DT2.2.3 - Pilot 1 Mentoring

Pilot Action 1 Mentoring Programme

Version 1
12 2017

1. Mentoring programme timetable

The mentoring program has been performed according to the following timetable:

Call for participants		July	August	September	October	November	December
1st call to student teams		03.07.2017					
Targeting specific needs		10.07.2017					
2nd call to student teams			07.08.2017				
Participants selection			21.08.2017				
Mentoring Program Implementation		July	August	September	October	November	December
Schedule and details			14.08.2017				
Program concept			14.08.2017				
Program start			04.09.2017				
Initial trainings	StrojLab Basic			11.09.2017			
	3D printing Basic			11.09.2017			
	Vacuum forming			11.09.2017			
	3D printing Advanced			12.09.2017			
	Robotic Machining			12.09.2017			
	3D scanning			13.09.2017			
Project design	Mentoring				02.10.2017 - 10.11.2017		
Project Prototyping	Mentoring					13.11.2017 - 8.12.2017	
Reporting							11.- 15.12.2017

2. Mentoring programme - summary

The mentoring program has been organized during the winter semester of academic year 2017/2018. The main aim was to choose several student teams where the motivated students are concentrated; and provide them support during solution of first “Pilot” project in the FabLab. According to concept, the mentoring program had 3 main phases: A training phase, a development phase and a realization phase. During the phases, student got support from mentors by trainings and consultations. Thus, the main goals were fulfilled. The student gain knowledge about technologies, which they used. Students were motivated to work with new technologies, so they would like to continue the development of their projects in the FabLab. The promotion of the FabLab by person-to-person recommendation is rather long term and we believe that we will see the effect in the future.

Initial Training

After the choice of participants, short meetings with individual teams were arranged. There the topic of the pilot programme was discussed and agreed. Participants were then asked to choose the courses, which they consider useful for their project. After the meetings, the schedule of the trainings was set. Beside the introductory course to StrojLab and basic equipment use, which was

obligatory for all participants, following courses were 3D printing Basic, Vacuum forming, 3D printing Advanced, Robotic Machining and 3D scanning.

Project Design:

The series of consultations with mentors were mostly performed individually, between the mentor and the particular team members. The consultations were mainly to transfer the knowledge of technological limits and applicability of planned component features to chosen manufacturing technology. The aim of the phase was to eliminate the initial errors and more straightforward solution of individual projects. The individual consultations take place every two or three weeks according the

Project Prototyping:

The last phase was focused on the realization of prototypes. In this phase, students have expanded their practical hands on skills with chosen technologies. Each student´s team, focused on the different technologies according the topic of their project. The mentors in this phase consulted mainly the particular questions of “how to do that” type. In addition, the practical demonstrations in laboratories were necessary. Although all teams had problems with the finish date, they were able to fabricate the usable version, which fulfils the initial aim.

3. Summary of the outputs

Here are listed the 4 prototypes outcome from the Digital Transformation Camp.

Prototype **Heat switch calibration components**

The main challenges is to design the heat switch for application in vacuum, when the thermal conductivity of the material is not known. Thus, the aim was to fabricate the special designed test parts, which would be used for thermal conductivity calibration in the vacuum chamber. It was decided to use metal 3D printer to test parts fabrication with use of copper alloy material. The test parts had to be slightly modified with respect to the metal 3D printing limitations. However, the benefit was fast fabrication and more design freedom in comparison to machining.

Prototype **Moulds of sidepod for formula student monopost**

The main challenges is to fabricate the sidepod moulds in the desired accuracy and time. Current cooperation with external companies was problematic due to lack of communication regarding the technological limits of machining workplace, thus the planned timing of mould manufacturing

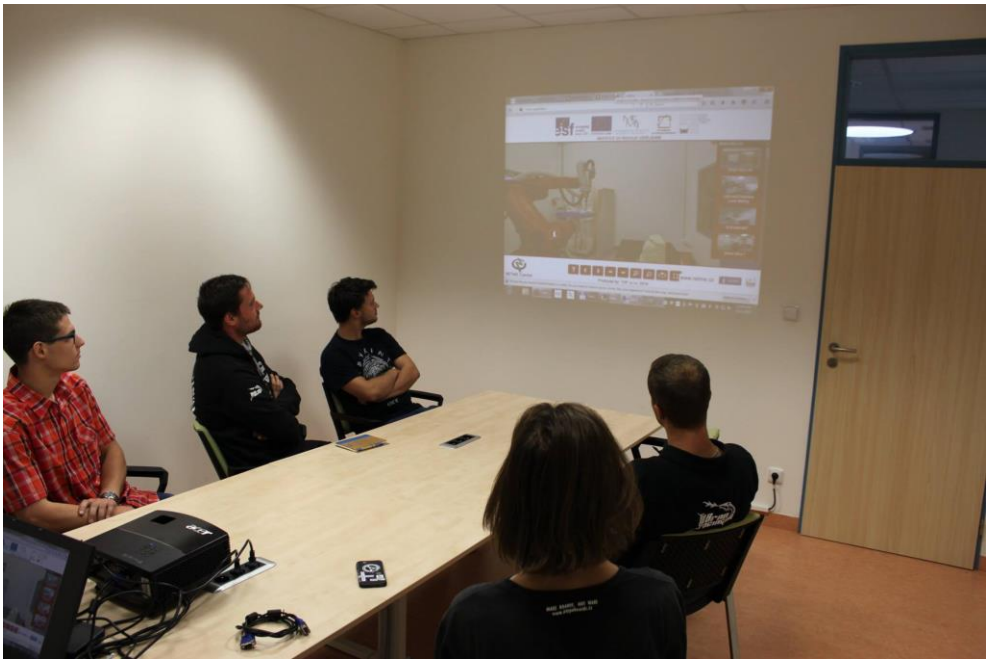
was fulfilled. Now, with the FabLab Pilot plan, the students were able to discuss the limits with mentor and they were able to quickly react with design modifications before the start of mound manufacturing. The timing of manufacturing actually depend only on their situation. Therefore, they obtained exactly what they wanted in time they wanted.

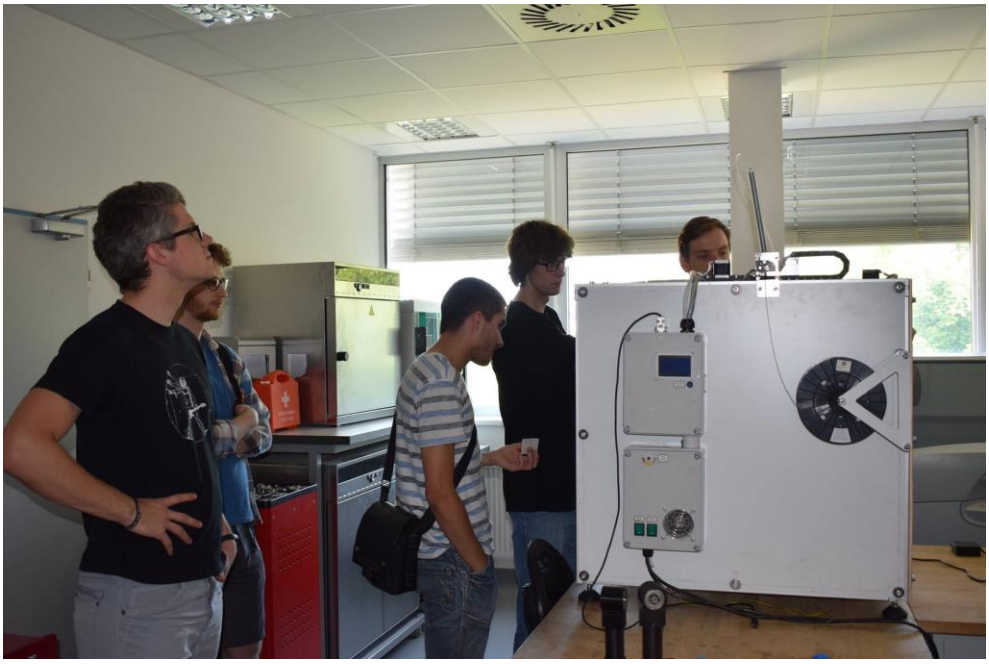
Prototype **Steering wheel for Pneumobile**

The challenge for the pneumobile team was to design steering wheel with better ergonomy and easy manufacturability due to limited budget. The other criteria were also the weight and attractive design. After considering couple of concepts the version made of plastics fabricated by 3D printing was chosen. The advantage is the lightweight designwith internal structure ensuring the necessary stiffness and ergonomic grip.

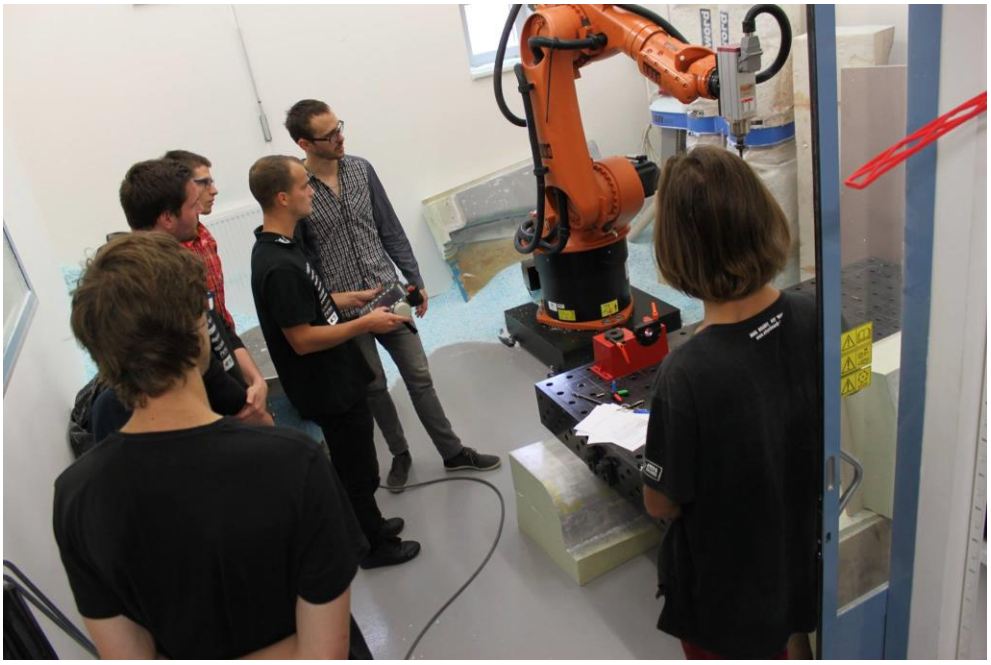
4. Mentoring programme photos

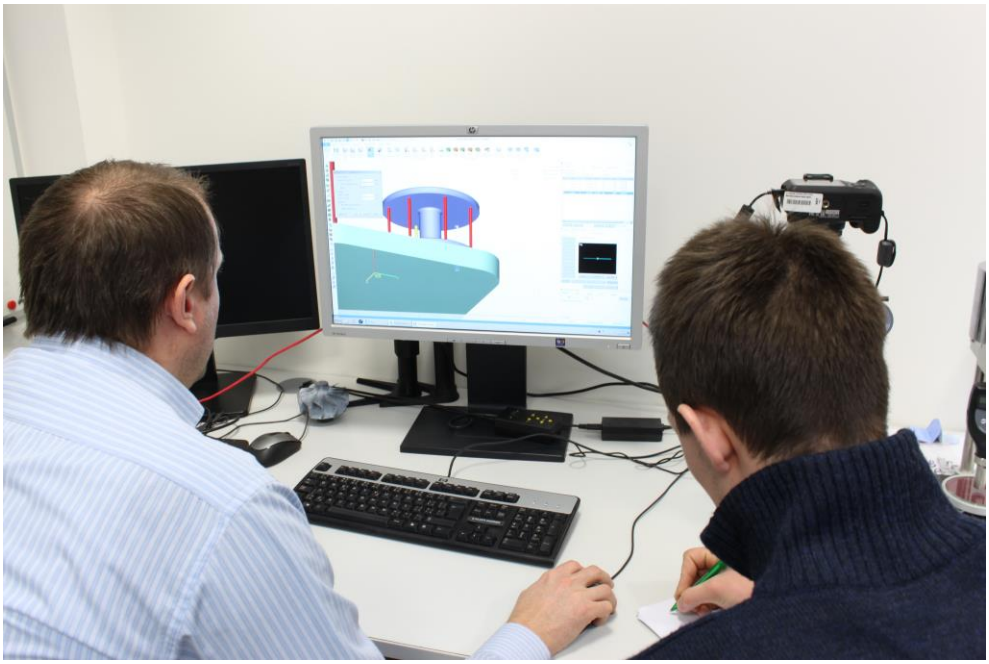
4.1. Participants of the Pilot Action Initial Training

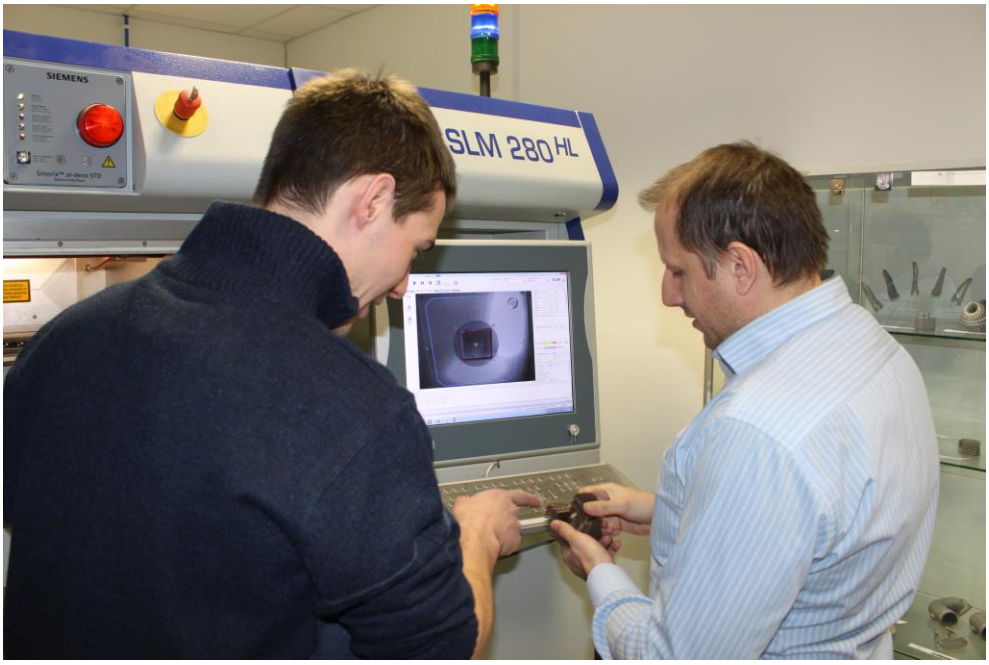




4.2. Participants of the Pilot Action during mentoring.



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