

# Embroidery Gone Electronic

July 28,29 MQ, Vienna/Austria

**KOBAKANT**

Hannah Perner-Wilson

Mika Satomi

The image shows the word "KOBAKANT" hand-stitched in a dark purple thread onto a light-colored, textured fabric. The letters are in a bold, blocky, sans-serif font. The stitching is visible, with some fraying and loose threads at the edges of the letters, giving it a handmade, artistic feel. A thin, dark vertical line runs through the center of the word, passing through the 'O' and 'B'.

Mika Satomi &  
Hannah Perner-Wilson

Collaboration under the name  
“KOBAKANT”  
Since 2007

We have been creating art  
projects using wearable  
technology/E-textile techniques





massage me  
2007





# Language Game

2008

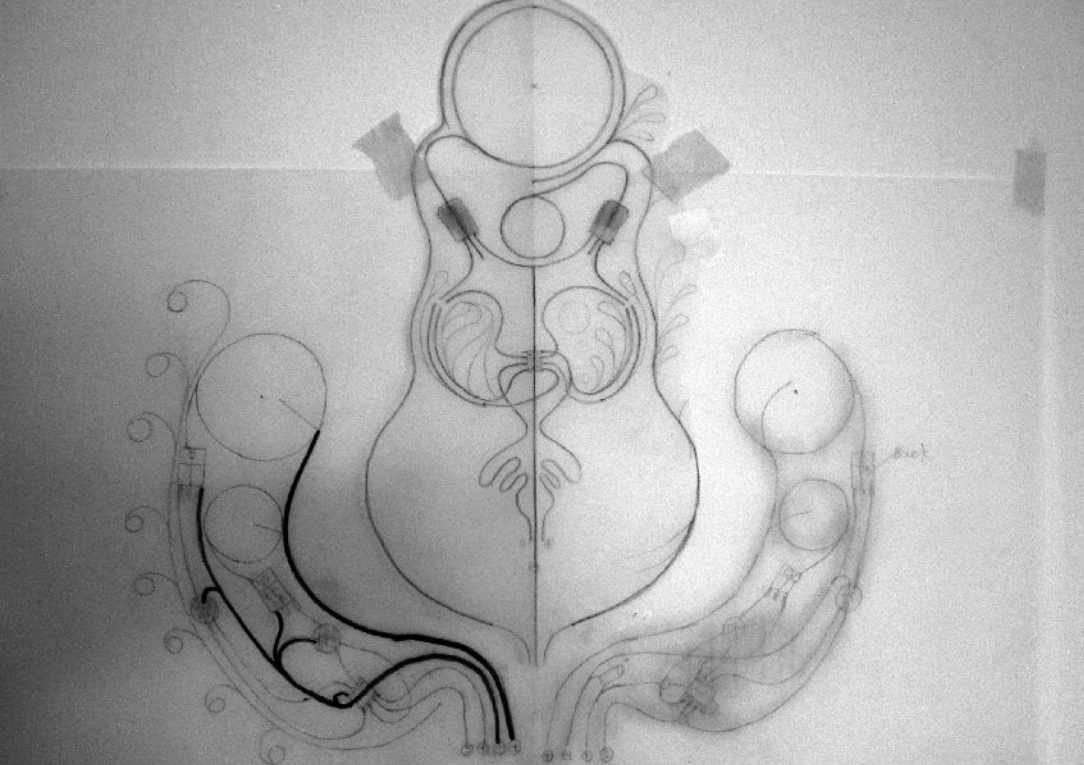




MQ residency July 2012  
**The Crying Dress**



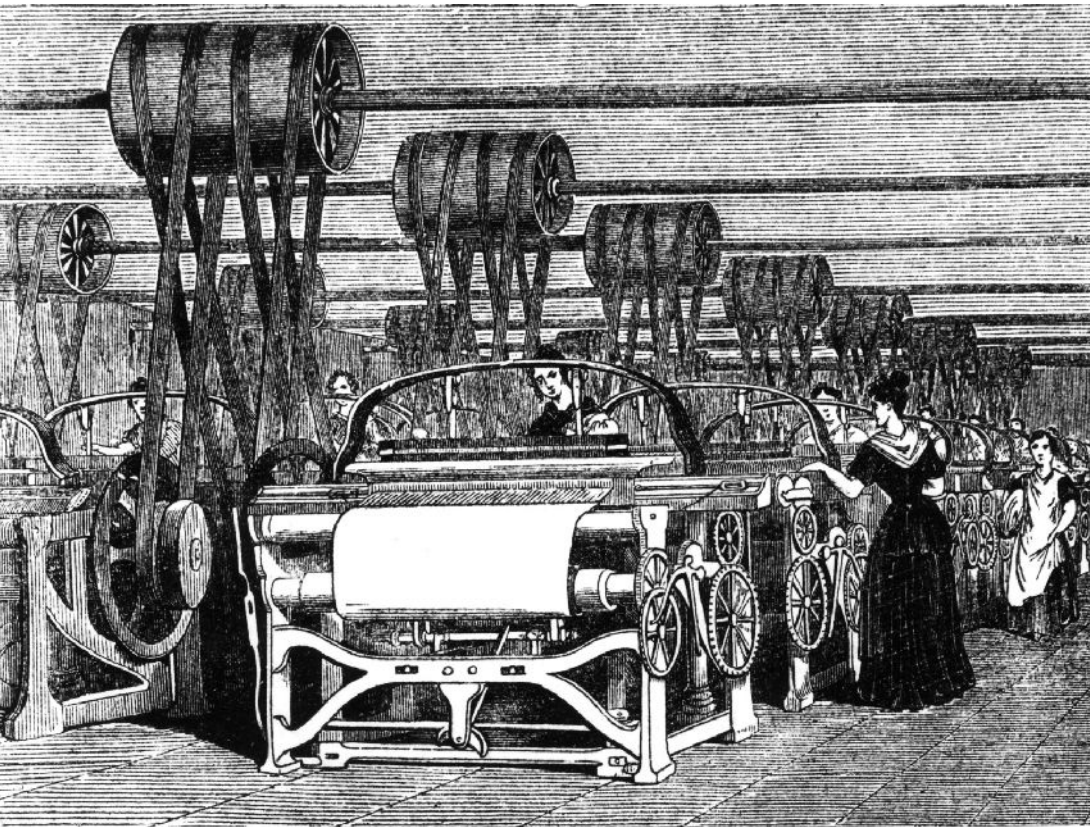






The first in a series of projects of  
**“Exquisite Electronics”**

# Exquisite Electronics





# Exquisite Electronics

In 2020, the global economy is in shambles. Localized production and craftsmanship experiences it's first major boom since it's decline preceding the 1920's Industrial Revolution. The electronics sector in particular is hit by a scarcity of resources, causing prices to skyrocket.

Electronics, previously known for their uniformity and quantity, almost overnight become a showcase for individuality, materiality and skilled labor. This development is now commonly known as Exquisite Electronics and today we live in a world where the rich commission extravagant Haute Couture electronics reminiscent of pre-industrial eras.



We are in the year 2037.

You are an artisan commissioned to make a unique textile electronic. Your commissioner is looking for a custom designed handkerchief that allows them to interact with sound coming from a fabric speaker.



# Handkerchief...

A **handkerchief** / 'hæŋkətʃɪf/, also called a handkercher or hanky, is a form of a kerchief, typically a hemmed square of thin fabric that can be carried in the pocket or purse, and which is intended for personal hygiene purposes such as wiping one's hands or face, or blowing one's nose. A handkerchief is also sometimes used as a purely decorative accessory in a suit pocket.

*(from Wikipedia)*



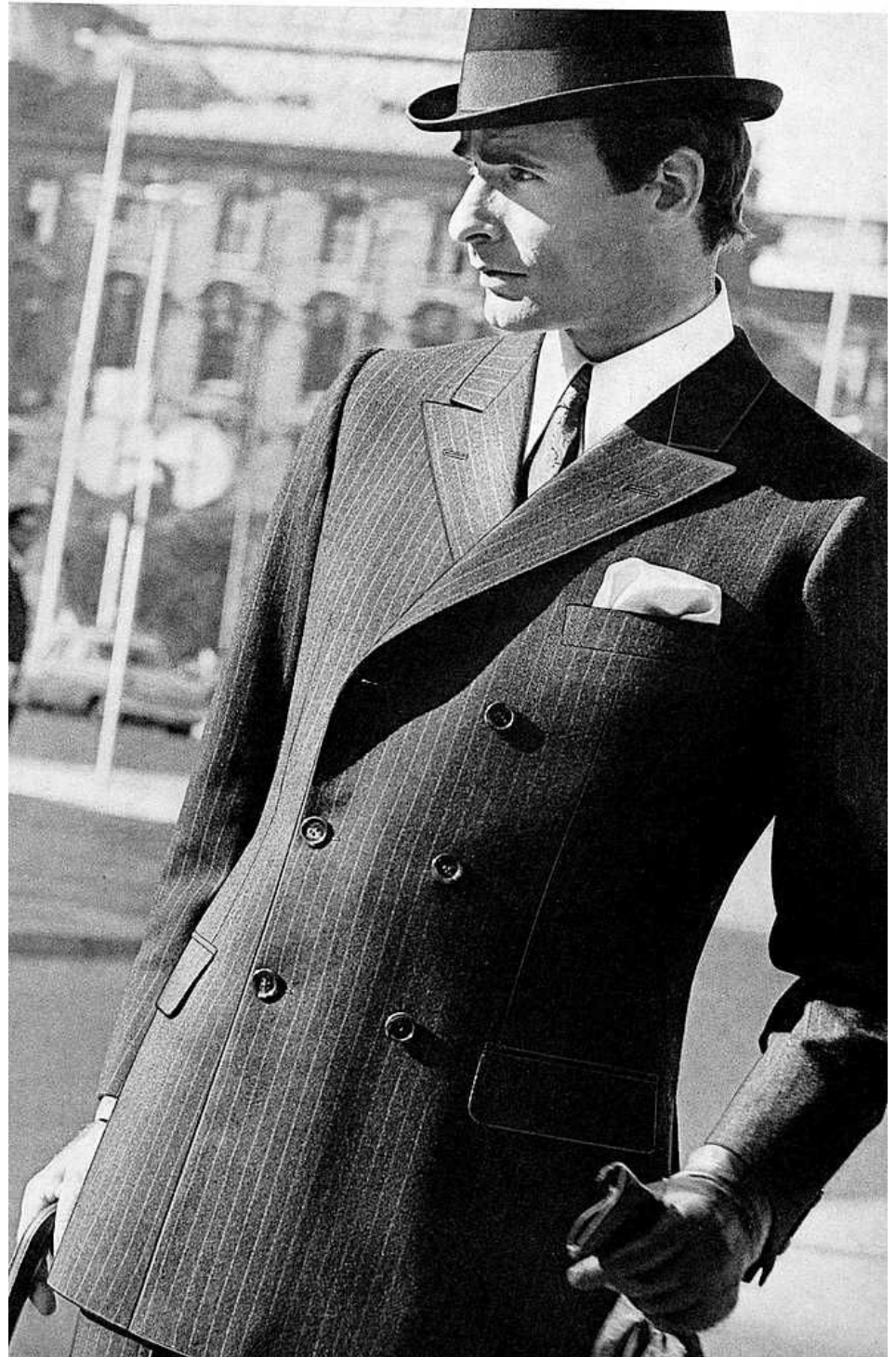
# Functional item for gentlemen..



*from [gentlemanypursuits.tumblr.com](http://gentlemanypursuits.tumblr.com)*



**Or just as a decoration**



**In many ways..**



Monty Python's Gumby character





**It is also an item  
for ladies**

**Magicians can not do without it ..**





# Many stories can not be told without..



In many mystery stories, a handkerchief that is left at the scene of crime and the initials embroidered on the handkerchief becomes a key evidence to solve the mystery.



# Othello

William Shakespeare

Othello's first gift to his love,  
Desdemona.

Later used as false evidence of love  
affaire between Cassio and  
Desdemona.





# The Yellow Handkerchief (1977)

Yoji Yamada



Yellow handkerchief is a sign from Mitsue that she still loves Yusaku after his many years of absence due to his imprisonment. The handkerchief becomes a symbol for happiness.

# Exquisite Electronic Handkerchief

“Custom”

Who is it for? Who has commissioned it?

“Handmade”

Labor intensive, hand embroidered circuitry

“Exquisite”

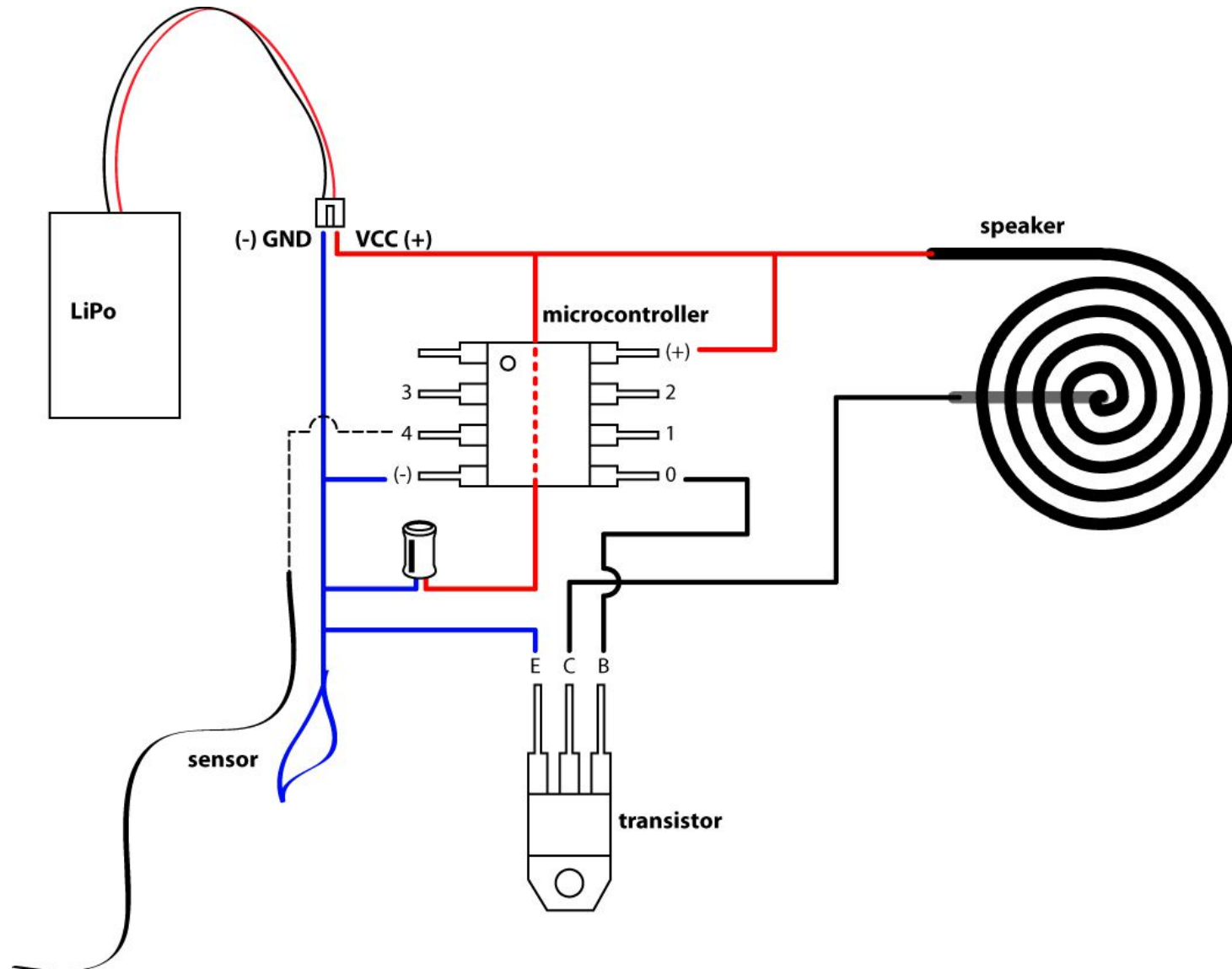
Skilled workmanship, practice makes perfect

“Unique Function”

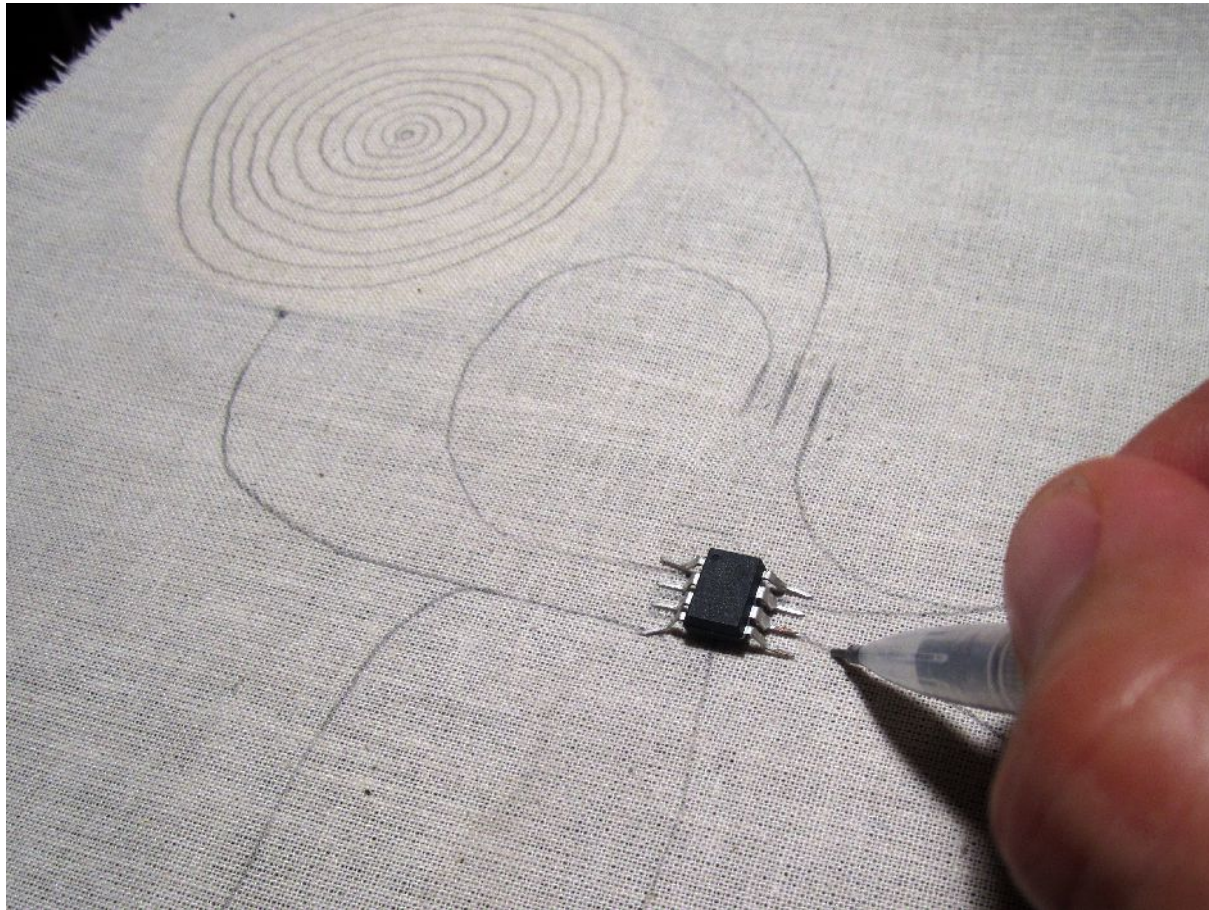
Tailored functionality to person or purpose



# Circuit Schematics



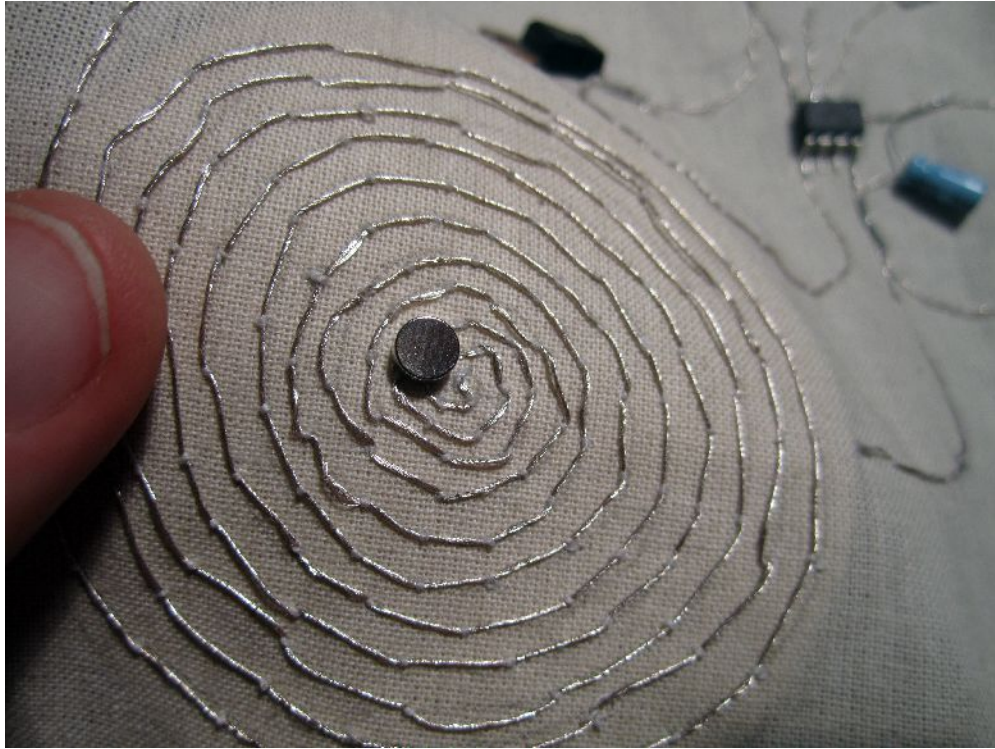
# Circuit Planning



Draw your circuit plan on fabric.  
What should connect to what?



# Embroidered Speaker

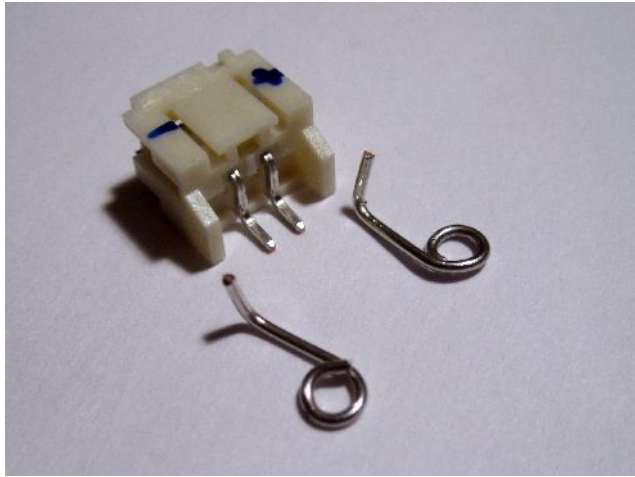


Place magnet at center

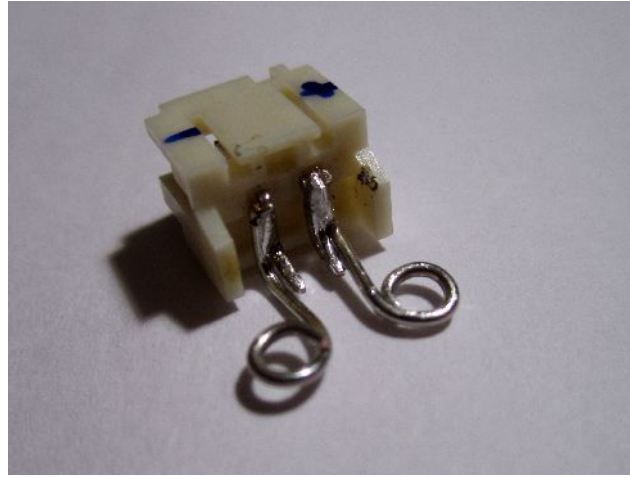


Couching Stitch

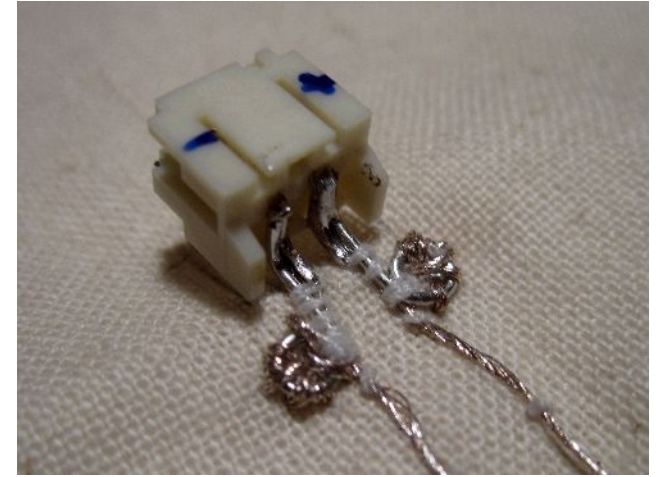
# Battery Socket



Prepare legs



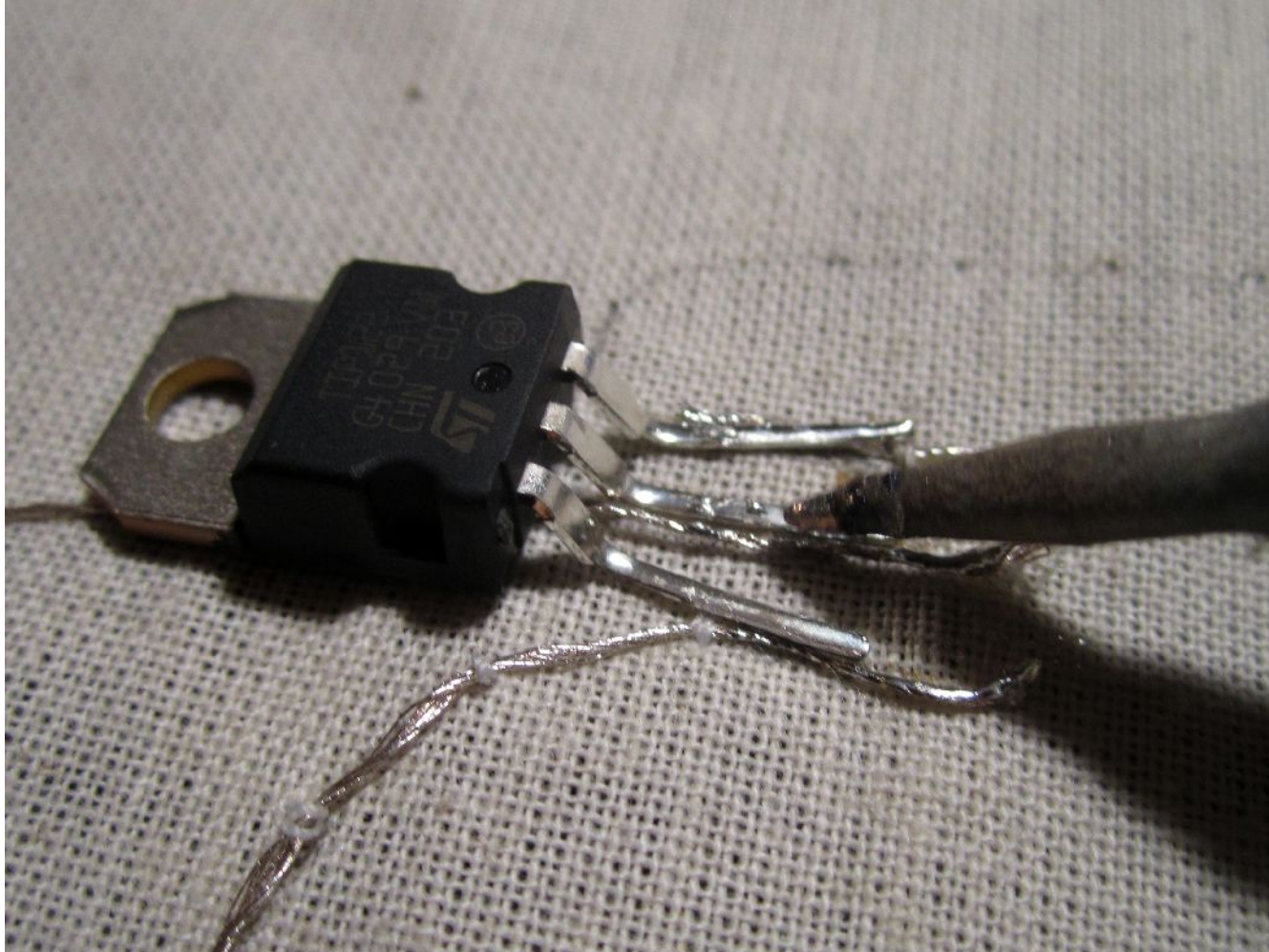
Solder legs to the socket



Sew through the looped leg with conductive thread to connect. Embroider over the legs with normal thread to secure the connection



# Solder Example



Apply solder separately to component legs and to conductive thread. Then place them together and gently heat up the applied solder.

# Sensors



Digital (on/off) sensor and Analog (variable) sensor can be attached.



# You will need

## In the Kit:

- ATTINY45 (microcontroller)
- Lipo battery
- transistor (TIP122)
- capacitor (10uf)
- JST plug
- a small piece of wire
- magnet
- conductive thread (silver/copper)

## To Take:

- fabric
- embroidery thread
- practice fabric