Hero Health

Increasing efficiencies in the waiting room



**ENGR 401 - Tech Ventures**

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# Introduction

Are you tired of filling out forms everytime you go to the hospital? In order to ensure that their records are up to date, hospitals will often ask you the same questions at each visit. As a result, regardless of whether you are a regular or not, you will experience some kind of inconvenience. This process is time consuming, causes inefficiencies to occur, and increases operational costs. At Stanford Medical Center, the estimated check-in time is 15 minutes (“Arrival and Checking In”, 2017). This process includes:

* Reviewing insurance information
* Verifying photo ID
* Updating records if necessary
* Collecting copay or deductible
* Completing regulatory forms (terms and conditions of service and privacy notice)

This is a problem that affects many people nationwide. In the U.S. there are over 200 million check-ins annually (US Department…, 2015). As our population continues to grow, there will be an increased pressure on Hospitals to handle larger volumes of patients. Hero plans on providing an efficient solution to this problem.

Also, with the growing number of self-service options in other industries, people are expecting fast service everywhere. It is time to apply the success of self-service to hospitals to provide seamless service.

Hero Health proposes a tablet based check-in system that will speed up the check-in process at hospitals. Below we will outline our customer discovery, performance specifications, prototype concept, and plan moving forward.

# Customer Voice

The Hero system works closely with the customer, and as a result, we listened closely to what they had to say. When Hero tackled the problem of inefficiency in the waiting room, we found that 15 minutes on average is wasted checking in. We created a survey that allowed us to gain information from the patients and increase our customer discovery. The survey identifies the customers age range, frequency of hospital visit, frequency of paperwork, and questions regarding their emotions towards filling out paperwork. Our data shows that across all of our customers, filling out paperwork frustrates them, and they would prefer an electronic alternative. Of the 12 responses we received, we averaged a 4.9/5 on the usefulness of being able to check in electronically vs on paper. Our complete survey questions and results can be found in the Appendix.

Hero will also be working closely with Hospital management. To make sure that we considered the voice of the hospital, we reached out to Dr. Kathleen Garde, the previous Chief Medical Officer of Island Hospital, located in Anacortes, Washington. From speaking with Dr. Garde, our team discovered that a self-check in system is being sought after by many hospitals. Dr. Garde also suggested to our team that we use a subscription based pricing system, since all of the other software they use is subscription based. Through hearing both the voice of the patient and the hospital, we have gathered the voice of the customer and have collected data to support our product decisions.

# Performance Specifications

Our team’s goal is to allow a patient to check into the hospital in under one minute. To achieve this, the user must be able to easily navigate the user interface. We will judge this based on a per click basis to see how many clicks it take to get from the original page to the final end page. In addition to editing patient information, the Hero system will scan IDs. Scanning should take less than 10 seconds. The system will also take electronic payments with clear steps for the patients. The system will also allow the scheduling of appointments and will send confirmation email or text messages to the patients. Our system will be the tablet based (no larger than 8” by 11”) and will not exceed five pounds to ensure that it is easy to transport. It will be held in place on the check-in desk countertop so that it can’t be easily stolen. The system will also be cheaper than competitive kiosks, in order to allow smaller hospitals to afford it. Finally, the Hero system will be durable and last up to five years. We will keep these performance specifications in mind when designing a prototype.

# Prototype Concept

Since we are building a tablet based check-in system, we created a prototype of the screens a patient could see when checking in with our system. At this point, we are not ready to create a full-stack software solution. We decided that creating user screens and analysing them would allow us to create the most viable end solution. We used Adobe XD CC to create these screens. Please reference the prototype screens in the appendix. The home screen basically allows the patient to check in by tapping the green “touch here to start” button. After they click that button they are redirected to the scan screen. This screen will prompt the patient to scan a driver's license or another form of identification on the attached scanner. Now the system opens up the patients portal screen where it has 5 main buttons. The first button is what the patient touches when they want to check-in. The other buttons are: appointments, forms, doctors, and medication. These will allow the patient to do additional tasks should they need to do so. Assuming they click the check in button, they will be taken to the Forms screen. These screens will simply ask the patients if their forms and medical history records are up to date. Once they confirm all the forms, they are checked in and ready to see the doctor!

This prototype is the first version we have created. We will get feedback from hospitals and patients and continue to refine the prototype. We expect multiple revisions to occur over the next couple months before we have a production ready prototype.

# Moving Forwards

In order to keep Hero’s team on track to deliver a pre-production minimum viable product, we have outlined milestones and target dates that will serve as indicators of our companies progress moving forward. Our milestones are as follows:

1. (Month 0) Develop contact with Hospital Management
2. (Month 3) Program Hero software
3. (Month 6) Fabricate prototype (with ID scanner, keyboard, etc)
4. (Month 9) Find three pilot hospital/clinics as our trial customers
5. (Month 12) Fix issues with prototype and release a post-production MVP
6. (Month 18) Expand into 5 new hospitals every consecutive year with our finished product.

For Hero’s first milestone, we will research and assemble a list of potential hospital partners. These hospitals will serve as a base for us to start developing relations with. In order to reach milestone 2 and 3, we must estimate the cost of producing a technological solution. According to our CTO, the production of our prototype will cost around $2,000 in materials and manufacturing. This is broken down more thoroughly in the appendix. For milestone 4 we will select three hospitals from our initial hospitals contacted in Milestone 1. We will focus on implementing our prototype Hero system in these hospitals. For milestone 5 we will fix any bugs or issues that developed, which puts Hero in the final stage of development. From here on out, (milestone 6 and beyond), our CSO and CMO will lead the marketing teams to reach more hospital, expanding our reach.

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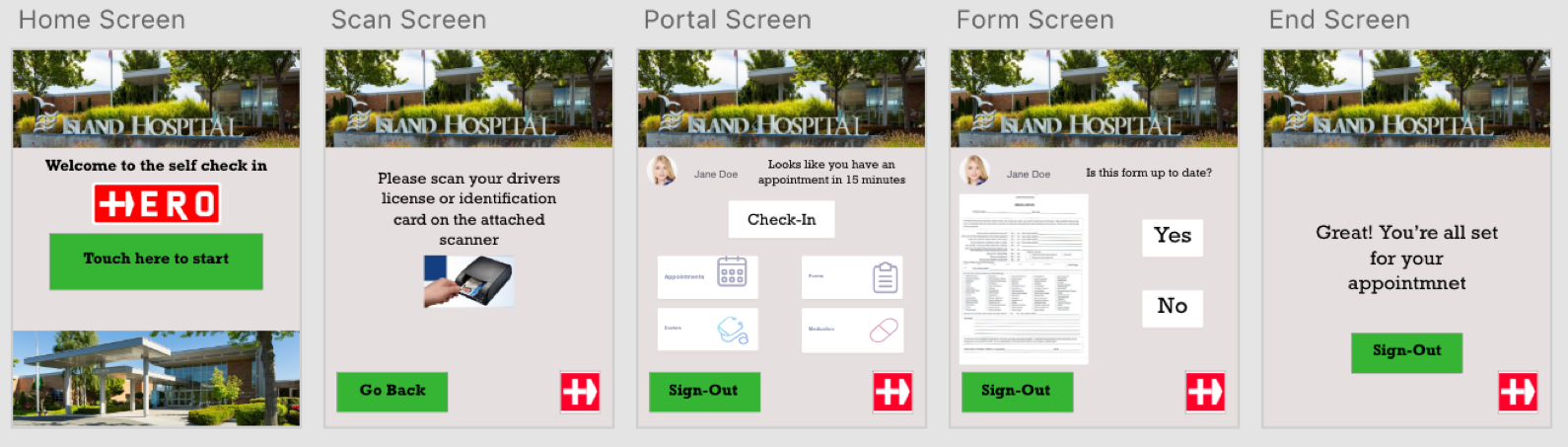
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# Appendices

Part List and Costs ($2000 total):

* $500 for the tablet
* $500 for Photo-ID Scanner
* $400 Credit-Card Scanner
* $100 for Keyboard
* $500 for Manufacturing and Materials

Prototype Version 1



Survey Results (Questions listed)

1. What age range do you fall into?
2. How often do you go to the hospital?
3. When was the last time you had to fill out paperwork at a hospital/clinic
4. How often are you unsure what to write on the paperwork?
5. How often does filling out paperwork frustrate you?
6. How useful would you consider an electronic alternative (out of 5)?

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| --- | --- | --- | --- | --- | --- |
| #1 | #2 | #3 | #4 | #5 | #6 |
| 18 - 29 | once every year | 3-12 months ago | Never | Always | 5 |
| 18 - 29 | once every six months | 3-12 months ago | Often, I text my mom | Often, it is redundant | 5 |
| 50 - 69 | once every month | 0 - 3 months ago | Never | Always | 5 |
| 30 - 49 | once every six months | 0 - 3 months ago | Not too often | It's time consuming | 4 |
| 30 - 49 | once every month | 0 - 3 months ago | Not often | Often | 5 |
| 50 - 69 | once every month | 0 - 3 months ago | When we moved it was hard | Often, takes too long | 5 |
| 18 - 29 | once every year | 3-12 months ago | Quite often | All the time | 5 |
| 18 - 29 | once every couple of years | 0 - 3 months ago | Every time I go to a clinic or hospital, there is something I am unsure of on the forms I fill out. There are usually about 3-5 questions that I have to ask my parents while filling out forms. | Very often | 5 |
| 30 - 49 | once every year | 3-12 months ago | Sometimes I am unsure and have to look up information while filling out forms. | A lot | 5 |
| 50 - 69 | once every six months | 0 - 3 months ago | Since I am getting older, it seems like there are more health complications and medications that I am required to remember when filling out forms but it is difficult to remember all of them. I worry that I might forget to mention something and that it will affect my health. | All the time I get frustrated that I have to fill out forms. | 5 |
| 30 - 49 | once every year | 0 - 3 months ago |  |  | 5 |
| 50 - 69 | once every six months | 1 - 2 years ago | Not often | Often | 4 |