Hackability@Barilla

Barilla Headquarter,

Parma, IT.

Jan – Feb 2018

‘La Buona Forchetta’

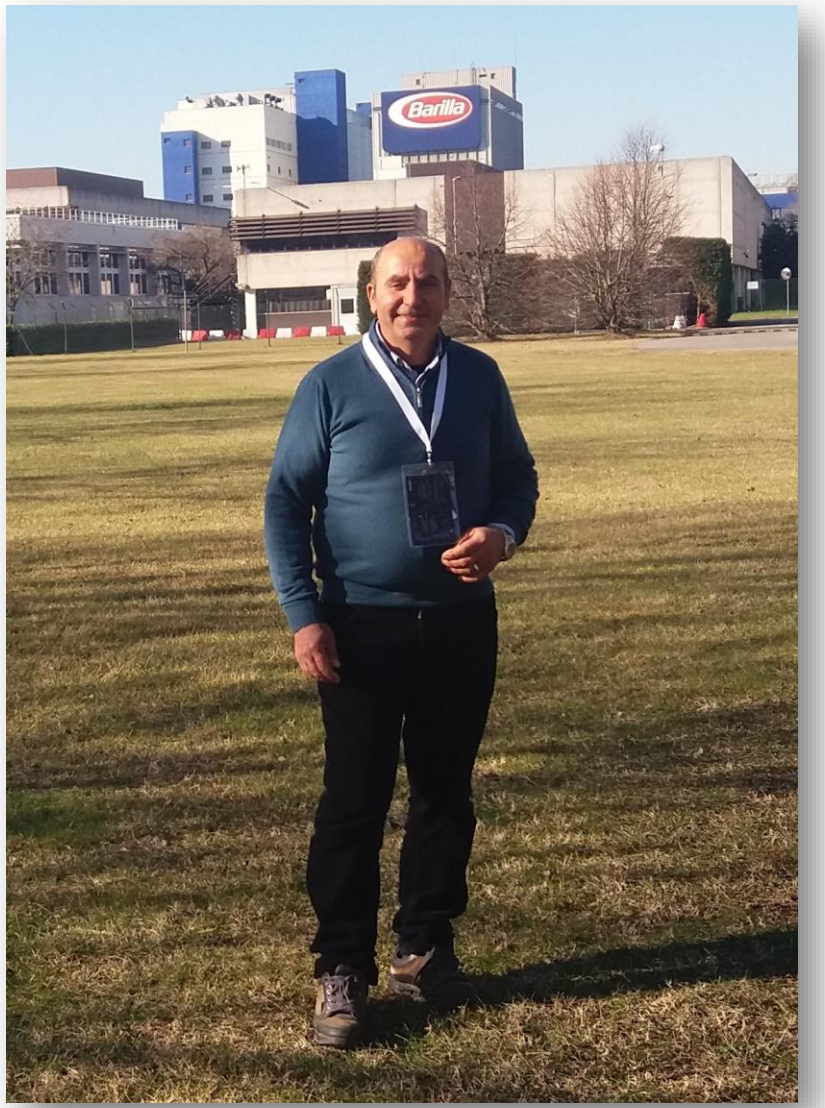
Hackability@Barilla Contest[1,2,3]

The Turin project **Hackability**, born in 2015 at the Politecnico by the intuition of Carlo Boccazzi Varotto and the initiative of numerous students, launched a call with **Barilla** in order to find **innovative solutions for motor disability** in one of the most important environments of the house : the **kitchen.**

Hackability@Barilla was a **competition** to which you could register proposing your own solution, imagining new tools for the kitchen, and packaging suitable for the needs of people with **disabilities**, the **elderly** and users with **special needs.**

All in **open source**, therefore usable (not for commercial purposes) by the whole community. A project to include diversity in line with the idea of Barilla, "**Good for you, good for the planet**".

Why there



“My dad, my hero, always helped solving others' needs. But he also has to to solve his own. That's why I applied for Hackability@Barilla.”

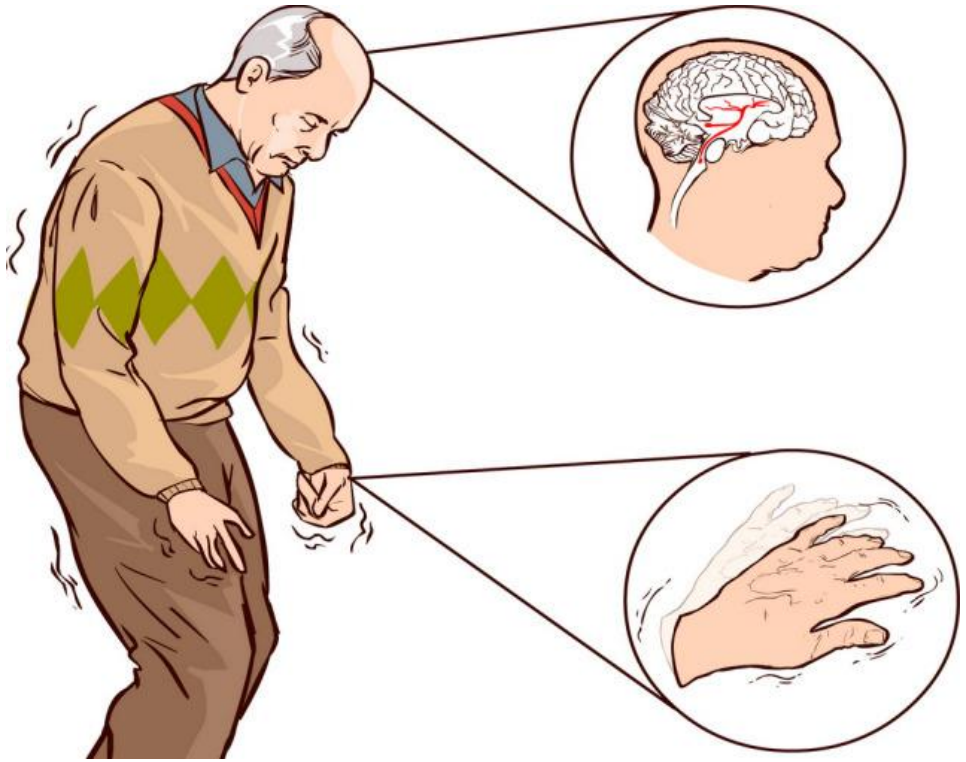
Claudia Barbarito

“I have the Parkinson.
Help me out to twirl Spaghetti!”

Domenico Barbarito

Clinical Problem

Parkinson's disease (PD) is a long-term degenerative disorder of the central nervous system that mainly affects the motor system.[4]
Symptoms generally develop slowly over years.

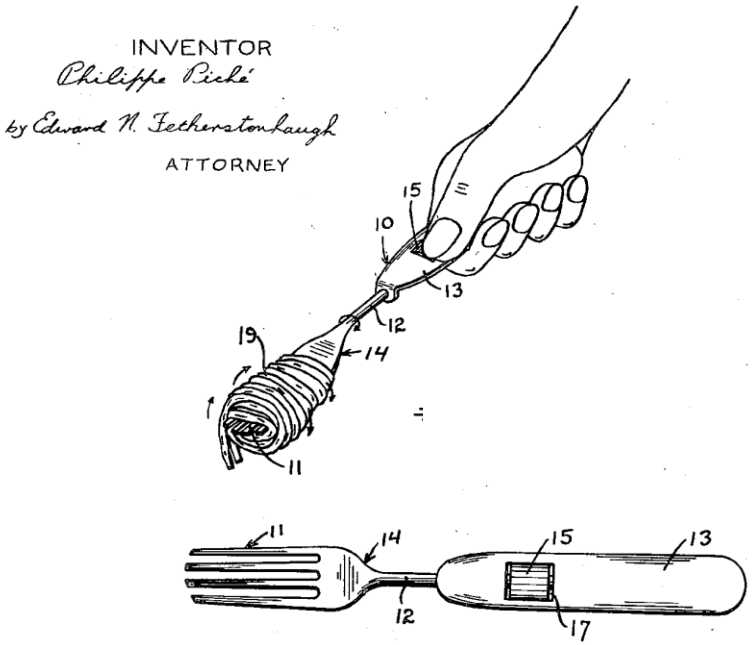


People with PD may experience:

- Tremor, mainly at hands;
- Slowness of movements;
- Limb rigidity;
- Gait and balance problems.[5]

The cause remains largely unknown.

State of the Art



First patent of a Revolving Spaghetti Fork in 1952 by Philippe Piché.[6]

Spinning Fork Today[7]

Issues: Not portable;

Antigenic;

Unaesthetic;

Not customizable.

Our Project — La Buona Forchetta

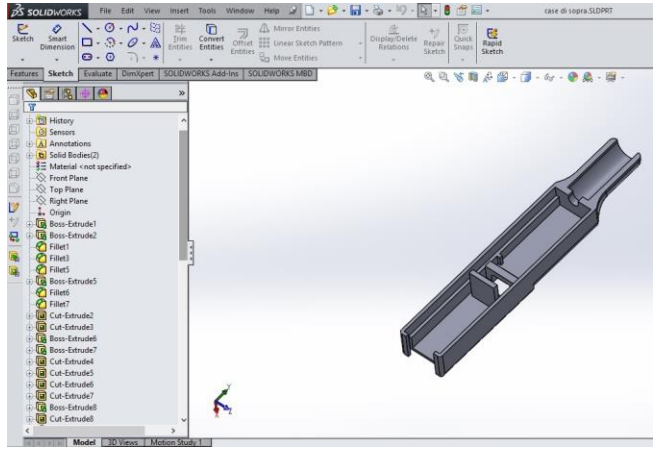
It is a **miniaturized device** that allows the rotation of fork tips conceived disposable in PLA **3D printed**, in wood **cut with laser**, in plastic for food obtained from forks already on the market (for sustainability even in the absence of a Fablab) and one in steel for domestic use.

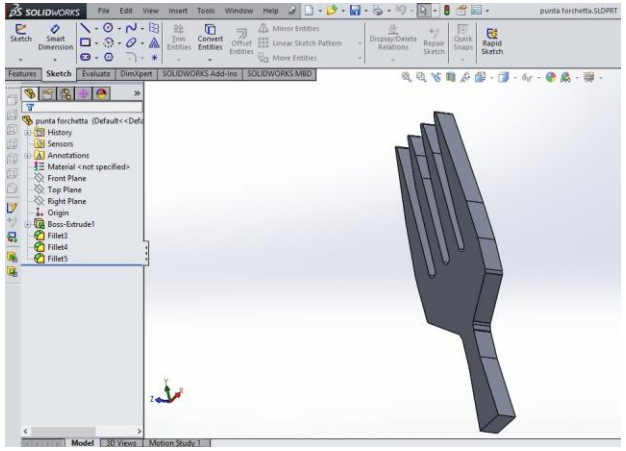
It has **specific accommodations** for each of the above mentioned points to allow interchange. The device can also be inserted into a **support** which includes a ring which **prevents loss** during a tremor.

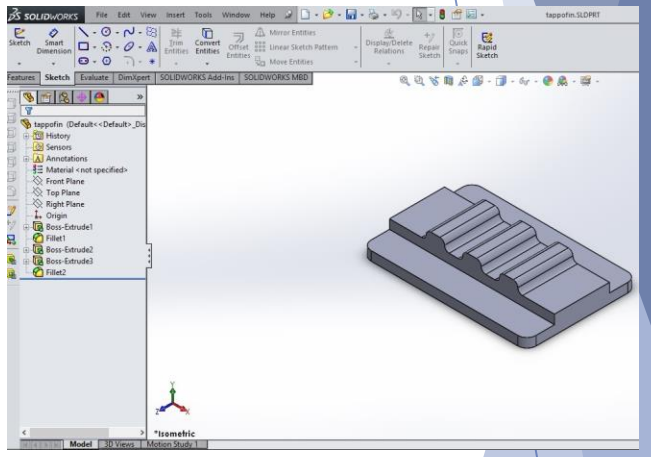
The **extremely small size** compared to the devices on the market allow you to hide it under your finger or carry it in your jacket pocket.

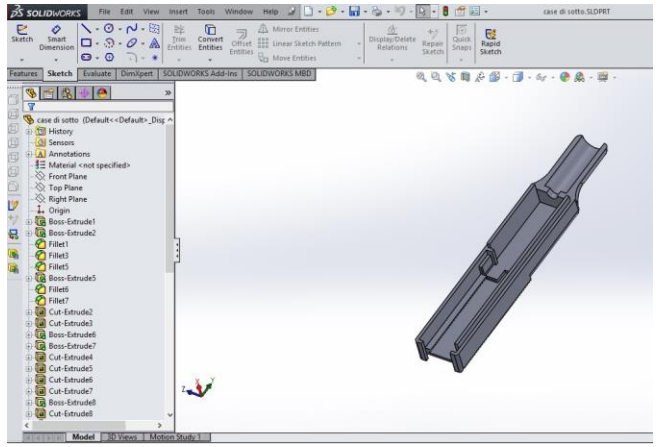
CAD Modeling

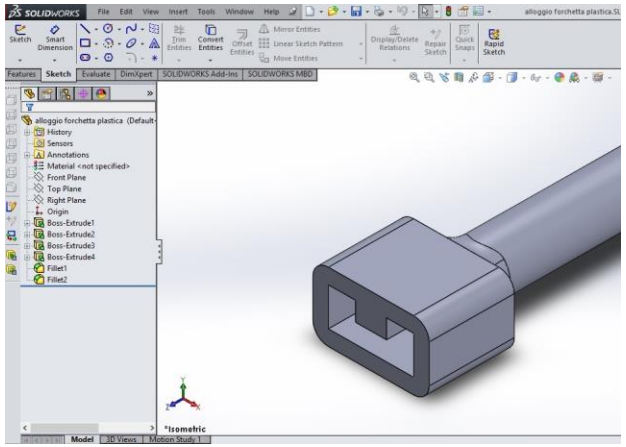
The case, the accommodations for the fork tips and the support have been designed using **DS SolidWorks**.

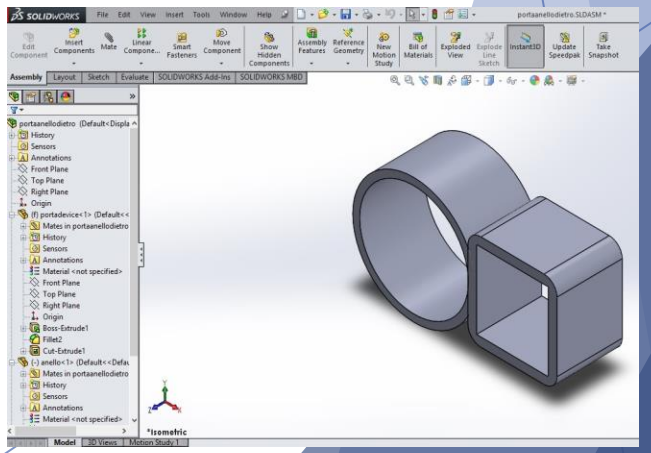








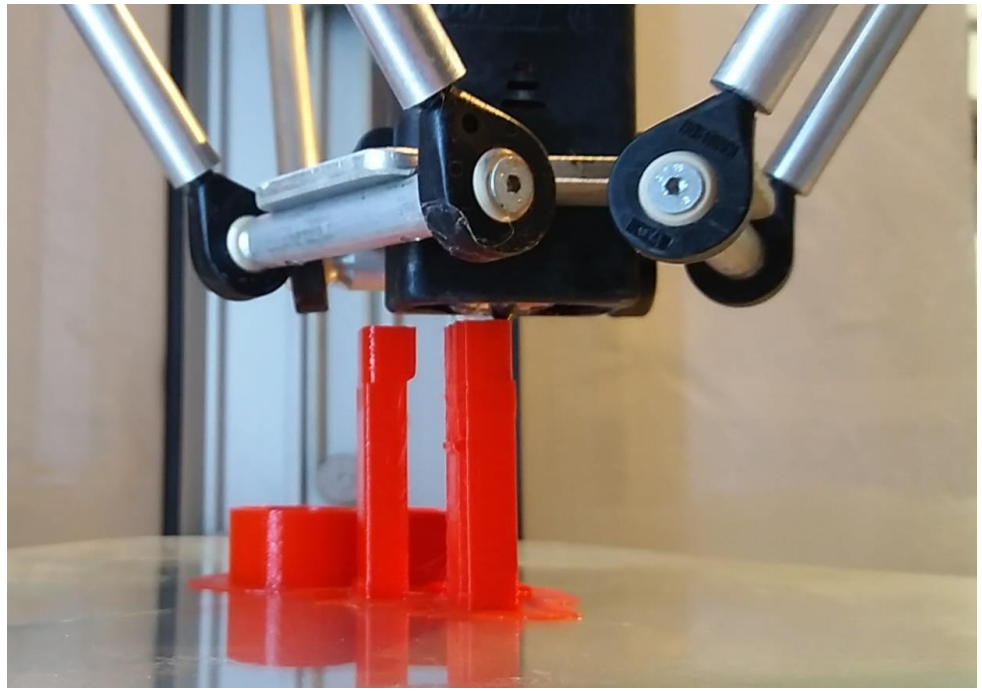


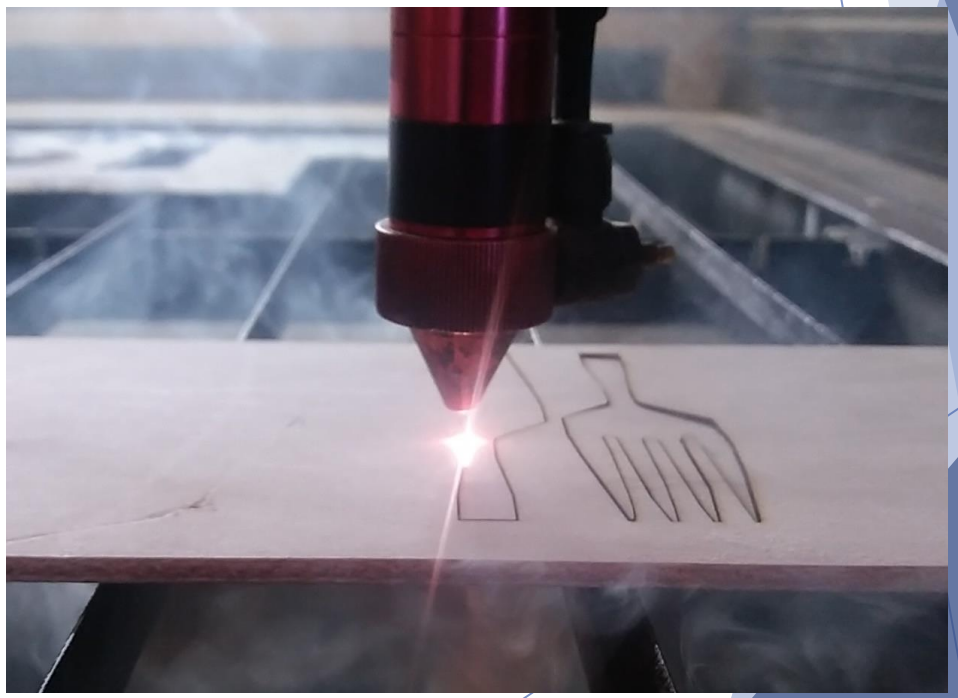


Prototype 3D Print and Laser Cut

After being converted to .stl files, they have been 3D printed using a **WASP Delta 2040.**

The wood fork tip (4mm multi-layer poplar) has been cut with a **HSG S1390 laser cutter.**





Electronics

The **circuit** is composed by:

- 100 RPM **Micromotor** (6V);
- ON/OFF Button;
- Four LR44 Batteries in series (1.5 V each).

Spaghetti Recipe

Spaghetti with garlic, oil, chilli and tomatoes Recipe

Ingredients:

- Spaghetti strictly Barilla (100g);
- Garlic, Oil, Chilli, Cherry tomatoes;
- La **Buona Forchetta.**

Recipe:

1. Brown garlic, oil, chilli and tomatoes in a pan;
2. Cook the Barilla spaghetti al dente and finish cooking over high heat in the pan with the sauce;
3. Enjoy the dish by helping you with La Buona Forchetta!

Spaghetti **Test Video** at: youtu.be/GTm76VhDWDo

Test with Domenico

Domenico finally eats spaghetti thanks to La Buona Forchetta!

Test Video at: https://youtu.be/BDgRXz7n8F4

Spot

SPOT video at: youtu.be/gAKzE_MczW0

Website: la-buona-forchetta.blogspot.it

The prototype is accompanied by a portal whose aim is to **keep the project alive** and make it self-sufficient.

Follow us!

We want to give patients with Parkinson's disease the right to **request a sample** or any modifications and **customizations**; to makers and Fablabs to download the files, make these changes and create the prototype to **provide it for free**.

The Barilla CEO likes La Buona Forchetta!

Press

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Click here to read the **article**.

Team

De Riccardis Giulio

Barbarito Claudia

Maci Cristiano

Pecoraro Alessio

Barbarito Domenico

De Pascali Giuliano

Pellegrino Ilaria

Ciccarese Luca.

Contribute!

The whole project is uploaded on GitHub at:

Hackability@Barilla - La Buona Forchetta -

Help us improve La Buona Forchetta Project!

Future Developments

The batteries used in the prototype last for a couple of meals. They have been chosen considering both **functionality and miniaturizations.**
Future versions include the implementation of batteries with a bigger capacity (maintaining the voltage) or **rechargeable** – with a separate base to host the alimentation circuit.

Moreover, fork tips **approved for alimentary use** (both material and production technology) could be produced for the device or other accessories developed to **adapt** different models of forks on the market and different needs.

Developed for the Parkinson's disease, La Buona Forchetta **can be used by whoever** experience difficulty in handling forks and tasting a plate of Spaghetti in peace!

Bibliography

1. hackability.it/hackabilitybarilla/

2. lastampa.it/2017/10/05/tecnologia/news/hackabilitybarilla-il-bando-per-lindipendenza-dei-disabili-in-cucina-sN9dbz7wBHrmenUPar1jcK/pagina.html

3. lastampa.it/2018/02/26/tecnologia/news/i-risultati-di-hackabilitybarilla-il-progetto-di-innovazione-in-cucina-per-chi-ha-bisogni-speciali-rzfHwRMO4zYt9GoyvpJ6uI/pagina.html

4. ninds.nih.gov/Disorders/All-Disorders/Parkinsons-Disease-Information-Page

5. parkinson.org/understanding-parkinsons/what-is-parkinsons

6. US2602996 A

7. hammacher.com/Product/84414

Thanks for the Attention!