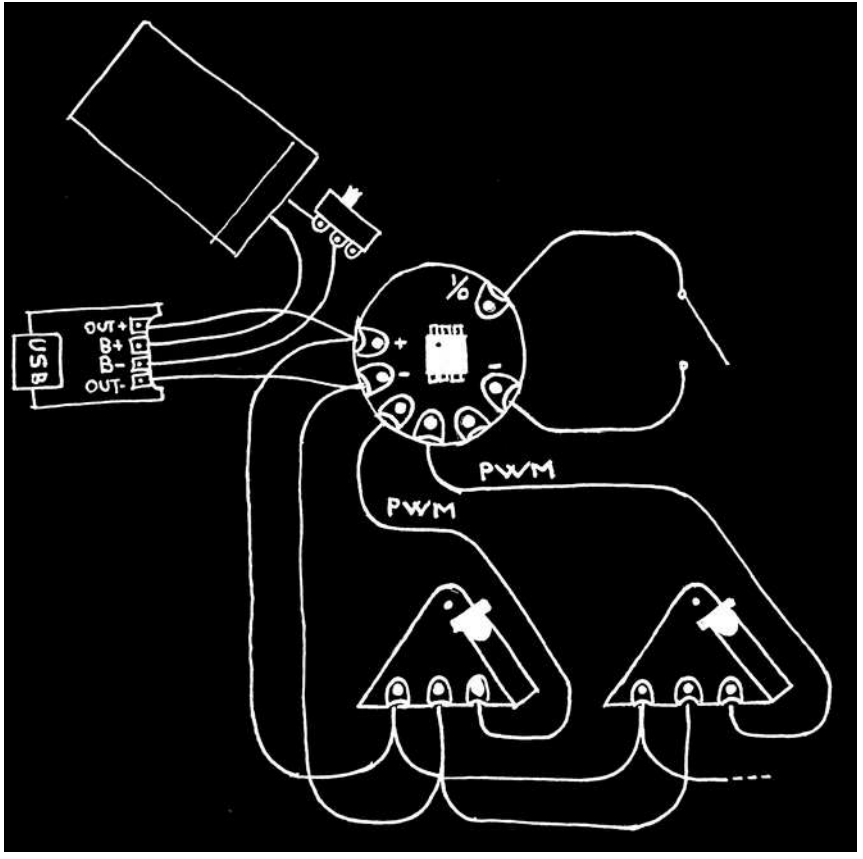
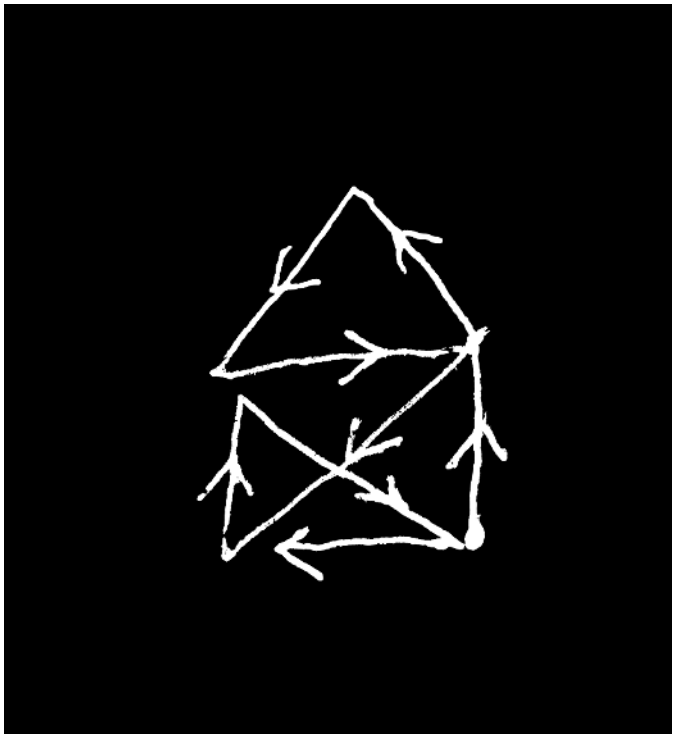


Lulu-star / HOWTO

Lulu is a simple solution for connecting e-textiles with optic-fibers. A tiny PCB with sewable pads for powering and controlling a bright LED light with a coupling solution that mounts the end of an optic-fiber directly in front of the LED light source.

Lulu-star kit_01

1 x Lulu-star PCB (Yello | Red | UV | green)
1 x Lipo-batterie (100 | 300 | 1000mA)
1 x Lilpo-chargeur
1 x Optic fibers wafer (9 x 0.5)
1 x Optic fibers wafer (35 x 0.25)



Lulu workshop!

By using Lulu as an e-textile educational tool we promote the learning by doing.
Observ, Understand, Define, Make it easy

Lulu embroidering

Lulu pauline headband

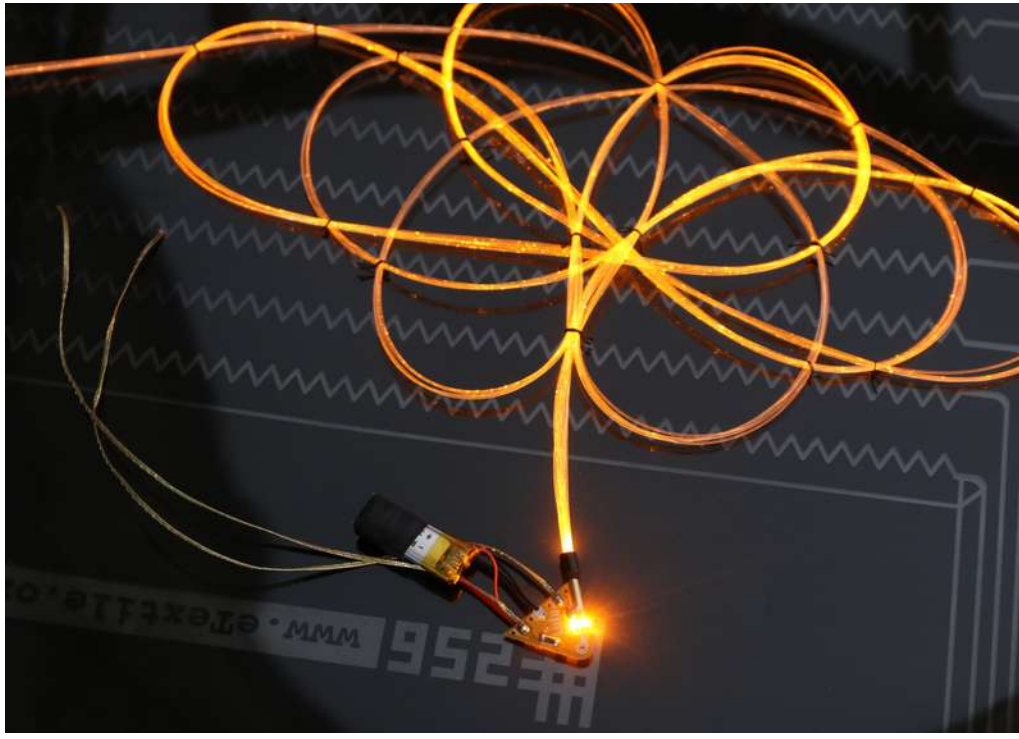
https://www.flickr.com/photos/plusea/26017029028

Clara Daguin

Would love to colaborate for a creation !

Lulu kobakant jaket

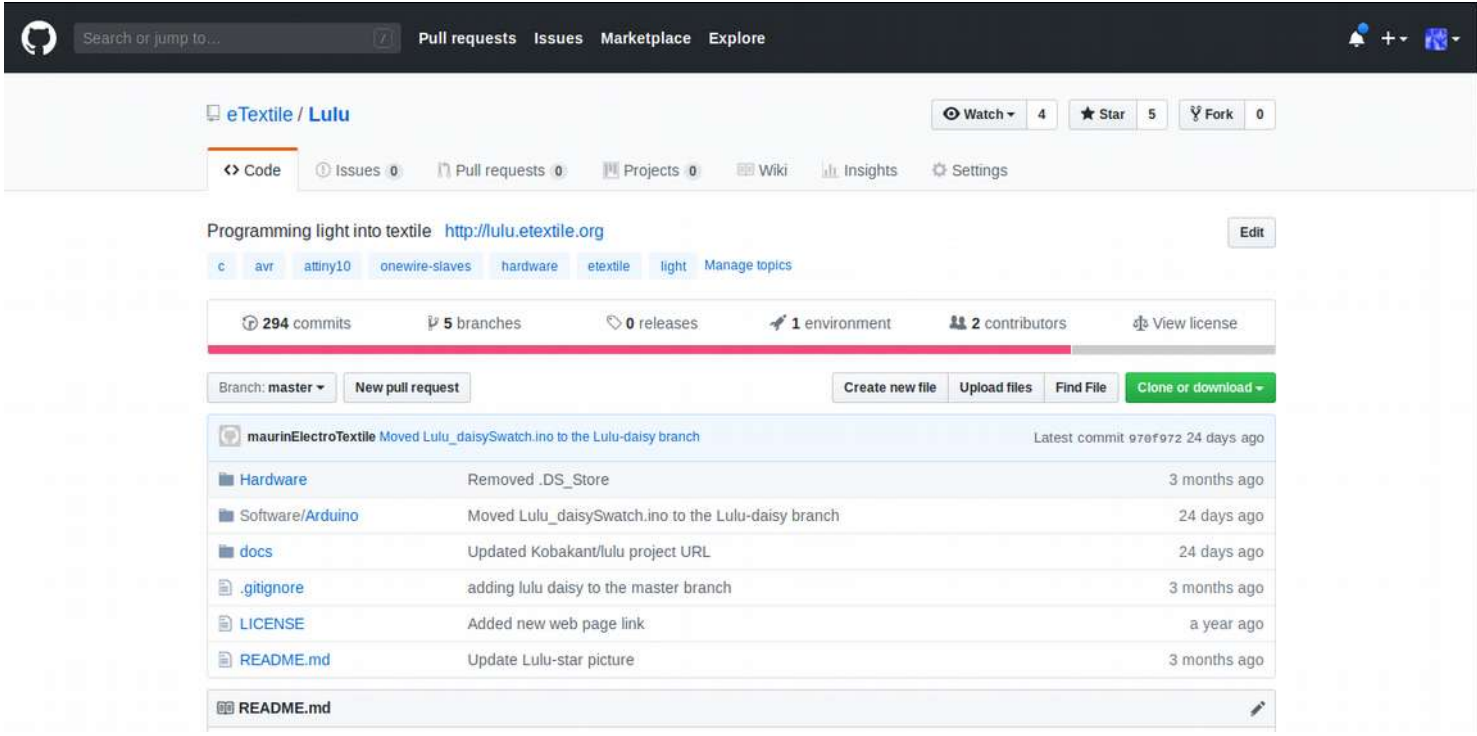
When the two golden wire connect the light goes on ;-)



Lulu-star Braiding demo

When the two golden wire connect the light goes on

Lulu’s backstage



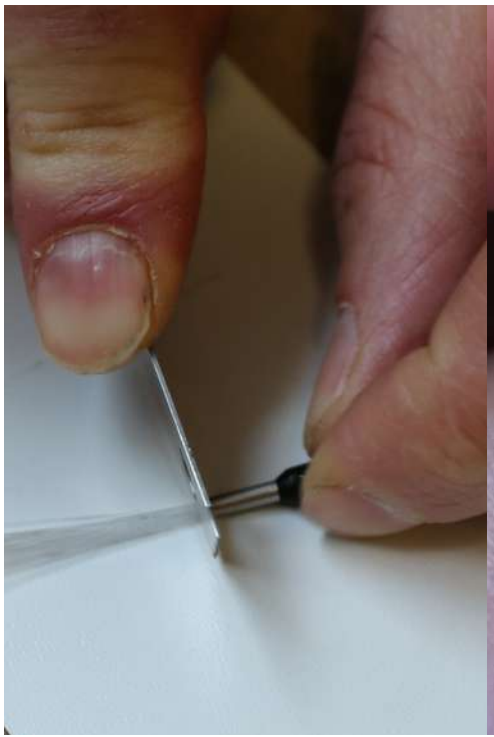
Open hardware & open software

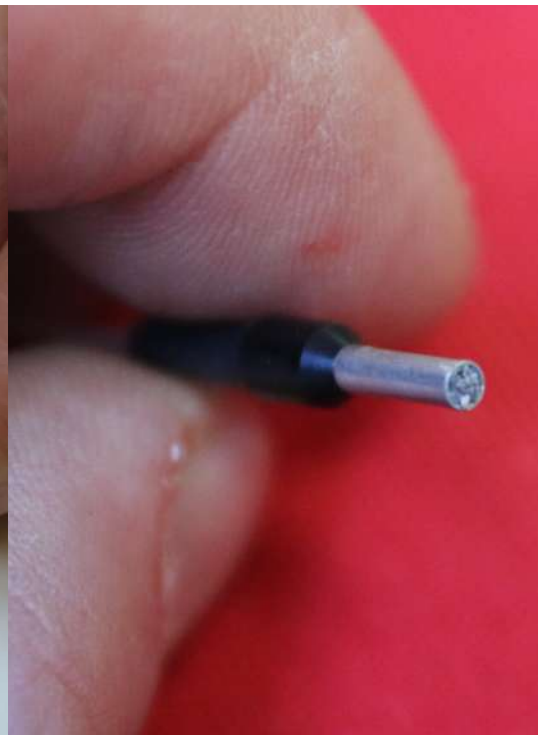
The project source code is hosted on Github repository
Users can fork the design to adapt to their needs
and collaborate in the development.

Custom Tooling

Optics fibers warping tool

Regular optics fibers are made to conduct the light from the source to the end. This hand tool is made to sandblast the optic fibers to have the lighting effect all the long of the PMMA fibers. Isn't it a violin archer ?



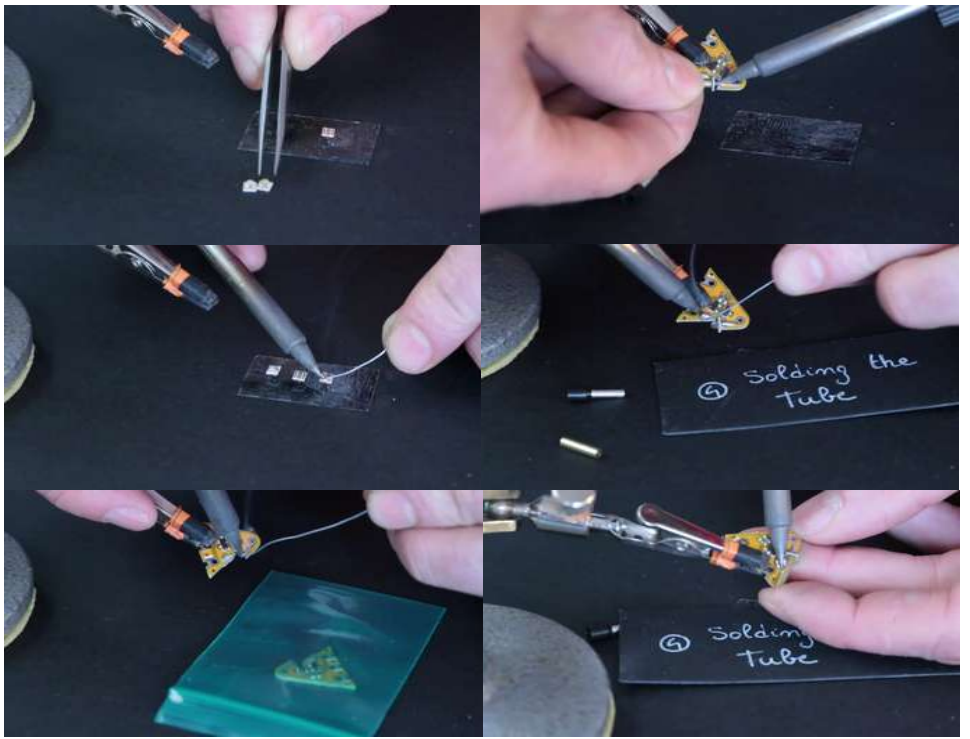


Fiber optic Lulu-connector

Light injection into a 2mm optic fibers wafer

JTE connector - Starfix cable end (2mm outer diameter)
Cyanoacrylate glue
Cutter

LED osram oslon	Ref	Current	Résistor
YELOW	farnell.com /osram	200 mA	2.7 Ohm
RED	farnell.com /osram	350 mA	
GREEN			
UV			



Lulu-star hand soldering

https://github.com/eTextile/Lulu/tree/master/Hardware
Osram OSLON LED (200-350mA)
Brass tube (10mm long, 2mm inner diameter)
Current limit resistor R2 (Thick film 0.25W)

1/ LED tining
2/ PCB thermal pad tining
3/ LED Soldering
4/ Brass tube soldering (This can be optimized in the next Lulu-star version)
5/(R2) Resistor soldering (This curent setup resistor could be pick and place for 200mA setup, can still be resolder for other setup)

Conductive ribbons

Connectivity to facilitate the e-textile integration process

Some companies are selling multi tracks conductive textile bus. Industrially produced this can be done by any passementerie companies like In **Saint Etienne** (FR). But good price can be achieved with big quantity.

Crimping tool

Allowing e-Textile removable electronics designs, reusable e-textiles componants. Textile buses have energy tracks used as wel for communication (copper monofilaments).
Specific tooling is not veary comon and still in B to B stage
Trying to collaborate with NICOMATIC to see what they can do