

Problem Statement/Research Question and Background

There are approximately 513 prosthetic clinics in the United States today with only five of those clinics are in Kansas in which all five are in Wichita. Amputees with prosthetics have to travel quite a distance in order to obtain the care they need. With there being only five clinics in Wichita, Kansas, those clinics tend to be booked solid and the patients will have to wait weeks to months for an appointment that could be for a minor adjustment. Often times when patients have to wait for long periods of time to see a prosthetist, the patients will not wear the prosthetic due to the pain it causes which will limit the day to day activity the user participates in. The problem that has been identified is to find a way for prosthetic users to adjust their prosthetic in a convenient way without having to drive a long distance.

Connecthetics is a company that is focused on making the lives for prosthetic users easier with the objectives of community, convenience, and connection. Community is for the ability for all prosthetist to reach out to users in the community and make their life easier. Convenience represents the ability for prosthetic users to make the quick and minor adjustments at home. Connection represents prosthetist and users to communicate through technology effectively.

Connecthetics plans to create a smart phone app that will allow prosthetic users to communicate through a live chat with a prosthetist and receive guidance to make the minor adjustments needed.

Methods/Approach/Solutions Considered

Concept 1:

Smartphone app to allow users to connect with trained prosthetist from home to be guided through minor adjustments. The app will also provide valuable resources such as videos, articles, and maps for the general prosthetics user or those interested in prosthetics.

Concept 2:

Adjustable socket where users could change the pressure at different points of the socket using laces in the back, allowing for more comfort. This design exists in multiple capacities already, but could be improved. Below is a reference design that the concept is based around.

The concept being taken forward is a smartphone app that will allow users to contact trained professionals for assistance in small modifications to their prosthetic. The app will also provide informational resources such as videos, guides, articles, and maps for the convenience of the user or their loved ones. This was chosen due to relatively low upfront costs for the company, while also providing a much needed service to prosthetic users based on interviews with customers and clinicians.

For the first prototype a simplistic and easy to follow screen layout was created. A large “phone” was created from styrofoam with different sheets of poster board displaying the key screens that the app will feature. This initial prototype helped the team define more clearly what screens were to be included in the app and how the screens were to be connected to one another. It also helped unify the team on what the overall aesthetics for the smartphone app will be as well as helping better define the screens and processes that the app will need to have to be user friendly and efficient. The next stage of prototyping is to actually code an app that will allow for a digital interface and user testing. Connecthetics is getting the aide of a Computer Science Engineering major, senior Kody Kostboth. With the second, digital prototype the team hopes to gain a better understanding for how the app flows and functions from a user standpoint. Functionality will be limited in the second prototype as there is a lack in funding for actual servers to be obtained to be able to code for the actual video chat function as well as the clinician approved, free tutorial videos. The main focus of the second prototype is to help users/app-testers understand the potential of the app and how the various functions flow together and interconnect to create a seamless and easy to understand user experience.

The killer experiment in this process will be the user testing. This will be Connecthetics’ chance to see what the general public thinks about the usability of the app and how secure they would feel using it in their day-to-day lives. Connecthetics will test both prosthetic users and non-prosthetic users to get as many different perspectives as possible. Users will be given a description of the app and what its intended purpose is and they will be asked a series of questions on how they think and feel about the app in general. They will then be given a chance to familiarize themselves with the app, after the allotted time they will be given a series of tasks to complete in the app to be able to analyze true usability and ease of the software. Afterward

they users will be given another set of questions about how they think and feel about the app and if there are any suggestions or features that they would have liked to see. With this data collected in the killer experiment Connectethics will be able to determine if the app can proceed or if the idea needs to be terminated and started from scratch.

Description of Final Approach and Design

The current design of the smartphone app will be user friendly with tabs for tutorials and information, contact a clinician, local clinics, update medical information, frequently asked questions, and a way to contact Connectethics.

When the app is opened it will have a login screen that will also allow the user to register if not already registered. Once logged in, the user will be ability to see a menu screen with the actions stated above.

The tutorials add information page was an important factor for the app due to users being confused on how the app works. In this part, there will be a video the user can watch that shows how to navigate through the app and how to get to the desired listing. Connectethics had to keep in mind that not all users are smartphone keen and might require some explaining which is why the video is ideal.

Next, the contact a clinician tab first displays a place to upload a picture of the users issue and a place to describe what is going on. After submitting that information, the screen will show several clinicians that are available which includes name, price, location, and clinic name. The local clinics is similar to google maps in a sense that it shows a map of the United States and will show the user what clinics are nearby and also lets the user see on a map where the clinicians are located based on the contact a clinician tab.

The next tab, update medical information, is convenient due to the ability for users to put in medical information and continue to keep it updated through the process of using the app. This saves time and moves the process of getting help from a clinician much easier. It is similar to office paperwork a patients has to fill out before a doctors' visit.

After the medical information, frequently asked question (FAQ) was necessary to include due to the fact of some users may have similar questions, especially with it being the first time using the app. This allows the group, Connectethics to focus on more extreme issues that user could be having.

Lastly, the contact Connecthetics tab is available. This is for questions that are brought up and not included in the FAQ. The aim is for more extreme matters that need to be addressed or are concerning to the user.

Outcome (Results of any outcomes testing and/or user feedback)

The application we created is easy to use and functions properly. It has all of the features described above in our prototype. We have not done any quality testing so we do not have any user feedback.

Cost (Cost to produce and expected pricing)

The cost of outsourcing we will use the number of average cost in the market, but actual cost would be lower than it shows.

Apps develop	\$60,000
Outsource video	\$3000-5000/video \$4000*30= \$120,000
Equipment	5 computer and office equipment \$10,000
Office rent	\$1000/ month \$1000*24= \$24,000 (need 2 years for apps launch)
Total	\$214,000
Funds we seek	\$350,000

Break-even Analysis:

Beginning of first 2 year's expense:

Fixed cost: Rent: \$12,000/ year

Variable cost: 80% of clinic sales. $\$140*0.8=\$112/\text{each case}$

Break-even point: $\$12000/ (\$140-\$112) = 428.5$, after 429 cases

Break even for startup cost:

Fixed cost: Apps develop: \$60,000

Outsource Video: \$120,000

Equipment: \$10,000 Total = \$190,000

Break-even point: $\$190,000/ (\$140-\$112) = 6786 \text{ cases}$

Total customer we estimate for first two year: 9000 case, so we will break-even at fourth year after company launch

Significance

The significance of our product will make the lives of prosthetic user a little easier. They will be able to save time and money in the comfort of their own home. Users will be able to communicate with prosthodontist and explain the problem they are having. They can fix their problem with the guidance of the prosthodontist until they can see one in person. They save money on gas, visits, and other expenses for a road trip to the prosthetic clinic.

Acknowledgements and References

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