

FAB IN A BOX

DT313 - PP9 - HR
Report on Fab in a Box Workshop

Version 1
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1. Short overview of the Fab in a Box

As proposed in Joint Methodology PP9 was developed FabBox's for different focused workshops including all consumables or supplies to perform workshop:

1. FabCut FabBox

- including Vinyl cutting machine and thermal transfer related equipment, notebook with related software, small tools like scissors, pens and including consumables like cotton bags and vinyl foil and papers to make drawings

2. FabLaser FabBox

- Including small Laser engraving and cutting machine, notebook with related software, small hand tools and consumables like cardboard, papers, leather and rubber

3. FabMill FabBox

- including small CNC milling machine, notebook with related software, and necessary small tools and related consumables like rubber, soft wood, soap

4. FabPrint FabBox

- including simple 3D scanning device (Structure sensor) and 3D printing machine (Ultimaker2Go/Ultimaker 2+), notebook with related software, related tools, related toolbox

5. Fabtronic FabBox

- including electronics, different sensors, wearable electronics, soldering and programming related toolbox with collection of carefully chosen sets such as Arduino, RPi, sensors, uArm open source robotic hand, BackYard Brain, Little Bits or similar, Lego Education Sets, notebook with related software, or other controlling electronics such as ipad, smartphones etc.

In addition to planned FabBoxes as part of Joint Methodology, PP9 developed two additional FabBoxes for two different workshops:

6. FabPen FabBox

- including 6 3D pens, related tools, plastic protected drawing templates, some samples and filament on 6 spools in various colours

7. FabPlastic FabBox

- including all necessary to make DIY Bioplastic from potatoes including, blender, libra, cooking device, small tools like knife and peeler, pan, measures, supplies like starch, vinegar, glycerin and also complete table cover with illustration about DIY Bioplastic process

Because limited FabLab resources, our intention was to offer possibility to offer each FabBox to be used independent from FabLab (at the moment only to schools) to take one or more FabBox for max. three days: first to bring to school premises and test it, second to perform workshop, and third to return to FabLab. This is free of charge, and only condition is for



workshop facilitator to have FabLab workshop done, where she/he learn how to use FabBox. Therefore we organized two ESOM workshops using FabBoxes for teachers from schools from Zagreb and surroundings. In addition to this, we are developing workshop materials such as printed manual, and digital presentation (PowerPoint), to assist facilitators performing workshops.

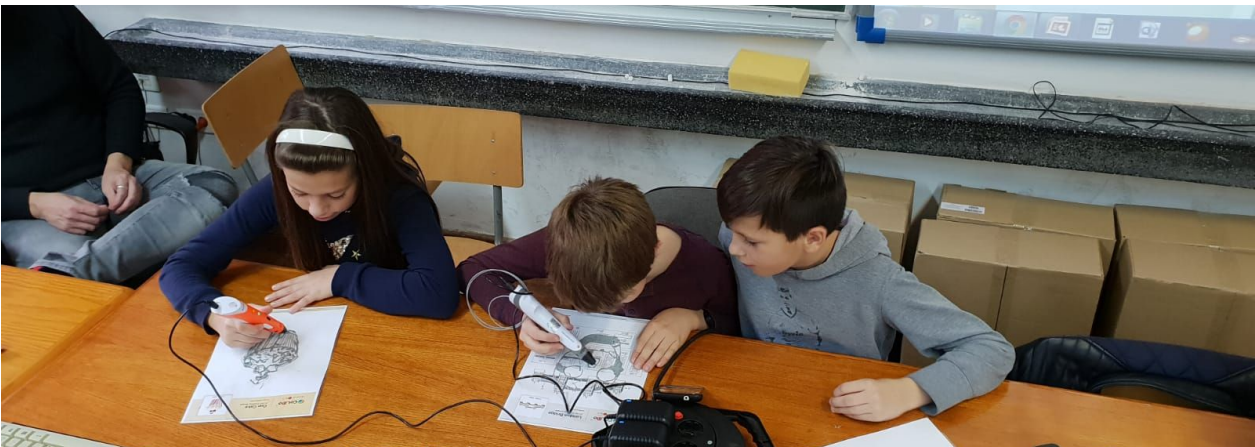
To enable reservation, Google Calendar is offered to potential users to reserve FabBoxes and have transparent system and avoid confusion and disappointments. This simple platform is still under testing and improvement, and it is integrated to calendar system of PP9.

In addition to those teachers workshops, FabBox'es were also presented at STEAM Week (05-09.11.2018.) organized for schools teachers, and FabFest in Zagreb (10.11.2018.) organized to more general population.

Depending on the need, the team can take all the elements or only some of them. The 3D scanner and the vinyl cutter are taken from the fablab, for the model used in the fablab are compact enough to be easily transported at a remote location. Concerning the 3d printers and the laser cutter, the equipment at the fablab is to big and to busy to be taken away for a remote workshop. That's why additional equipment have been purchased and tailored boxes have been build.









2. Impact and benefits

- About 10 workshops performed by FabLab including teachers as facilitators at schools with the support of the FabBox equipment and more and more reservation is made every day so around 20 are planned till and of FabLabNet project
- 7 workshop realized so far at various remote organizations, several more are till end of FabLabNet project
- Several demonstrations are made on some events like Design District, QArt event, STEAM Week, FabFest, and MiniMaker Fair Zadar (March 2019, TBC), Maker Faire Zagreb (October 2019, TBC)

Date & Event / stakeholder	FabBoxes used						
	FabCut	FabLaser	FabMill	FabPrint	FabTronic	FabPen	FabPlastic
17-18.08.2018. MetaMedia Pula Local community	X			X			
25-26.08.2018. ZGodionica Local Community					X		
05-07.10.2018. Creative Prvić Local Community	X	X		X			
13-14.10.2018. Fab Novi Sad Local Community		X		X			
19.10.2018. ESOM Af Zagreb Education	X			X	X		
05-09.11.2018. STEAM week ZG Education	X	X	X	X	X	X	X
10.11.2018. FabFest Zagreb Local community		X		X	X		X
10.11.2018. ESOM Stubičke topl Education					X		
25.11.2018. DOIT Slava Raškaj Education				X	X		



26.11.2018. OŠ Dobriša Cesarić Education				X			X
04.12.2018. OŠ Dobriša Cesarić Education				X			
02-03.01.2019. Radionice Sesevete Local Community		X		X			
09.01.2019. DOIT OS Klinca Sela Education				X	X		
11.01.2019. DOIT OS Pisarovina Education				X	X		
18.01.2019. Znanstveni kvart BJ Local Community				X		X	X
04.02.2019. Slava Raškaj Education						X	
11.02.2019. OS Pantovčak Education				X			X



3. *Outcomes*

FabBoxes offer direct access to different focus groups. At this moment we are focused on schools, but also using them to local community engagement, to reach a broader audience who get a first idea about the possibilities of digital fabrication and digital design. Our intention, is to offer various workshop topics for different groups for some of a FabBoxes.

4. *Sustainability and Transferability*

Whole idea to offer to facilitators to offer workshops on remote premises is done with intention to make it sustainable and affordable to organizations like schools. The concept of double calls is totally transferable and ensure a great visibility of the tools, what can be done with it and is a great vector for establishing contact with maker/designers and other organization and to open further cooperation:

- 1 call for maker for new workshops idea, to grow the fablab portfolio of workshops. Makers are refunded for the development of their workshop and hired for 1 or 2 execution of the workshop
- 1 call for organizations. They can choose within the portfolio of workshops. Fablab team come with equipment and mentors. This is a great promotion tool for the fablab concept and to establish further cooperation with local organizations or companies.

We will continue to develop and improve FabBox and depending workshops in the future. The FabBoxes can be reserved with a developed system. When someone from the organisation with enough practise has completed PP9 workshop, she/he can also hold the workshop without further assistance, therefore more than 50 teachers are involved in workshops for some of FabBoxes till end of 2018. Further workshops for facilitators are planned before mid of 2019.

For the moment there is no charge to get FabBox for schools for those facilitators who perform workshops. In case of remote areas, transport cost are covered by organization who asked for FabBox. To enable more FabBoxes, we are also looking for funding on national level, and also sponsors.

5. *Benefits*

PP9 inspired by PP2 (HappyLab) FabBox idea, invest significant resources to prepare FabBox as part of Rollout activity. This become very interesting engaging tool for PP9, which raised enormous interest in schools what force PP9 to enable free of charge borrowing. We for sure would like to develop more unique FabBox, but also offer more of same Fab Boxes in future. We believe, this is one of best outcomes of this projects for PP9, including also other Rollout activities since we involve City of Zagreb to Fab City Global Initiative.