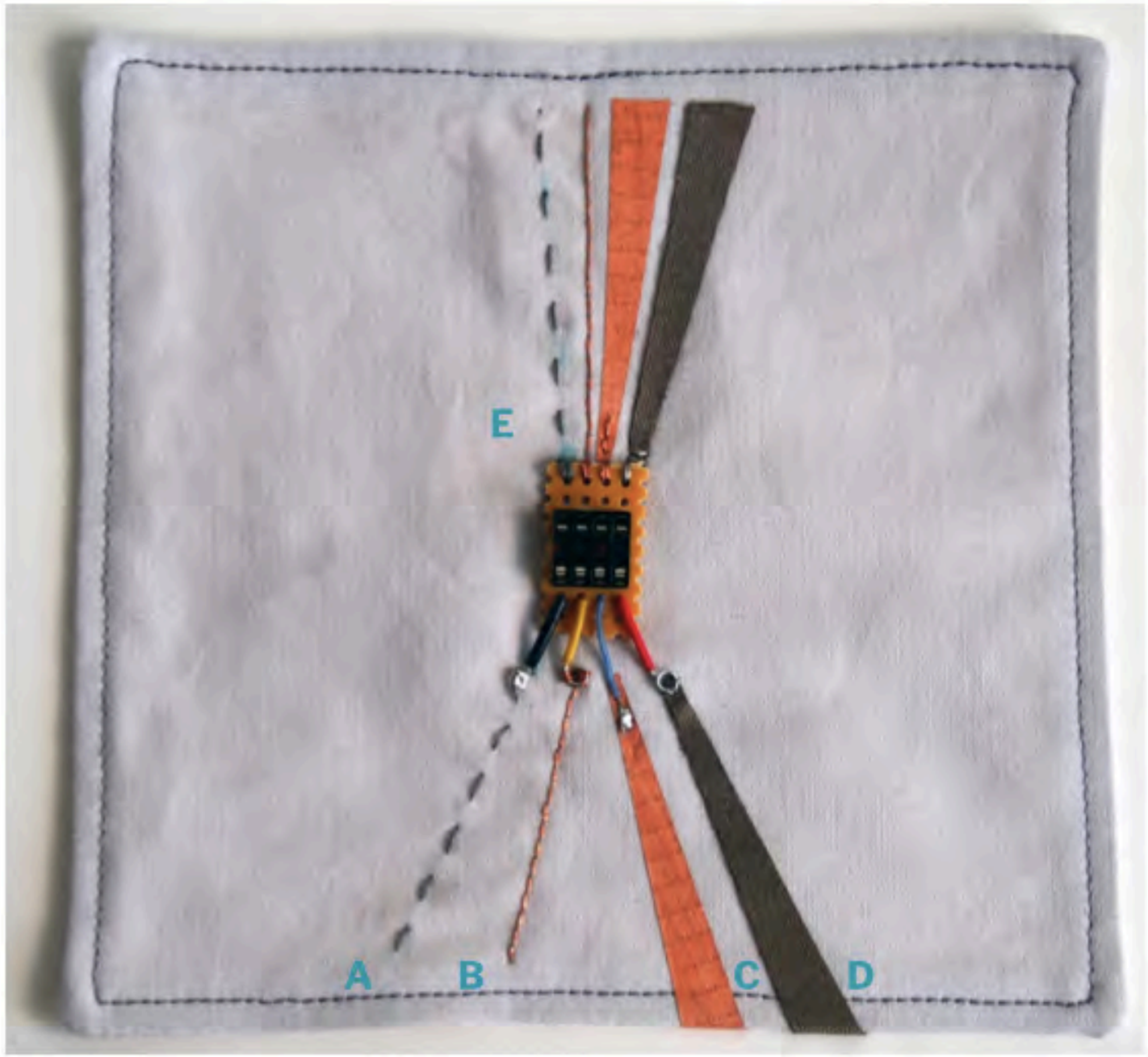
(C) Solder directly onto fabric

(D) Sew the wire to the fabric

(E) Sew directly into the perfboard using conductive thread

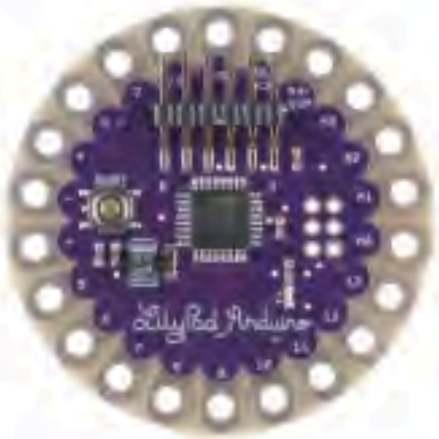
TRACES

PERMANENT



Connections

L. Stark



LilyPad Main Board

LilyPad Simple

LilyPad SimpleSnap

Adafruit Flora

Adafruit Gemma MO

BOARDS

ARDUINO

There are many different types of boards, so for wearables, some for other purposes. It's best to start your project with the Arduino Uno.

Microcôntroleurs

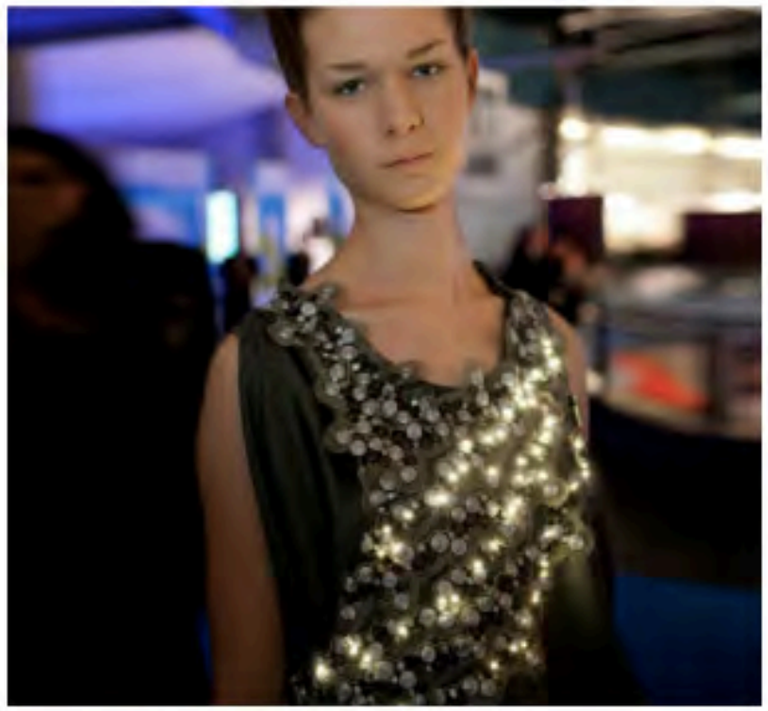
STROKE

SWITCHES

Close the circuit by pressing conductive materials into contact.

Capteurs

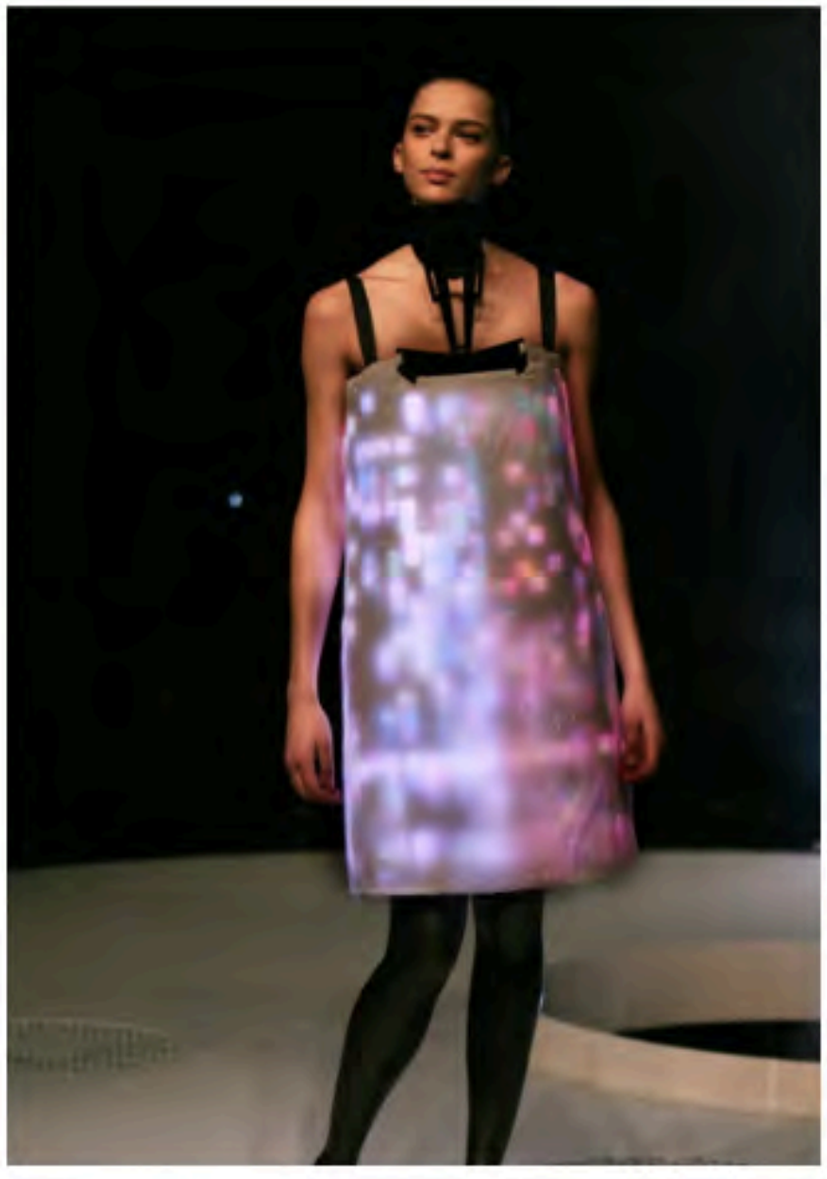
L. Stark



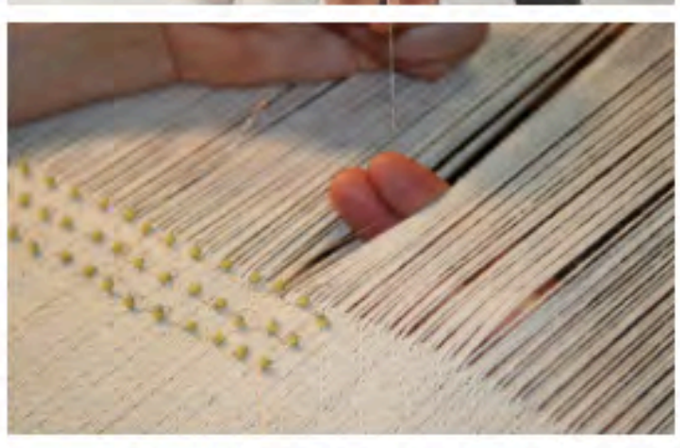
Climate Dress by Diffus Design

PROJECTS

LEDS



Hussein Chalayan in collaboration with Swarovski



Currente Calamo by subTela

Actionneurs

APPLICATION

Is this a proof of concept or runway garment or everyday product?

DURABILITY

Does it need to be worn daily or is it for a single event? Will it be worn on the body or shown on a mannequin as a demo?

WEARABILITY

How should it feel? What types of textiles are appropriate for the garment? Are they suitable for electronic component placement or do you need a base layer?

WASHABILITY

Does it need to be washable? Do you need to make the board removable?

POWER

How long does it need to be powered for? Does the power source need to be easily reachable?

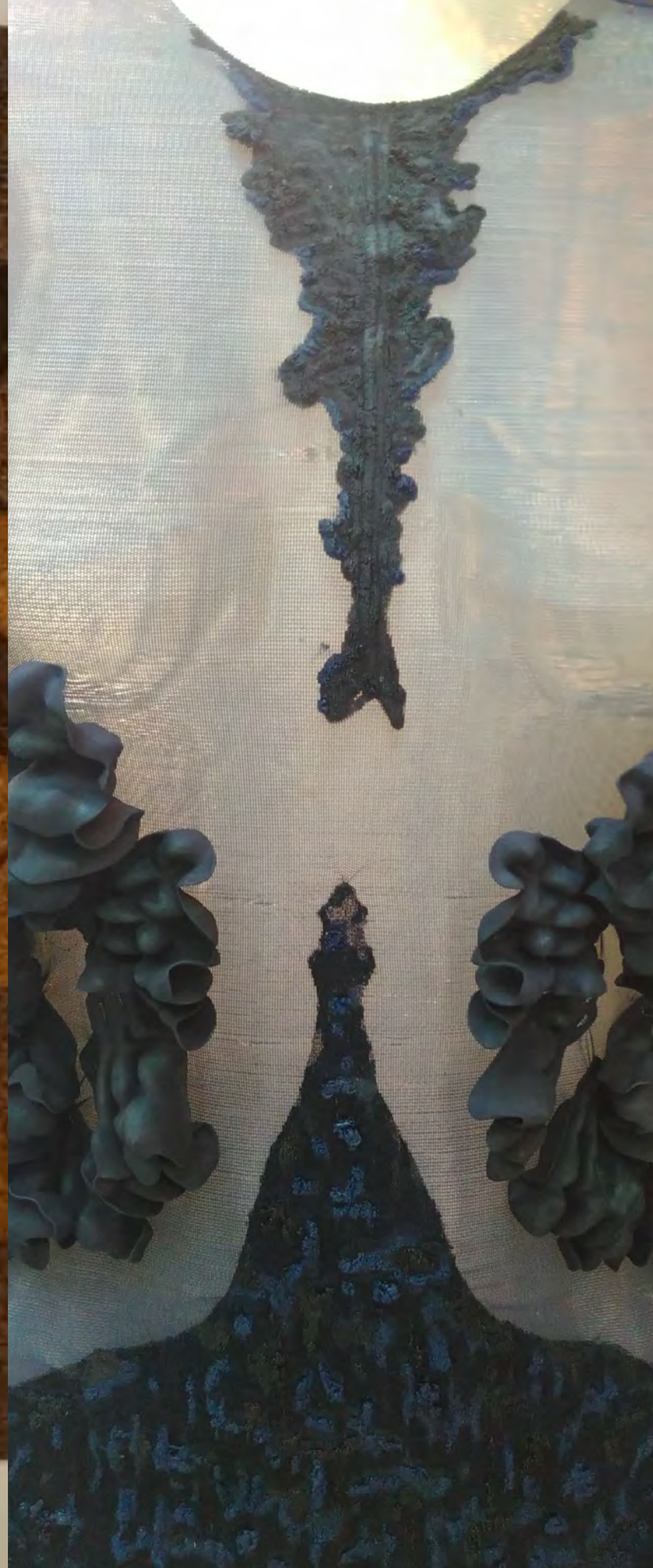
CIRCUIT LAYOUT

Where will you place the microcontroller? Power source? Do the components need to be hidden or do you want them visible?

CONSIDERATIONS

WEARABLE

L. Stark



Ressources

Fabricademy

Kobakant

Liza Stark

Leah Buechley

Adafruit

Ayab

Open Source Circular Fashion

Ratata

On l'fait

STITCH 'N BITCH

tecfa

FABRICADEMY

ATELIER DE COUTURE
NUMERIQUE, ELECTRONIQUE
ET SUBVERSIVE

14.11.2019