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ENP 161: Human Factors Product Design

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Individual Project Proposal:

Instructional Golf App for the iPad

**Introduction**

As the baby boomer generation reaches retirement age, there is a need in our society to promote healthy living, especially within this aging population. This not only benefits the individuals themselves, but the rest of the community, as health and care-giving organizations do not have the resources to support the anticipated surge in need.

Almost 50% of the golf industry is over the age of 50 (teetogreenguides.com). The sport promotes upper body strength, frequent practice, and the physical stamina to participate in a game that often takes 2 or 3 hours to complete. It is a sport that can be played socially at any skill level, but instruction can be expensive, and a golfer not receiving instruction can become discouraged and stop playing. It is also a sport that takes a great deal of practice, often involving long, repetitive hours at the driving range, to develop skill. The golfer needs to be aware of his or her range with each club in order to practice good club management and successfully hit onto the green. There is a need for a tool that allows an amateur golfer to self-train, promoting participation in this sport and a deeper understanding of the game.

There are many apps in the Apple App Store that provide tutorials and instruction to golfers. Many of these apps are promoted or developed by professional golfers, and they provide tutorials and instructional videos to teach a variety of skills. However, none of these apps are interactive with game play. Except for one very simple app designed to replace a scorecard, every app found was meant to be viewed at home, rather than used on the golf course or during practice. There is a need for a more interactive instructional tool that collects data about the user and customizes the instruction and experience to the golfer, much as a professional trainer would.

**Description of application**

Proposed is a tool for self-instruction, perhaps after one or two sessions with a professional golf instructor. It is an application for the iPad that first allows the user to keep track of the ranges for each of his or her clubs. Preliminary questioning of family and friends who play this sport find that this is an activity often done using a notebook for recording club ranges at the driving range. A golfer, after practice, develops a consistent distance they are able to hit for each club. This app would allow for tracking over time, as well as integration of this data into other aspects of this app.

The second major feature of this app is range finding. While high-end golf range finders may use lasers or GPS to determine distance to the green, low-end, analog range finders are nothing more than a lens with a measuring scale printed on it. The golfer looks through the lens and measures the size of the pin (the flag pole in the hole). If the pin is “bigger”, the golfer is closer to the green, and uses a club that covers the measured distance. This activity can be completed using the camera on the back of an iPad, and some image processing. The user holds up the iPad to perform the range finding task, and the iPad finds the pin, measures its size to compute the distance, and then suggests a club, using the golfer’s prerecorded ranges. Although this may not be as accurate as the more expensive range-finding solutions, it is an interactive way to aide the amateur golfer as well as collect general data about the golfer’s game.

Finally, as the golfer performs the above activities, the app is constantly monitoring performance and providing appropriate tips and suggestions for the golfer. For example, if the app sees that a range for a certain club is very wide, it may direct the user to techniques or tutorials for using that club, in order to develop a more consistent swing. Or, as the app is constantly recording swing distance and score, if it detects that the user is consistently getting on the green is 2 strokes, but scoring 6’s and 7’s on these holes, it may pull up putting tips. In this way, the app experience is customized to the golfer, and promotes improvement wherever it detects the user may be having trouble.

Additional features may include a recording function, where the golfer’s buddy records a video of the golfer’s swing, which can then be compared to an instructional clip. Also, GPS, included in iPads equipped with 3G service, can be used to provide more accurate range-finding as well as a more complete picture of golfer performance (e.g. if a golfer can hit a long distance with his driver, but he consistently strays to the right, the GPS-enabled feature will pick up on this trend, and the app can provide proper suggestions to correct it). These features are currently deemed secondary and are subject to user feedback as well as time constraints to complete the project.

**Platform Choice**

A tablet application was chosen because it allows for mobility while in use, and the physical size of a tablet screen provides the real estate necessary for large, easy-to-read text and buttons for the user interface. While smartphones are more popular for daily activities for young people, tablets are gaining popularity in older populations, especially for recreational and entertainment activities (alwaysonmessage.com). The Apple iPad was considered, as well as a number of Android tablets, most notably the Samsung Galaxy Tab (currently the most popular Android tablet on the market).

The iPad has a much larger user base than that of the Galaxy Tab, selling 150 times as many units—3 million iPads versus just 20,000 Galaxy Tabs (guardian.co.uk). In addition, the platform is much more stable than that of the Android operating system, due to Apple’s monitoring of every app in the App Store. Also, despite the lower screen resolution, users believe the iPad has a sharper and more vibrant screen than Android tablets. Finally, this is a platform I am learning to develop for in another class, thus development time will be much less than for the Android platform. Cons to this platform are that the larger screen size may decrease its portability, as it may be too large to carry around the golf course.

The Galaxy Tab has a smaller screen and overall dimensions, which may increase portability on a golf course—it is roughly the size of a Steno notebook. It also has a higher screen resolution (although Apple is likely to catch up by March, when the iPad 3 is rumored to be released). The Android platform is also Flash compatible, which would benefit the app in creating sharp user interfaces and playing instructional videos. However, the Android operating system, because of its open source platform, is less stable and harder to get started developing for. It is suggested that the app first be developed and released for the iPad, and then the product can be expanded into the Android Market.

**Initial Market Calculation**

The target user population for this product is male iPad users over 55 years old who play golf. It is assumed that not many people will purchase an iPad in order to use this app, therefore this calculation begins with iPad users over 55 years of age. This is 13% of the iPad market (Yahoo Mobile Blog). There have been 3 million iPads sold, thus this number represents 390,000 users over 55. As the majority of golfers are male, this market calculation will focus on male seniors with iPads (teetogreenguides.com). 51% of iPad users are male; therefore this number is reduced to 198,900 users. If 10% of male iPad users over 55 play golf, the max unit size is 19,890. The app is tentatively priced at $10. Thus the max market size is $198,900.

Note: this market calculation is of the “back-of-the-envelope” variety. It was performed to give a rough estimate of market size, using information found in a simple Google search. It was found that more reliable market information regarding tablet users was too expensive for the scope of this assignment.

**Sequence of activities**

1. Literature review (include: articles, patents and standards)

This activity will be performed over the coming week. It will include articles, patents and standards about golf technologies, sports equipment and interfaces designed for elderly individuals, and tutorials and teaching aides for golf instruction. This activity should be completed by February 20th.

1. Knowledge elicitation (observation and questionnaire)

As it is winter in New England, there is very little golf being played currently in the area. However, indoor driving ranges are still open. I will go to an indoor driving range with concept drawings and possible features to gather user opinion from golfers. I will ask questions pertaining to their own golf instruction, tools currently used, and what they wish they had to aide them. I will also talk to my family and friends who are golfers for more in-depth interviews. This activity should be completed by March 5th.

1. Design requirements

From the above study, I will develop a needs list from the data collected in interviews. I will then develop a spec sheet with design requirements and ideal and baseline specification targets. This activity should be completed by March 9th.

March 12th: Deliverable 2 due

A progress report will be prepared for the client by this day, describing activities completed and an updated schedule for the remainder of the project.

1. Prototype development

As I am currently enrolled in a class learning iOS and iPad development (“Comp 150: Music Apps for the iPad”), I expect to be continuing my knowledge of iOS development throughout the time for above activities. By the time I complete preliminary, data collecting activities, I expect to be at a point in my iOS development training that allows me to develop a prototype for this assignment, with working buttons, multiple views, and graphics, and possibly the image processing skills to incorporate the range finding feature into this prototype. The next two weeks of this project schedule will be devoted to developing a working golf app in iOS and downloading this app to my iPad for testing. This activity should be completed by March 23rd.

1. Usability testing

Depending on the weather, there may be golfers playing as early as April. Hopefully, at this point in the schedule, I can find users to test my app during game play and see if they believe this app fulfills their needs. If the weather does not permit game play in the Massachusetts area, I can still get user feedback at driving ranges and from family members, a few of whom own iPads and live in California, where they can play golf year-round. This activity should be completed by April 6th.

1. Final development iteration

It is likely that the design has been iterated many times by this point in development. As usability testing is completed, a final version of the golf app prototype, along with a detailed report of design activities, will be submitted to the client for review. This activity should be completed by April 20th.

This schedule allows for at 10-day buffer between expected completion and the final deadline for the project (April 30th).

Works Cited

“Golfer Profile.” Tee to Green Guides. (teetogreenguides.com)

“iPad Demographics: Usage and Content”. *Always on Message website*. (alwaysonmessage.com)

Meyer,David. “Samsung Galaxy Tab sold just 20,000 out of 1m shipped, claims rival.” The Guardian. (guardian.co.uk)

Raczkowski, Gilda. “Apple iPad User Analysis—Phase II”. Yahoo Mobile Blog. July 8th, 2010. (ymobileblog.com)  
  
This is a market study performed by Yahoo, characterizing the demographics of iPad users by collecting data of visitors to various Yahoo sites through their iPads. These numbers were then corrected based on the known demographics of Yahoo users.