Santa Chiara Fab Lab

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DEPARTMENT: Dipartimento di Scienze Sociali Politiche e Cognitive

LAB: Santa Chiara Fab Lab

Research activity

The Santa Chiara Fab Lab is a strategic project of the University of Siena, born in 2016 as a **digital manufacturing** laboratory and **co-design** space.

The Fab Lab offers a creative and multidisciplinary context for **research** and **development** projects, **training** and **technology transfer** in collaboration with various stakeholders (research institutions, companies, non-profit organizations, policy makers, trade associations, citizens).

The Fab Lab is specialised in additive and subtractive manufacturing, it is equipped with cutting-edge equipment for the rapid prototyping of Internet of Things, wearable technology and smart objects.
At the Fab Lab, the technological innovation is co-designed with the stakeholders, applying Design Thinking methodologies to uframe the problem, ideate creative solutions, iteratively prototype and evaluate the solutions.

The Fab Lab is part of the global network of Fab Labs (fabfoundation.org) and it is member of the Italian network of university Fab Labs and maker spaces U-FAB (www.u-fab.it). The Fab Lab is involved in the Cluster Made in Italy (www.clusterminit.it), and it hosts the PhD students of the Doctorate of National Interest in Design for Made in Italy.

The research domains include the **cultural heritage**, **healthcare**, and **Made in Italy**. The goal is to innovate the design of products and services towards more sustainable and competitive practices, through the introduction of new technologies, the experimentation of new materials, and the creation of synergies between universities, companies and non-profit associations.
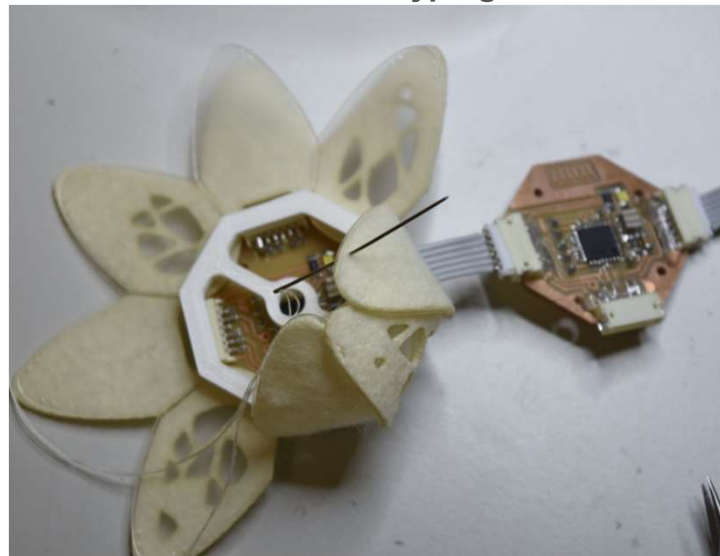
Images

Co-design

Laser cutting of textile

Prototyping

Smart jewels

Technologies and services

Equipment of the Fab Lab

- Laser cutter to cut and engrave diverse materials
- 3D printers with resin and filament
- Vinyl cutting plotter
- CNC milling machines
- Handheld 3D scanner
- Equipment and software for electronic production
- Ultrahaptics device
- Software for 2D and 3D modelling

Technologies and devices produced by the Fab Lab

- Prototypes of wearable devices and smart objects with embedded electronics
- Smart jewels and mobile app for deaf women to perceive the environmental sounds
- Personalised gadgets made of diverse materials with laser cutting and engraving
- 3D printed replicas, NFC readers, audio speaker and fragrance diffuser for the multisensory exploration of the cultural heritage

Activities and services for the companies

- Training on digital fabrication (3D modelling and printing, CNC machines, electronics, web design)

- Technology transfer

- Collaboration in research and development projects
- Problem framing, definition of requirements, ideation of scenarios and use cases
- Service design using Journey Maps and Service Blueprint
- Prototyping of graphic user interfaces
- Hardware e software development
- Co-design with the stakeholder for the ideation, design and evaluation

- Activities for dissemination and public engagement

Applications and collaborations

The Fab Lab is involved in several projects funded by competitive calls at regional, national and international level, in collaboration with other research institutions, companies, museums, third sector organizations and communities of citizens.

RHITA
The project, funded by the program PRIN PNRR, is carried out in collaboration with three other Italian universities, to create Fashion Living Labs to promote the system of cultural identities, creative talents, knowledge and know-how of the fashion Made in Italy.

Quietude
The project, funded by the European WEAR Sustain programme, co-designed a set of jewels that enhance the experience of deaf women in a sound-oriented world. The accessories detect sounds and translate them into vibrations, light patterns and shape changes, enabling the perception of sounds through the body. The objective of the project is to develop solutions with clear aesthetic qualities, to offer opportunities for involvement, emotional well-being and comfort, reducing the negative impact of disability.

BeauCoup
The project, funded by the Active Assisted Living programme, in collaboration with a consortium of 10 partners, aims to develop new service models to provide accessible and engaging cultural experiences for older people with disabilities, outside the traditional cultural contexts.

Regeneration Opera
The project, funded by Fondazione Monte dei Paschi di Siena, promotes musical heritage through the organization of events, performances and training workshops. The Fab Lab developed an immersive experience of orchestral music enabled by wearing multisensory accessories and a VR headset.

For more information

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