Senior Thesis Proposal

Presented by

Harrison Gregg

Computer Science

Accepted

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John Myers, Thesis Advisor Date

Requested Committee Members:

Aaron Williams, Second Reader

James Jeffries, Third Reader

Bard College at Simon's Rock
Great Barrington, Massachusetts
Fall 2014

For my thesis project, I will undertake the task of planning, creating, and starting to run an information technology business. This will include performing market research, going through the formal process of creating a business, developing a software product, and creating a business plan for the potential future of the business. As the product, I will develop a simple, intuitive, and useful piece of software that can be used by professionals in some field to facilitate their daily work.

The first step in creating a software product is deciding on the market to approach. I am primarily interested in the professional market, as opposed to the casual consumer market. I am also interested in creating a product that focuses on a very refined user interface design, a feature that is often neglected in professional software. Determining the correct market to approach will include surveying professionals in that field to ascertain how much they currently use software for their job, whether they think specific software ideas could facilitate their job, and what other ideas they have for software that could do so. After finding a product idea that the surveys indicate would be well received by its market, I will start to develop a wireframe of the user interface of the product. I will then conduct user testing using these wireframes until I have an interface that seems intuitive to all potential users. Only then will I begin the programming of the software itself.

At that point, all development will be done using HTML5 and tools designed for use with the language on mobile and desktop platforms. I will use a tool such as PhoneGap for creating mobile applications using HTML5. During the development process, I will focus on developing any mobile applications for the Android and iOS platforms, but a tool like PhoneGap would let me expand to these and other mobile platforms with the same source code. Using the same

language for mobile and desktop development will also simplify the process greatly if I need components of the software on different platforms.

All software development will be done using the Agile software development methodology, a system used by many software companies for large and small projects. Agile focuses on frequent iterative version releases, a small feedback loop with potential users, and a structured development timeline. Using this methodology, I intend to have a functional, if simple, piece of software before the end of the fall semester. I will then continue to add features and perform user testing as changes are made through the spring semester. In this way, I will be able to extend the process as long as I would like within the timeframe of my senior year. At the end of the academic year, I will have a product that can actually be used by professionals in their daily work that will hopefully be almost ready for marketing and distribution.
Additionally, I will have a business that could be used to further develop this product or begin development of others. I will also develop a business plan for the potential future of the company. This will outline the conclusion of the development timeline to bring the software to market, address ways and areas in which the product could be marketed, and discuss potential areas for expansion and possible sources of funding.

My preliminary market research has found a potential product that would fit my criteria. Dr. Dheeraj Kaplish, a psychiatry resident at Berkshire Medical Center, believes that psychiatrists would benefit greatly from a piece of software that would allow them to correspond with and gather information from patients between appointments. This would consist of a patient-side app that could be accessed on a smartphone or tablet, in which patients could answer questions, such as quality of sleep or mood. A doctor-side webapp would then allow doctors to view the data provided by the patients and information created through analysis of the data in

multiple ways. This would allow psychiatrists to more easily keep track of long term trends in a patient's well-being or get more timely feedback on changes in medication. Such a product would fulfill all of my requirements for target audience, scope, and type of software development required, but will require further market research to ascertain its viability.

A few experiences contributed to my interest and inspiration for this thesis idea. First, I spent the Spring semester of my junior year studying at the Aquincum Institute of Technology in Budapest, Hungary. Two of the classes that I took there were called *IT Entrepreneurship* and *User Interface Design*. In the former, we learned about how to perform market research to determine the viability of a piece of software, and learned how to prepare a business plan for an IT startup. In latter class, we learned principles for designing intuitive user interfaces and how to perform user testing on interfaces we had designed. These classes inspired me to want to test out what they taught me in a real situation. I also took a class called *Mobile Software Development*, which taught me the fundamentals of creating software for the Android, iOS, and Windows Phone platforms. After finishing my junior year, I spent the summer as an intern at General Electric Software in San Ramon, California. This experience taught me about putting the Agile methodology into practice and about front end web development, both of which will be extremely important to this project.

I would like to request John Myers as my thesis advisor. I think his experience in web and software development would be very useful to the project. Although this thesis does not include much computer science, it will require a large amount of coding, so I would like to request Aaron Williams as a reader, for his experience in this area. The project also has a significant entrepreneurial component, so I would like to ask James Jeffries to be a reader, for his experience with advising for small entrepreneurial ventures.

Deadlines

Wednesday September 10th

I will have a Thesis Proposal and Thesis Funding Request turned in.

Friday October 3rd

I will have completed the market research portion of my thesis and I will have preliminary details on what product I will be developing.

November 3rd

I will have a full description of the envisioned software, and I will have completed preliminary user interface testing.

December 3rd

I will have published part of a “minimum viable product” to some app marketplace, and written a self-evaluation of my work so far.

March 22

I will have finished the formal process of creating a company, and created a draft of a potential business plan and marketing material for the business.

April 22

I will have finished the written part of my thesis and given it to my Thesis Committee, including information on how this software has affected the job of its user.

May 13

I will have turned in a final copy of my thesis.

Preliminary Bibliography

Kniberg, Henrik. "Agile Product Ownership in a Nutshell." *YouTube*. YouTube, 25 Oct. 2012. Web. 05 Sept. 2014. <https://www.youtube.com/watch?v=502ILHjX9EE>.

Krug, Steve. Don't make me think! : a common sense approach to Web usability. Berkeley, Calif: New Riders Pub, 2006. Print.

Moore, Geoffrey A. Crossing the chasm : marketing and selling disruptive products to mainstream customers. New York, NY: HarperBusiness Essentials, 2002. Print.

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