

Good afternoon, I'm Giacomo Falaschi and it is a real honour to be here today to introduce myself as the manager of CoBoPro project, that is a project I am developing at FabLab Contea together with Europack Service and BIESSE, and it is one of the two projects that won the Open Maker fundings - the other project is Digital Crystal Manufacturing and it is about improving crystal fabrication with digital technology.

First of all, let me introduce you to FabLab Contea, a no-profit laboratory I co-founded in 2013, set in a very small village in the countryside around Florence, Italy. Our first aim is to experiment ideas and to collaborate with the huge artisanal tradition of our area. At the moment we have about 35 active associates - for an average age of 23 years old. We are currently working on seven between international and national projects, we have five active scholar education projects, we collaborate with other no-profit organizations for five active projects, and, of course, we also work together with our local institutions especially for basic technology literacy. Within this FabLab experience, I landed at the MIT, where the idea of creating ready-made prosthesis first began.

CoBoPro stands for Corrugated Board Prosthesis. The idea behind the project dates back to 2015 when, attending a meeting at MIT between professionals and laboratories, a doctor who used to work in war and critic areas asked us about quick and smart solutions for every-day problems, such as prosthesis, support for fractures and so on. Being a very challenging and useful subject to work on, we wanted to study how to find a solution with the simple means we had.

The very first thing we came up with was 3D printing, but we immediately had to refuse it for many reasons: stocking issues; it requires 3D printing skills; prosthesis wouldn't be adaptable; you need energy at disposal at all time to make the machines work and it also takes long time before getting to the result.

Thinking about a possible alternative, we realized cardboard could be an option, so we contacted an open-minded businessman from our hometown who runs a small cardboard packaging company, Europack Service. When we first told him about this idea, he was really enthusiast and curious about where it could lead. Corrugated cardboard or fiber cardboard can fit into small spaces; it's easy to put together; it is cheap, very resistant and eco-friendly; moreover, it solves shipping problems. Realizing that it could actually be a good choice, we also got in touch with BIESSE, in order to fit into a bigger picture and be compatible with mass-production.

In the last years, cardboard application developed a lot, as it gets to be used in many different fields such as furniture, videogames, etcetera. Due to its technical features, it is possible to use it in different forms: since it is insulating and resistant, it is also suitable for building low cost houses, just to make an example. So we decided to work with cardboard to make prosthesis and other useful tools to solve first-aid needs in war zones.

Thanks to Open Maker, Europack Service and BIESSE, we started a so-called spiral development, which includes a Design phase in FabLab Contea (for modeling and simulation); then a machine correction procedure, where Europack Service develops digital files for their prototyping machines, while BIESSE faces pretty much the same process on their production machines. The third phase is prototyping, in which Europack Service and FabLab Contea work together to assemble the prosthesis and then the testing phase, to get the final object tested on a mannequin at first and on a real person in a second moment. This process has to be repeated as many times you need until you get to the desired result, with the due modeling corrections. In these three months we focused on junctions, in order to have at least five different types to test and evaluate with resistance tests.

We wanted to start this first-aid support project with prosthesis since it is one of the most difficult tests to demonstrate cardboard capacity to fit this kind of situations.

All the files will be available on our website, together with tutorials for those who have no access to prototyping machines, in order to be as inclusive and open-minded as we can. That is because we truly believe that working together is always the biggest weapon we can use to face problems.

Another important thing is that CoBoPro is an Open Source project - like all the ideas we develop in FabLab Contea, because we want to create a community and see it growing with other similar projects. We would also like to improve this kind of interaction with professionals and with all the people willing to participate in solving problems for emergency situations with corrugated cardboard, simply repeating (or just being inspired by) the model I am presenting you today. This is one of the reasons we are eager to meet people in Milan at 18th - 22nd of July meeting, that will be a great chance to discuss problems and find new suggestions for corrugated cardboard projects. And, why not, we would also love to see all this, being improved with special awards and contributions from other institutions and companies.

Thank you and have a nice evening.