Personal Development Plan

By Hannah Eikens

Vision

We live in a day and age where we are continually pushed into using products and services prescribed to us by big corporations. These products and services are designed with a standard definition of the user in mind. However, this definition does not provide a good solution for all users. A demand for better-fitting products can be seen in the various hacker and maker communities evolving around existing product ecosystems to make the products provided by the big corporations better suit their induvial needs.

The maker movement is a relatively recent trend, with a broad audience able to access toolsets and machines that are getting cheaper and more accessible than ever. (S. Nascimento & A. Polvora, 2016) The relationship between a maker and their media and materials is quite complex. Beyond simply expressing their creativity, their drive is often connected to diverse social, economic, cultural, political and ethical factors.

I think that through personal adaptation, these makers can better express their individuality. It allows them to better adapt their technologies to the uniqueness of their daily encounters and whereabouts. Over time this has created a diverse array of ongoing projects which have emerged from the open-source community.

While many consumers are happy to use the products and services provided by manufacturers, a response to the growing hacker and maker communities should be formulated to make adapting products easier. Existing solutions can already be found in APIs and open-source hardware & software.
These resources require active maintenance and good documentation (which must also be updated and maintained). This doesn't mean that an open-source project will necessarily be adopted widely. Instead, if there isn't any (reasonable) documentation, then it will likely not be adopted or adapted by others.

Due to the rapid innovation of technology during the last decades, it tends to become obsolete relatively quickly. This can be seen as a reason not to reverse engineer or hack into contemporary devices, as they will be obsolete in the near future. If source materials, plans and documentation are published, it will provide a foundation for many makers and their applications. Not only tools and machines should be more accessible, but also the knowledge and documentation about existing products and their making processes.
This will bring innovation out of the lab and closer to people's everyday lives, making innovation more democratic.

Identity

As a designer, I am mainly a computational designer. When I started my bachelor of Industrial Design, I knew some basic Python. During the first year, I learned about Processing and Java programming through the course Creative Programming. During that course, I was also introduced to Arduino, which sparked an interest in circuit design and embedded development using C and C++. I also developed a computer game in Unity for the first course of Design for Games and Play I; game design, which used the C# programming language.

The various software and hardware projects throughout my bachelor's required different kinds of computation. Applying the knowledge from Calculus and Physics, I realized multiple aspects of other projects, ranging from circuitry for electronics to physics simulations inside a video game.

Deepening: Programming

I followed multiple courses which involved the use of large data sets. Mainly the course Data Analytics where I deepened my knowledge of Python to manipulate data sets and perform rudimentary statistical analysis on said data, as well as essential machine learning. This came in handy during the course Intelligent Interactive Products, where I developed software that intelligently and interactively guides someone through a yoga session.

I also followed courses from the Computer Science faculty. The course Programming to deepen my knowledge of Java. Following that, I completed Computer Graphics, where I learned to use OpenGL through a Java API to create a program which renders live 3D images (e.g. video games).

3D Printing

In my first year, I was also introduced to Computer Aided Design (or CAD for short) through the course Creative Mechanical Engineering. It serves as a bridge between digital design and bringing that to the physical world. It was around the same time I got introduced to 3d printing. Not long after, I bought myself my first FFF 3D printer. This became one of the main prototyping and manufacturing methods during the later years of my bachelor's. My deepening interest caused me to buy yet another 3D printer which had to be built from scratch. This deepened my knowledge of the limitations of 3D printing to inform my design choices better.

With all these skills in my repertoire, the question arises. Who needs me as a designer? I am capable of rapid prototyping, where the design is optimized for 3D printing. This means the designs I create do not only have to be for prototypes but can also be used for small-scale production. This means companies or people who use 3D printing as their primary production method.

I am also very much a programmer and computational designer. I can create design decisions informed by the technology driving most of the products we use and create. I also think that programs and the math driving them can bring forth a particular aesthetic or interaction in design, which I like.

Goals

Development of personal aesthetic

I have recently started my social transition to become the woman I was supposed to be. This is the first time in my life that I have been able to speak confidently about my identity and whom I perceive myself to be. The mental foundation has been put down; now it is time to act. An essential part of this personal development is creating an aesthetic to present myself to the world. On a personal level, this goes very deep, but a more simple example would be my daily clothes. In the context of Industrial Design, this might mean colors I previously wouldn't dare to use. Within that context of design also resides specific topics related to femininity. I always felt I couldn't express my ideas to the full extent because, to everyone around me, I was a man.

My FBP this semester provides an excellent opportunity to experiment with precisely this aesthetic form of self-expression. In more concrete terms, I will have to start with some basic form of initial mapping of my aesthetic interests, things that inspire me, and things I like. This provides me with a general and straightforward exploration I can always get back to during any part of the project.

That brings me to the second part, which happens during the project until the final design. I will have to produce at least two different types of designs/artefacts in differing styles to help me develop my artistic skills and narrow my preferences in aesthetic style. For this second part, it is also essential to document these parts, along with my motivations and reasoning for every step and my choices. The result should be something I am happy with (on a personal level) and meet the criteria for its design context.

Business model and feasibility for final design

During my previous projects, entrepreneurship has been a topic which had been relatively underexplored. I have completed USE courses on business and entrepreneurship, so I am familiar with the different aspects surrounding it. I feel like my FBP is an excellent opportunity to try to design something which could be feasible as a business concept. Where could this design be implemented or deployed? Who is the target customer? What type of revenue streams can be identified? What is the value proposition to the customer and for the company? What about sustainability? Revenue is not the only way to define profit; various social and environmental aspects can also be seen and measured as a form of profit in the current economy.

These questions will have to be answered to assess the business potential. Filling out a business model canvas is not a bad idea to explore this. This will be included in the report. During the project, business concepts should be discussed with industry experts. This should provide enough proof and confidence to pursue realization ultimately. I think that might be a bit ambitious, but I think having a solid and ready-to-go business plan is sufficient as a final goal. After finishing the project, starting a business around it could be pursued.

Open Design and Community-Driven Design

If not apparent from my vision, I highly value open-source projects. My goal with the project is to publish digital assets openly on a platform like GitHub. This might mean I have to switch some of the software packages I use to ones with an open license. For example, I currently use Fusion 360 for CAD design. However, an alternative like OpenSCAD exists. It is open and very parametric, which translates to more adaptable designs. I have been looking at programming languages like Rust, which has built-in features to perform unit and integration testing when creating libraries to ensure functionality and proper semantics and guarantee memory safety.

However, these are just different tools and technologies, which are means to create. Ultimately, its documentation and surrounding community make or break an open-source project.

The final design should be openly published somewhere so others can recreate it. Still, I also feel the need to create some online community platform to facilitate communication and discussion surrounding existing and new ideas. This way, the discourse will continue to inspire and generate new knowledge and designs.

References:

Nascimento, S., & Pólvora, A. (2016). Maker Cultures and the Prospects for Technological Action. Science and Engineering Ethics, 24(3), 943–944. https://doi.org/10.1007/s11948-016-9796-8