

HANDBOOK

OKLLU carries out projects that link product development, textile innovation, education and special needs in children within collaborative practice and (disruptive) innovation.

## WHAT IFF?

What iff invites you to experiment from the question and intuition, understanding it as the ... of learning

What iff is the first product specially designed to work with special needs around integration disorders sensory in children.



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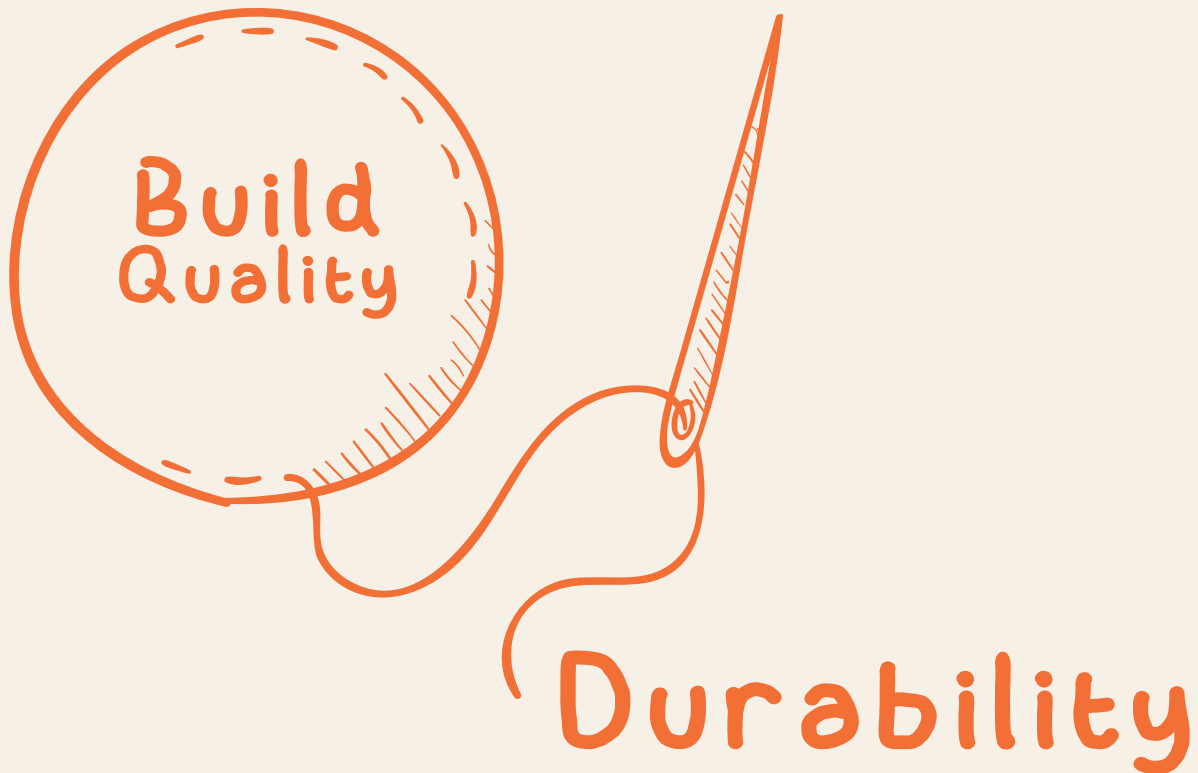
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Being responsible custodians of our environment requires that we treasure our natural resources, and make the best possible use of them.

The ideal would be that all the raw materials that go into a product are re-used, and the only net resource consumed during the product's lifetime is energy. However, this is almost never achieved.

If we cannot achieve this, the next best thing we can do is ensure that whatever we produce has a long and productive life, so that as much utility as possible is gained for each kilogram of waste eventually produced. This is not simply a matter of Quality Assurance during manufacture - there are at least four distinct aspects to ensuring longevity and sustainability for a solution based on technology:



Assessing Build Quality (or Durability) is the process of determining the product's ability to survive misuse and environmental stresses, including time. This can be done just before the first release of the product – but when there is still time to make changes as a result of testing. It needs to be repeated after every significant design change.

A product that could survive any environment stress or misuse would be impossibly expensive to build, and unwieldy to use – so it is inevitable that some equipment will fail in the field.

# Repairability

An assessment of Repairability determines the probability that someone with fewer facilities than the manufacturer will at some future date be able to remediate the harmful effects of environment or misuse. Repairability can also be assessed before product release. (A Draft Repairability Specification has been uploaded to this wiki).

However, hardware failure is not the only thing that can end a product's useful life. Unlike traditional items we purchase, hi-tech products today remain dependent on the manufacturer throughout their life – for:

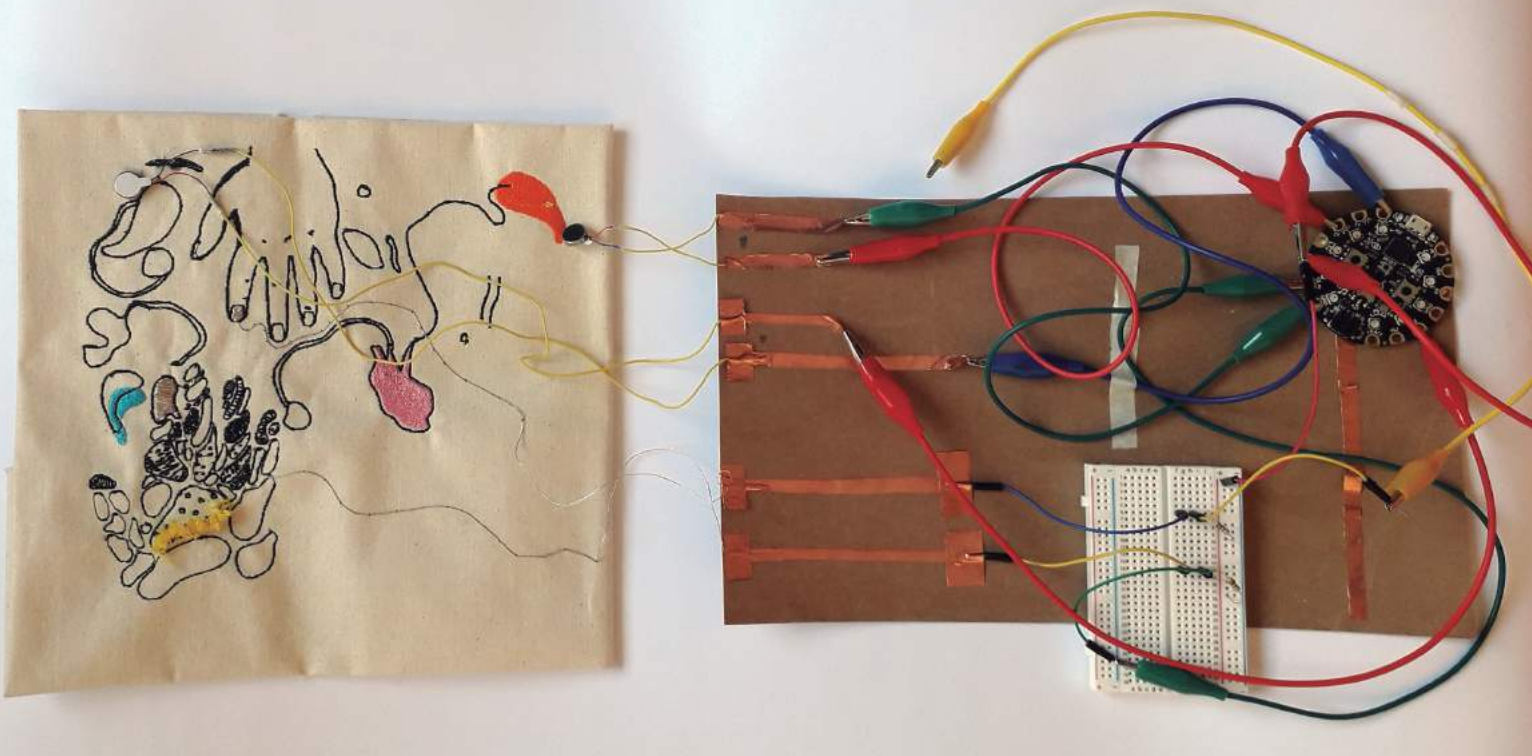
Supplies of spare parts that cannot be simply copied or obtained elsewhere,

Software maintenance – to:

- Fix bugs
- Head off new virus threats
- Cope with changes in the situation the equipment has to deal with
- Provide continued compatibility with other equipment containing software that has been upgraded,

Some products only function by talking to a server main-

## Repairability



tained by the manufacturer

Although the hardware is purchased, the software may be only licensed, and that licence may not be renewed.

If the manufacturer stops providing these functions for any reason at all, the product may suddenly become useless. We don't have a good word for this continued dependence on the manufacturer after purchase, but it is often the dominant factor in determining end-of-life. Outright ownership of a product used to mean that once bought and paid for, no-one could stop you using it, but in the hi-tech world this is actually no longer true.

# Independence

(garantia/vida util)

The degree of dependence or independence cannot be assessed prior to product release, as it is a function of how the manufacturer behaves after the sale. A wise purchaser would build an obligation on the manufacturer to provide these services for a period of time into the purchasing contract. The period of time should be the expected useful life of the product, i.e. longer than the warranty period.



# Recyclability

When, finally, the end of the product's life is unavoidable, it may be possible to re-purpose part of the product, and depending on the design, it may be easy or difficult to separate out and extract the most valuable resources (for example precious metals). This Recyclability can also be assessed prior to product release, but this is as yet rarely done.



# how to use this book

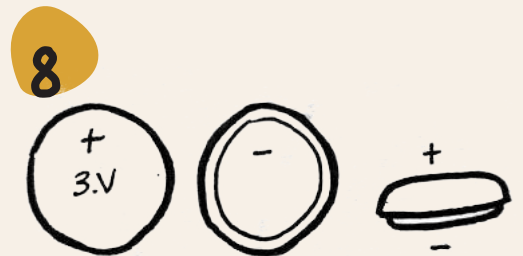
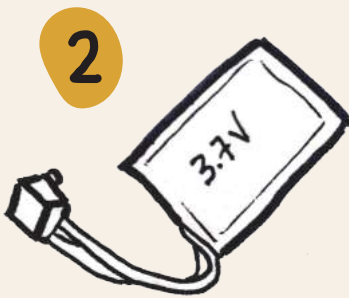
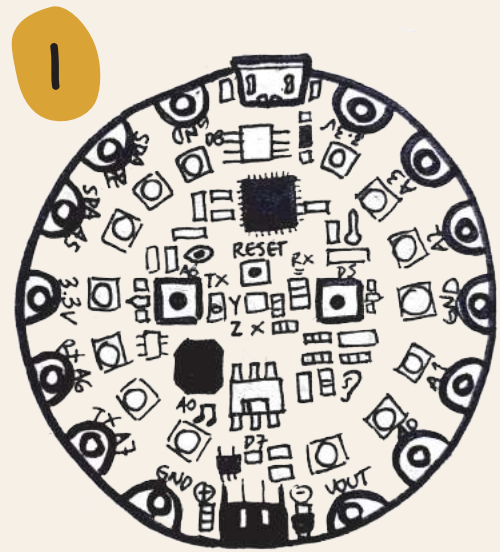
The form of the book has been developed from the folding of paper, taking it as a model to make it in fabric, all the circuits are inside so you have the possibility to open it and see each connection carefully. The components are explained below and how the connections are made. In addition to some exercises to start understanding electronics. Enjoy it!



# Components & materials



- 1 Circuit playground
- 2 Battery Lipo 3.7v
- 3 Resistor
- 4 Conductive thread
- 5 Vibration motors
- 6 Leds
- 7 Piezo
- 8 Lithium battery 3V



How are these  
components  
made?

# How to keep your book?

Unlike copper wire, which has a coating, conductive thread is uninsulated. This means the thread behaves like bare wire and can accidentally short circuit if stray strands come in contact with each other.

## Cleaning Your Project

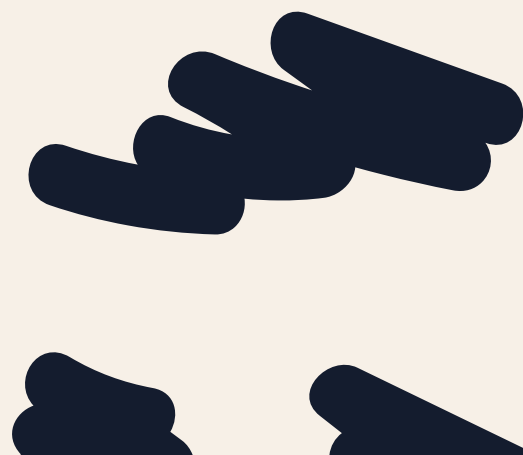
If your project gets dirty, remove the battery and carefully hand wash with mild detergent. Let your project air dry; a dryer can damage the microcontroller pieces or stitching.

# Problems? you can repair it!

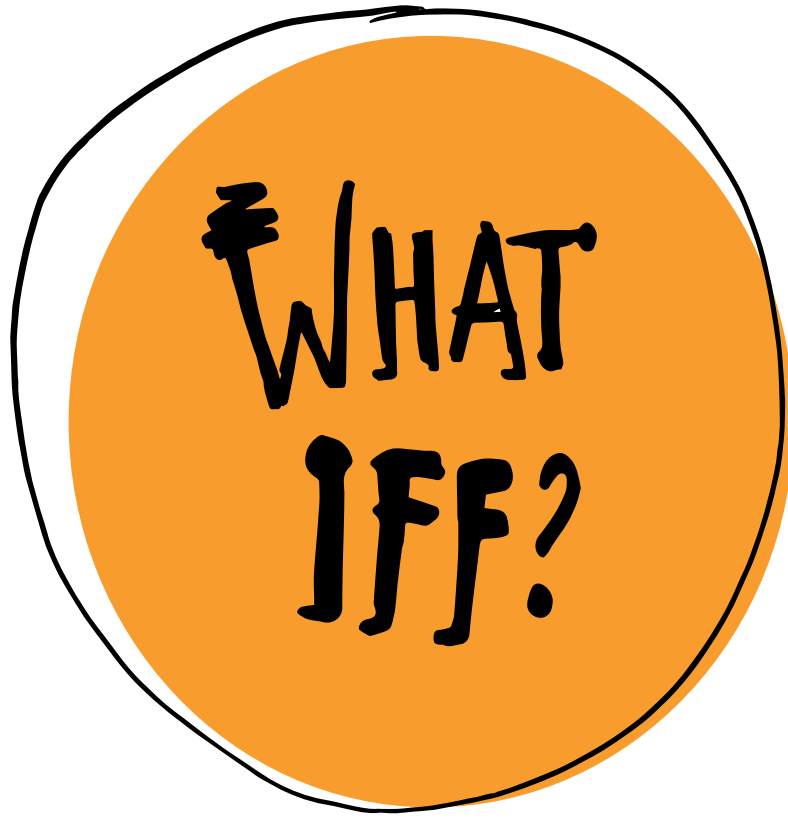


## FIX LOOSE CONNECTIONS

To fix loose connections, thread your needle with conductive thread. From the back or underside of the fabric, push your needle up through the tab with the loose connection. Loop through the tab a few times. Make sure your thread is touching the original stitches you sewed in several places. Push the needle to the back or underside of the fabric. Tie a snug knot, making sure that the new thread is pulled tightly against the tab and the old stitching.



If you have a knot that is unravelling, find the end of the thread and pull on it to re-tighten connections. Cut out a small piece of fabric and glue it down over the unravelling thread. You will also need to re-sew stitches that have come undone. Make sure that your new thread touches the existing thread in several places to make a solid electrical connection



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