



Repairing and recycling electronic components while learning from them.

Some guides for fablabs.



#FAB23

"Designing Resilient Futures"

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On behalf of the community of Smart Open Lab.



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DIPUTACIÓN
DE CÁCERES





- The global problem of waste management.
- Context of the proposal.
- Self-sustainability and improvement of fablab facilities.
- Sourcing, storage and responsible sources of the materials.
- Learn how to repair electronics in a fablab.
- Relationship with regional waste management companies
- Conclusions.



The global problem of waste management



- All around the world, **waste** is wildly produced.
 - Construction waste
 - Industrial waste
 - Household waste
 - Plastic waste
 - Textile waste
 - **Electronic waste**
 - Radioactive waste
 - Sewage
- Run-off waste (fertilizers, pesticides, and oil from for example farms running off into groundwater, rivers, oceans).



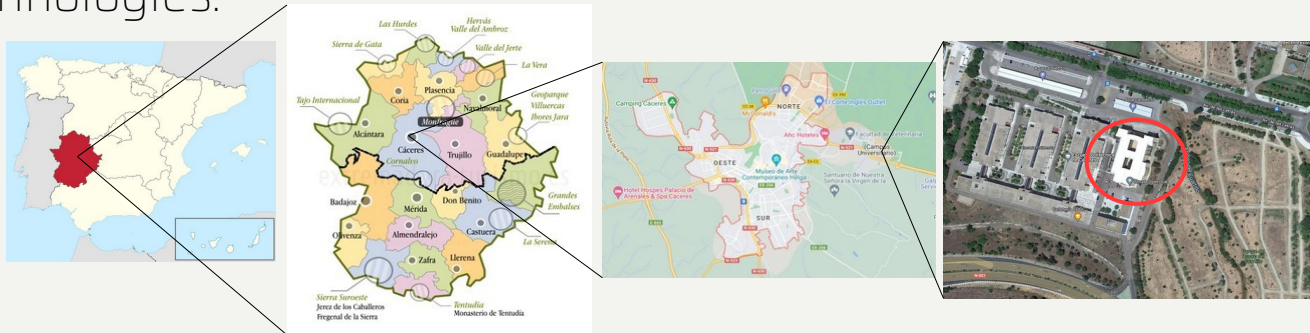


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- **Cáceres, Extremadura. Spain.**

- Region rich in resources (water, minerals, food, energy...).
- Primary economy now sifting to services: tourism and hopefully new technologies.



- **University of Extremadura (UEx). From 1971.**

- Public institution with around 10k students and 3k staff.
- Around 150M€ of annual budget.
- School of Technology in Cáceres.
- Fablab Smart Open Lab since 2014. Now around 230 people associated.



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**Responsability with
our environment**



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Self-sustainability and improvement of fablab facilities



- Shared responsibility of associated people and UEx.
 - Maintenance and reparations covered by the community (annual symbolic fee).

Learn how to repair all your machines

- Create an educated glocal community. Tech & Ethics.

“Leave the space better than you found it”

Every course starts for us with cleaning and calibrating...





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Sourcing, storage and responsible sources of the materials



- Put lot of attention on storage and furniture.
For work safety and unwasted time.
- Furniture can be obtained from institutions and companies.
Invest on transport more than in materials.
Have a good “sherpa” team.
- Use materials till its minimum expression.
The value of cut-offs...







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Learn how to repair electronics in a fablab



- Technology and knowledge never was so accessible.
- Tools for reparations are usually cheap.
- Most of the reparations do not need profound knowledge.
- Many global beautiful initiatives.
- From EU:
 -  **IFIXIT** : web with thousands of documented reparations.
 -  **Repair Café** : event to be reproduced everywhere.



Right to Repair

Join the communities!

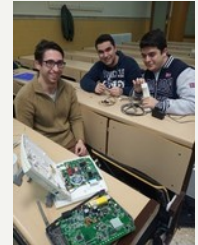
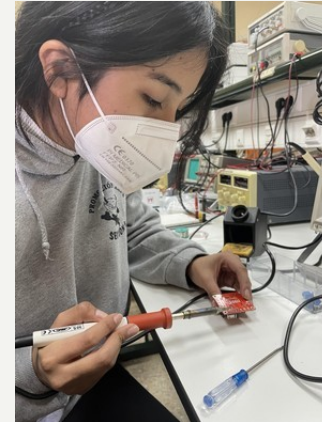




Learn how to repair electronics in a fablab



- In a formal educative system:
 - From first year students, in Electronics subjects.
 - Learn how to:
 - Search for information.
 - Disassembly (and assembly again).
 - Soldering.
 - Till master and final degree thesis:
 - Reverse engineering
 - Upcycling



*Feel the ecstasy
of success*



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Relationship with regional waste management companies



Trash for one is treasure for other...

- In our region:



- Increasing collection network of e-waste containers.
- Disarm e-waste till minimum, separating by materials.
- Fablabs have much to win with this industries:
 - Getting a source of primary valuable materials.
 - Revalorisation through design and fabrication.





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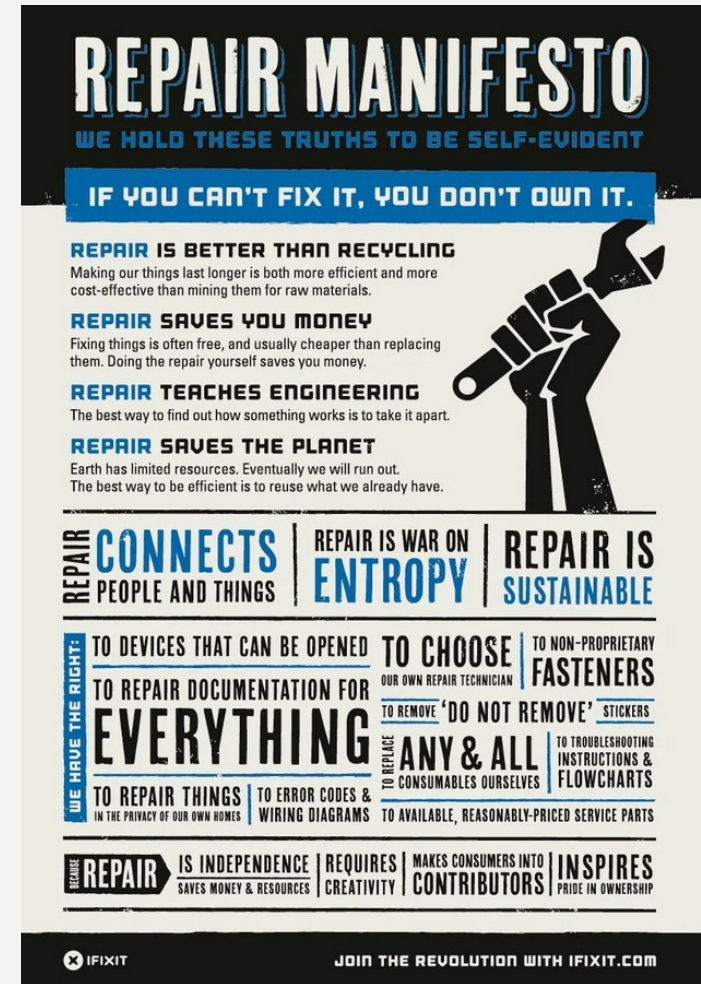


- As fablabs:
 - We should be self-sustainable. Commitment of users.
 - We should be a small materials management centers.
 - We should be examples of circularity.
 - We should join global communities.
- Repairing electronics is valuable as:
 - Community resource.
 - Educational resource, both informally and formally.



When we repair something we do three goods, no matter the order:

- 1) A good for your **environment**.
You rid Nature of more waste.
- 2) A good for your **pocket**.
You can spend less and better.
- 3) A good for your **spirit**.
You overcome apathy and learn something useful with your effort.





iMuchas gracias!

Look for us on twitter, instagram or FB.

You can see most of our resources and projects at www.smartopenlab.com