Report Ultimaker

Visiting date 1-7-2015

Contact persons

Bas van Deursen: b.vandeursen@ultimaker.com

Zjenja: E.L.Doubrovski@tudelft.nl

Introduction

For the hardware design we have talked with Ultimaker, a company specialized in designing 3D printers. According to them a lot of techniques are available for printing with living materials, such as bacteria. Which technique is most suitable for our design, should be based on the resolution. Furthermore, since bioprinting is a hot topic we should find our unique selling point. What makes our project special and different from other project. To do so, we should see what other techniques are used for bioprinting.

Techniques

3D printing is an innovative field in which a lot of different techniques are available and in development. Examples of approaches we could use for our print design recommended by Bas and Zjenja are:

- **The Pasta Extruder;** to obtain more information about this technique in relation to living material, we could contact Fablab Amterdam (http://fablab.waag.org/);
- **Sheet printing;** for this technique we should be able to print on a really thin layer of medium. The printed layers can be placed on top of each to develop a 3D structure. Etching can help in defining the required pattern.
- **Inkjet printer;** the main advantage of this technique is the high resolution. However, the methods used for printing the ink are based on heating the ink in the needle (the ink becomes less viscous) or on the piezo technique (not based on heat, but on a ceramic plate giving an electric shock).

Questions for further design

The questions we have to ask ourselves in terms of further design, are:

- Decide what the resolution should be;
- The resolution determines the technique we are able to use;
- By talking with other people and comparing our project with other bioprinting project, we could find our unique selling point and a suitable technique/method.