*Name: Filip Slawinski Supervisor: dr. Jamie Forth*

**Title of the project: “Organic Object” - designing an interactive art installation with living objects.”**

**Project:**

Human-Computer interaction it’s a field of computing that surrounds us almost everywhere nowadays. From interacting with our smartphones through art it is present and plays a big role in our life. In my research I would like to focus on mainly HCI but also HCI manifesting itself in art. By building an interactive installation based around HCI I want to research the crossover between ubiquitous computing, artistic motivation and user experience. My research will also cover different techniques and technologies used in nowadays HCI field to see their differences and determine ups and downs and also research its use in new digital media practice and also reflect on general digital media use and interaction which I’m going to manifest with my practical project.

The main aim of the project is to build a fully working standalone art installation with fully working HCI system. The installation should have a coherent relation between input, object and output and I would like the output to be sonic and possibly visual. The aim of the technical research is to experiment with different HCI technologies such as “Touche”, its variants, or for example: capacitive sensing. The aim of the project is also motivated artistically as the contextual meaning and artistic success of the installation will also be important. I would love to recreate the Disneys “Touche” technology somehow as that type of technical methodology of HCI in relation to my project would be a very interesting and relevant area to research. As my project will be 50/50 artistic and technical research I will also research the idea of HCI in relation to the interactive experience and art generally, meaning of the object, possible questions installation will be triggering, etc.. Preferably I would love to achieve different types of touch input in my installation through implementing a variant of “Touche” technology but if that fails I would like that my MVP (minimum viable product) would be an installation with restricted and simple types of touch input, and what follows that a sonic output. The type of interaction I want to achieve in my opinion was conducted best by Disney Research team that made “Botanicus Interacticus” : Dubbed Botanicus Interacticus, the system consists of a single electrode that's placed into the soil, turning an ordinary plant into something much more interactive. It can recognize where on the plant you are touching and can register multiple inputs. For example, in the video below, different interactions — such as tapping a leaf or sliding your finger along the stem — are mapped to different sounds, creating a plant that doubles as a musical toy.

According to Disney, the system can work with both real and artificial plants. "From the viewpoint of our sensor," the company says, "there is no difference between living and artificial." As for actual applications for the technology, Disney says that it can be used to "design highly interactive responsive environments based on plants."” [[1]](#footnote-0).

My project will be half practical half research - some of the things I’m going to research are: different techniques of sensing, different ways of sonifying data, generative music, HCI in the context of artistic process, meaning of HCI in the user experience and more. In my opinion my project may have educational purposes as I’ll be somehow representing data coming out from the plants in a different more appealing to a lot of people way - by sonification and possibly visualisation. It may create a dialog between an object of a HCI system (in my case a plan) and a user triggering questions that otherwise wouldn’t come up with interacting with a raw object. My other aim is to put focus on a relation between technology and nature and research the use of the technology for gathering data from living physical objects like plants using sensor. The manifestation of sonifying the data to appear more appealing to the audience could be translated into bigger picture showing that technology could be applied similarly but on the bigger scale and with different purpose. My artistic endeavour is going to show that those possibilities exist and through research of HCI practice with a living plant I will also explore how we can gather data from such objects.

I’m mainly planning to implement “Touche” technology as a main HCI element of my installation, but I’ll start with more basic techniques and experiment along with making the project (like capacitive touch sensing). The main bridge between Human and Computer interaction will be Arduino and possibly some shields working with it together. As a sound output I would like to work with Max, but I’m open to simpler solutions like for example Gameduino or different sound libraries. Different HCI techniques will be used parallelly with the process of conducting the research and they will be documented as well as experimentation. Possibly I would have to build a “Touche” shield for Arduino myself. I would compare my approach to Natalia Rodriguez where she completes a similar project: “The plants we hacked play different notes depending how they are grabbed. For example, when someone touches the stem the note is different than when they touch its outer leaves. When grabbed with two fingers instead of one, the sounds are different; same goes for other hand positions.

We reproduced a version of Disney’s “Touche,” the technology Poupyrev and his team built to encode the frequencies that conductive materials like water, human bodies, and plants, among other materials carry whenever they are touched by a human. The process was much like the one that allows your smartphone to be touch sensitive.”[[2]](#footnote-1)

**Production Schedule:**

* Identify research areas - January 12
* Looking at techniques of building the installations, parts needed, physical approach - January 19th
* Research HCI techniques for potential use - January 26th
* Research creative approaches, HCI in art, ways of gathering data from plants, ubiquitous computing, etc. - February 6th
* Produce research findings - February 20th
* Presentation of current state of research and development ( - February 21st
* Research sonification techniques - February 23rd
* Determine the best most effective data to visualise and sonify - February 25th
* Create creative prototype - February 28th
* Create different prototypes of sonification and visualisation systems - March 10th
* Shape creative research - March 15th
* Draft the report with production materials to supervisor for feedback - March 23rd
* Final report/ dissertation with production materials- May 14th

Of course between those dates I will constantly be in touch with my supervisor to monitor the progress and make weekly logs.

**Progress to date:**

So far I’ve been looking into different ways of how to build a working physical system with Arduino (different parts needed) and also I’ve been researching for different HCI techniques I could implement in my project.

**Bibliography:**

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“The Tab Book of Arduino Projects” - Simon Monk

“Human Computer Interaction, Art and Experience” Ernest A. Edmonds

“The Art of Interaction” - Ernest Edmonds, Creativity and Cognition Studios University of Technology, Sydney

“ HCI, Art & Creativity” - Celine Latulipe, University of North Carolina at Charlotte

Natalia Rodriguez’s plant - <https://www.fastcompany.com/3026612/hacking-house-plants-to-make-music-when-theyre-touched>

Andrew Webster’s article -

<https://www.theverge.com/2012/8/9/3230656/disney-botanicus-interacticus-interactive-plants>

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1. Webster, Andrew - “Disney's 'Botanicus Interacticus' turns any plant into an interactive toy”, [www.theverge.com](about:blank) [accessed 21.01.2018] [↑](#footnote-ref-0)
2. Rodriguez, Natalia - “Hacking House Plants To Make Music When They’re Touched”, [www.fastcompany.com](http://www.fastcompany.com) [accessed 21.01.2018] [↑](#footnote-ref-1)