

## **Small Business Owners:** Making Managing a Small Business a Manageable Thing

### **Team**

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### **Problem and Solution Overview**

Small business owners (SBO) can have a hard time figuring out what the actual costs of business are, and therefore, what the final price point to the customer should be when accounting for multiple variables. They often do not have a way of keeping track of mileage, expenses, time, desired profit margin, depreciation etc. all in one place. If SBOs could keep track of these things in a single application, they could provide more accurate and consistent quotes to their customers as opposed to haphazardly guessing what they need to charge.

### **Contextual Inquiry Participants**

Katniss - Our first contextual inquiry was with Katniss, an interior designer who primarily works on residential projects. She has been doing interior design for several years, but she says she has never had a solid system for tracking her business expenses, or a proper way of preparing for yearly taxes. The contextual inquiry took place at her home in her office, where she works on everything related to her business. She was a good fit as one of our contextual inquiry participants because she operates on an open invoice where her client helps to determine what else to add or subtract from the total job. This makes her workflow follow less of a locked in quote system like our other contextual inquiry participants have in place. This allowed us to get a variety of perspectives in amortization of business expenses.

Peeta - The second contextual inquiry was with Peeta, who owns a small metal fabrication business. The inquiry took place at Peeta's shop, where he showed us the process of tracking expenses for a given job, in addition to the work that goes into providing a quote for a job. As he is often on the go, he doesn't always have his notes with him, so he utilizes his phone to send himself text messages containing notes to add to his primary notepad when he gets back to his shop. At the end of the year he spends several days itemizing his expenses using online bank statements before handing the

information over to his personal accountant to file his taxes. We chose to do a contextual inquiry with Peeta because we felt that the manner in which he operates his business would give us some good insight as to the struggles the average SBO might have in regards to quoting jobs, tracking costs, and managing yearly expenses.

Haymitch - The third contextual inquiry was with Haymitch, a private investigator with 35+ years in the business. Haymitch was chosen because he is outside of the normal demographic for modern applications, given that he is nearly 60 years old and is well entrenched in his ways of accounting for his own cost of business. We wanted to find out two things from him, the first being whether or not we could design something that would give him a reason to change the way he's done it for 35 years, and the second being whether our design was something that an older business owner would find appealing.

### **Contextual Inquiry Results and Themes**

The overarching theme we found from our contextual inquiries is that SBOs often do not have time and/or resources to properly track the financial aspect of their business. For those individuals that do have the time to properly manage their financials, they spend a substantial amount of time and effort with manual data entry and data organization and may use several different applications to accomplish this. All of the existing tools that they utilize are incomplete or overly complicated for what they are trying to accomplish.

All of the business owners that we met with had some sort of central work-space, whether it be a home office or workshop, and the nature of their work required them to consistently travel to and from both local and non-local work sites. At any given time, the business owners may have several concurrent jobs, which can be burdensome to track and keep separate when using multiple applications to track various expenses. Because they all operate on a quote-based system, they need to factor in things like travel, material costs, and time when bidding for a job and have to maintain transparent communication with the customer about these expenses throughout the entirety of a job.

## Task Analysis Questions and Answers

1. Who is going to use the design?
  1. The design targets SBOs that operate on a quote-based system and manage their own expenses. These individuals may have a difficult time developing a quote for their clients based on a number of variables that may include depreciation of equipment, tracking the miles driving to and from various jobs, the cost of materials, and business operating expenses.
  2. The design is also aimed at those who would like to simplify their record keeping. Perhaps they have a system in place that tracks everything they think they need, but it is cumbersome, and a combination of paper and electronic records that need to be reconciled and transferred between mediums.
2. What tasks do they now perform?
  1. The SBOs we met with manually keep track of all their expenses via spreadsheets, physical notebooks, or a conglomeration of other systems. They use this data for creating quotes and tracking tax based deductions. In our contextual inquiries, we noticed that the information entered into those tools was often outdated, which caused the SBO to lose out on money-saving deductions in addition to making it harder to provide an accurate quote.
3. What tasks are desired?
  1. **Task 1: Mileage tracking** - Automatically track total miles driven to and from the job site. This distance will be used later as an expense on the invoice.
  2. **Task 2: Itemizing expenses at the end of the year** - Users are able to enter in business expenses throughout the course of the year. At the end of the year the SBO will then have a consolidated list of all expenses that they can reference.
  3. **Task 3: Track itemized costs** - Allow users to track material cost for a job.
  4. **Task 4: Recording of annual amortized costs** - The user should be able to record business costs that cannot be charged to an individual job such as insurance, legal fees, shop supplies etc.
  5. **Task 5: Invoice creation for project** - Users can enter in costs accrued throughout the completion of the job. Those expenses are then added to the invoice automatically for the SBO.
  6. **Task 6: Quote generation** - Users will be assisted in calculating the amount to charge clients by including amortized business expenses along with the normal costs to complete the job.

4. How are the tasks learned?
  1. The tasks they currently perform are learned simply by experience. As they get more jobs, they make changes to how they develop their quotes and manage their expenses.
5. Where are the tasks performed?
  1. The tasks are usually performed at their primary workspace/office before and after a job is completed.
  2. These tasks can be performed on the go as they might not have access to their work computer or notepads when tracking costs.
6. What is the relationship between the person and data?
  1. Each SBO has personal, unique data that is specific to how they operate their business including the industry that they operate in, the equipment they use, and their decisions related to filing taxes.
7. What other tools does the person have?
  1. The primary tools SBOs use to track expenses are spreadsheets (Excel, Google docs, etc), Quickbooks, and business bank accounts. Of the tools that we found related to our idea, none of them did a great job of automatically tracking a wide variety of expenses without a great deal of effort on the part of the user.
8. How do people communicate with each other?
  1. The individuals that we performed inquiries on used several tools for communication. One of the most commonly used method for communicating is email. Email is used to send invoices, quotes, and other business-related communication. Text messaging is another commonly used communication method. Because it is readily available, text messaging serves as a quick way for the business owner to coordinate times to meet, as well as to discuss the service/project being completed.
9. How often are the tasks performed?
  1. During the contextual inquiries, we observed that these tasks generally took place along side jobs the individual was currently working on. The frequency of the jobs varied from daily to monthly depending on individual.
10. What are the time constraints on the tasks?
  1. Every SBO that we spoke with had a similar constraint of set times for when they had to file their taxes. Some individuals needed to file quarterly while others only filed yearly, but regardless of when they filed, they all experienced the common situation of needing to recount and double check all of their previous jobs to ensure an accurate filing.
  2. Getting quotes and invoices out to clients is something that these SBOs need to accomplish in a timely manner. Not only is this essential to getting

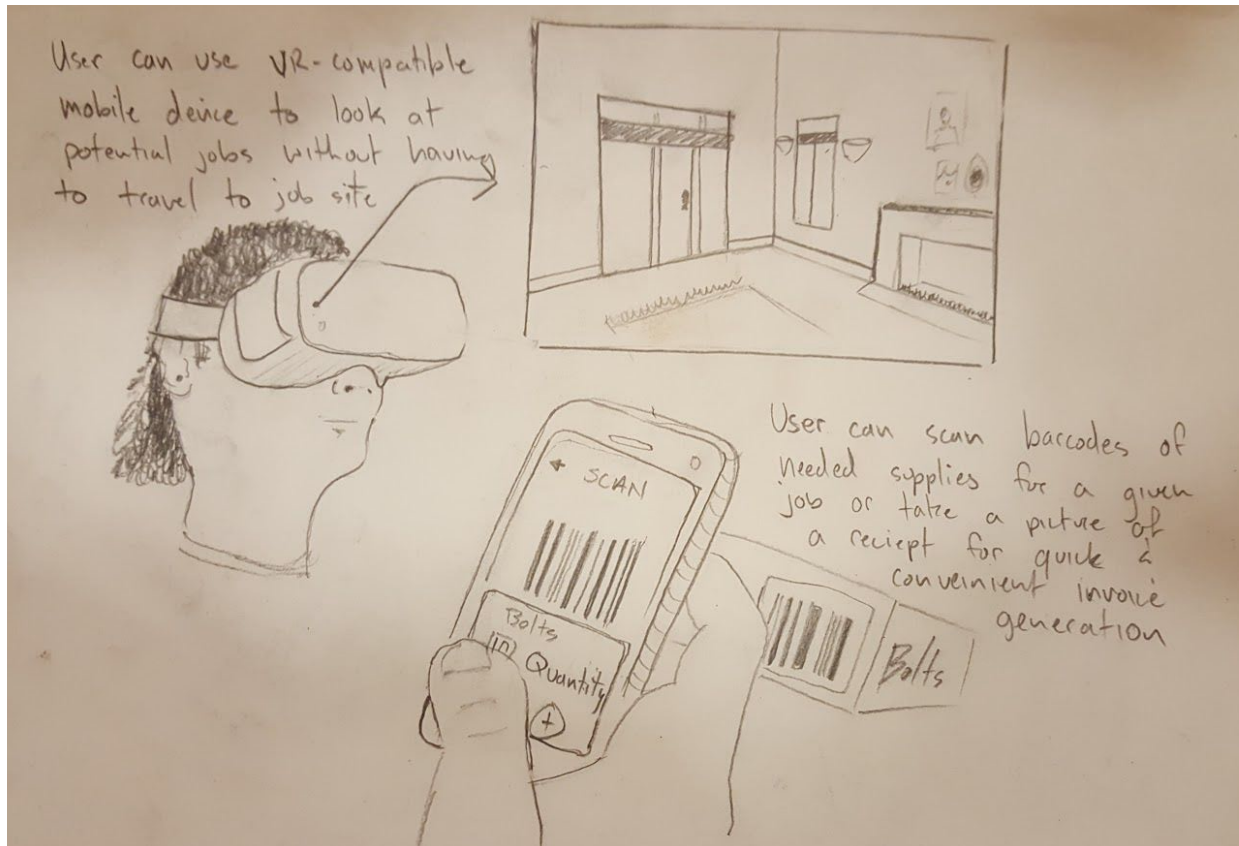
the job done, but it helps them build and maintain their professional reputations as well.

11. What happens when things go wrong?

1. Without a way to quickly and reliably track expenses, a business owner can quickly lose sight of how much money they are truly netting from the work they do. When it comes time to file taxes, itemizing all expenses quickly and accurately can become nearly impossible if there isn't a system in place. As a result, they can lose money by not taking advantages of tax deductions available to them, meaning a lower yearly income.
2. Several business owners reported that they didn't worry too much about losing hard copy information, or making sure that all of the information was tracked, because they 'had it all in their head' and they were convinced that they were infallible record keepers.

## Proposed Design Sketches

### Design #1



**Figure 1 - Design 1 utilizes barcode scanners and virtual reality for convenience.**

From our contextual inquiries, we were able to split our potential user base into two categories: those that work consistently at a specific job site once their bid is accepted and have significant material expenses associated with each job (interior designer, metal fabricator, carpenter etc.), and those that do not (private investigator, photographer etc.). This design (Figure 1) caters to the needs of the former group as it simplifies manual data entry by utilizing barcode scanners to accurately and conveniently track material costs (**Task 3**), aide in invoice generation (**Task 5**), and easily categorize expenses for end of year tax filing (**Task 2**). Additionally, the design leverages virtual reality to allow the user to see a jobsite without having to physically be there during the process of generating a quote (**Task 6**), meaning less time traveling, and more time viewing potential jobs or completing pending jobs.

## Design #2

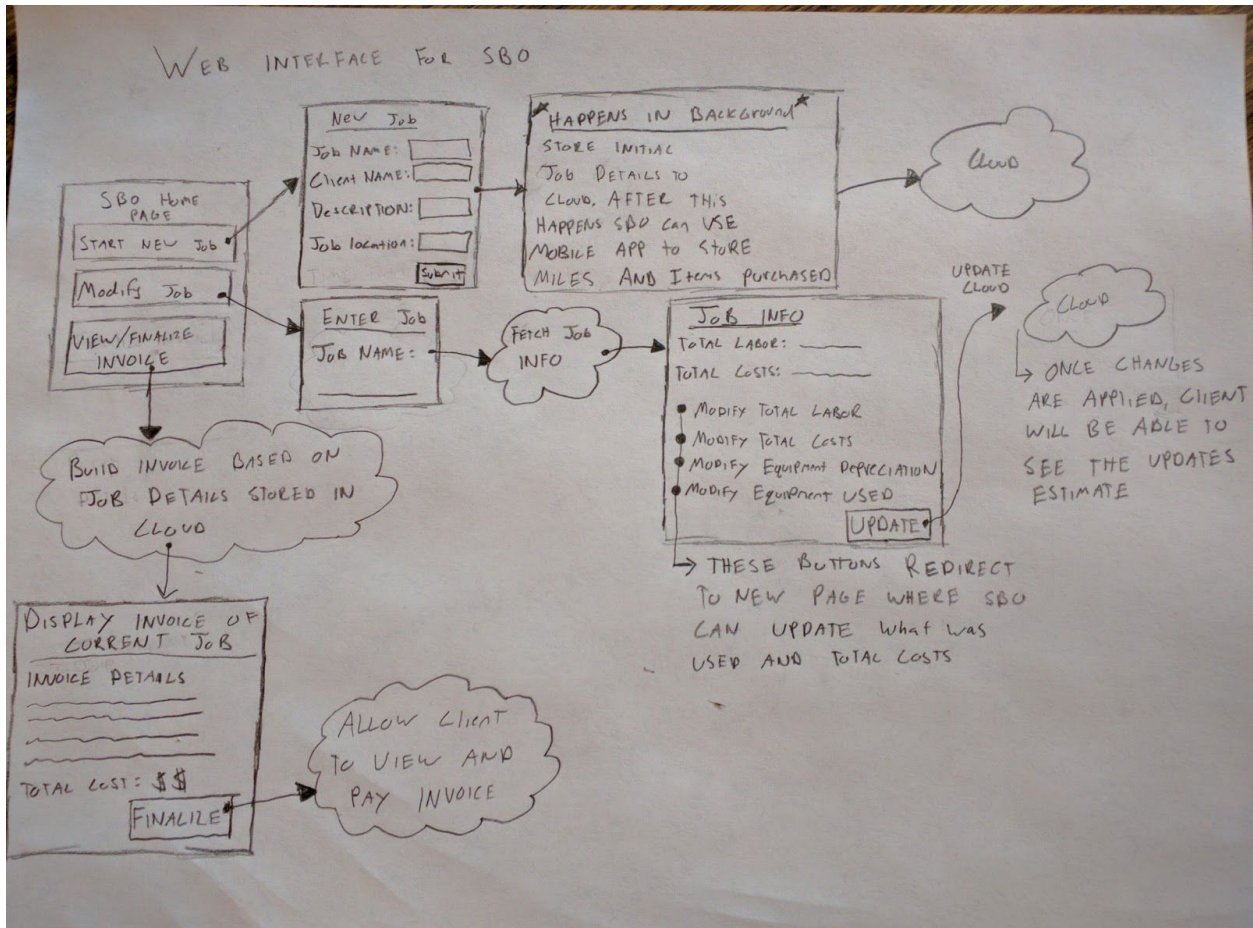


Figure 2 - Design 2 utilizes a mobile/web interface that allows the SBO's clients to have an up-to-date view on job expenses.

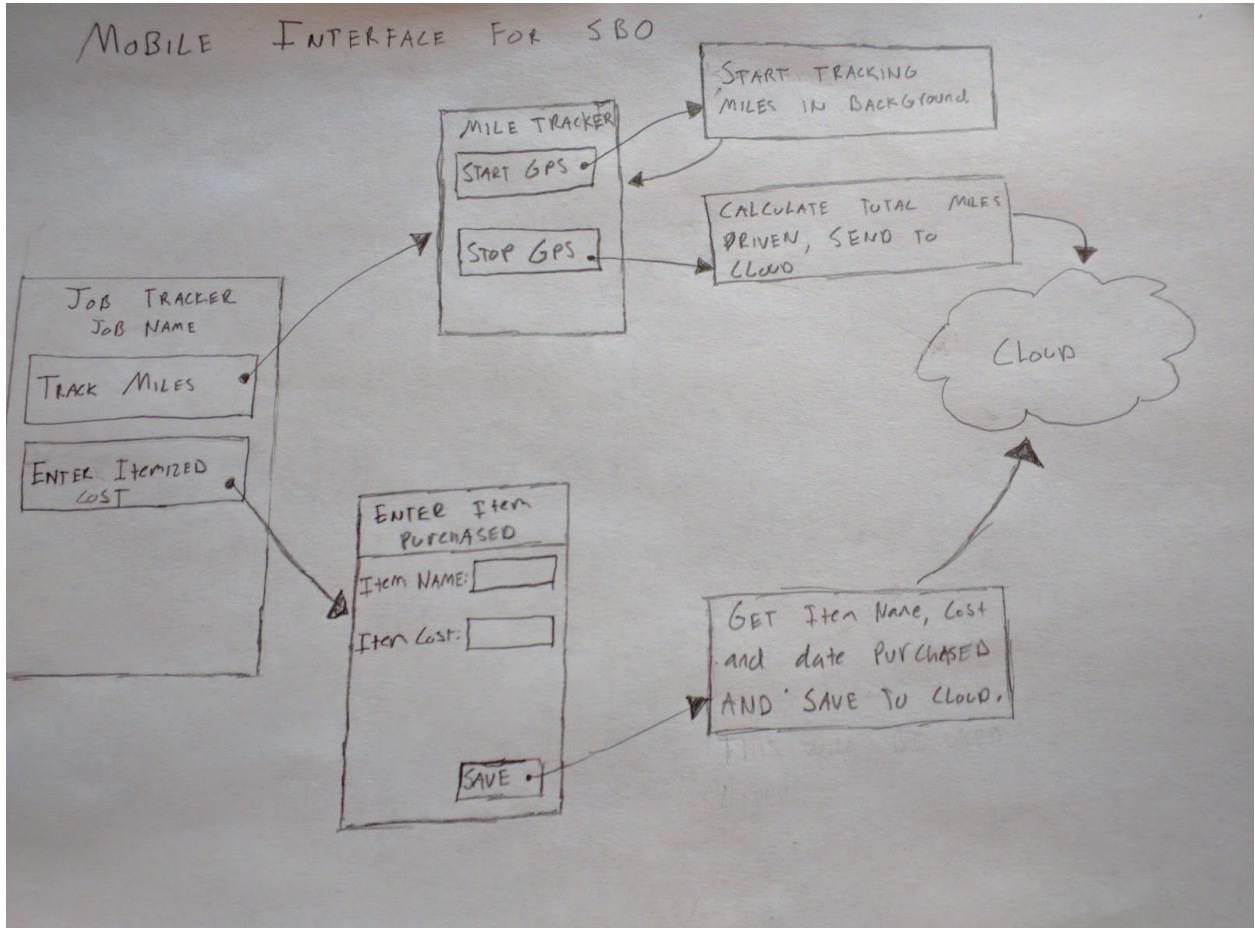
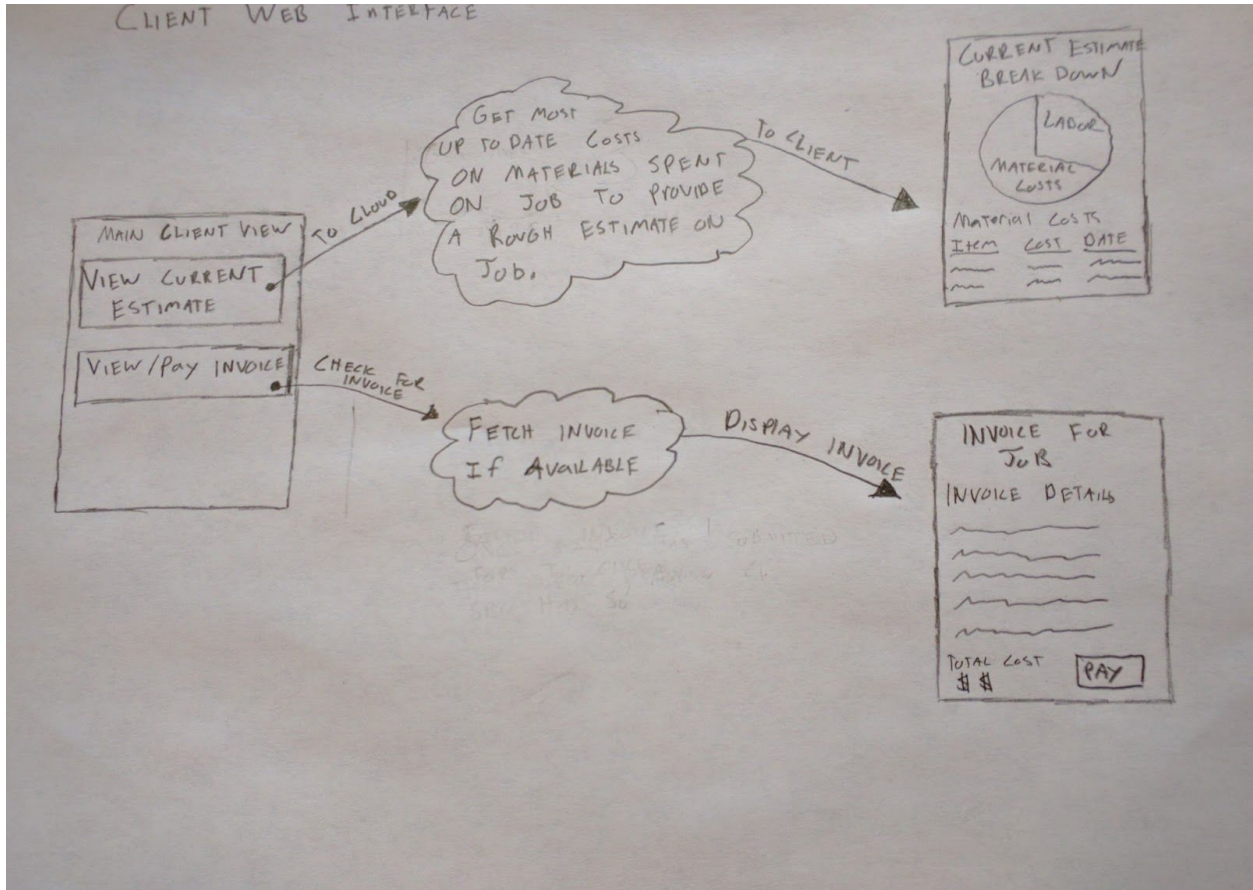


Figure 3 - Mobile interface used by the SBO with design 2.





**Figure 4 - Client web interface for design 2**

This design emphasizes a web based application, with a very simple mobile interface that only the SBO will have access to. The mobile side (Figure 3) acts only as a way for the SBO to quickly track miles driven (**Task 1**) and materials purchased for the project (**Task 3**). The web interface is where the complexity of the application resides. There are essentially two parts to the web application: the SBO interface (Figure 2) and the client interface (Figure 4). The SBO interface is designed to build the invoice (**Task 5**) and quote (**Task 6**) based on information extracted from the cloud that was entered on the mobile device. Edits to the quote can be made here, such as hours required to do the job. The client interface allows the client to view the quote and invoice. The job quote can be viewed in real time so as the SBO modifies the costs and labor that went into a job the client will be able to see these updates instantly

### Design #3

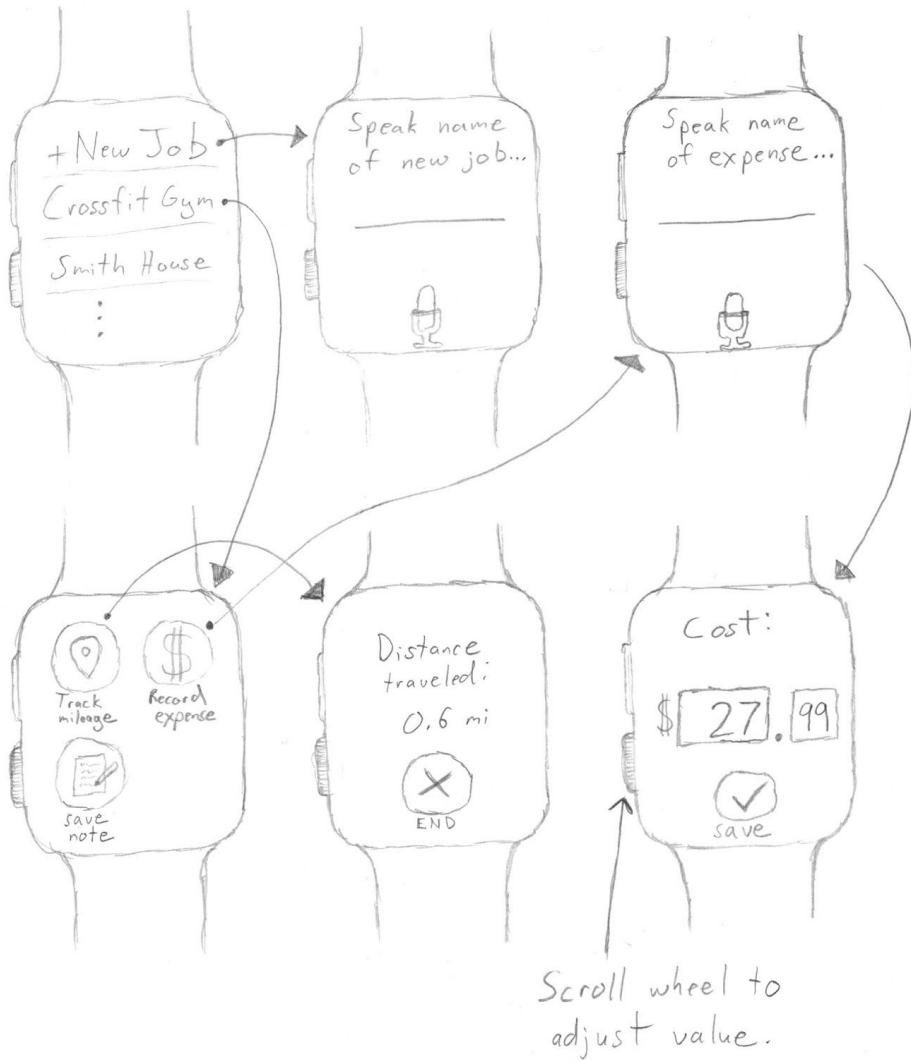


Figure 5 - Design 3 utilizes the convenience of wearable technology and voice-based technology.



**Figure 6 - Design 3 also utilizes a mobile interface.**

This design utilizes wearable tech that is becoming more and more popular. The benefit of wearables is that they make it easier to accomplish simple tasks, and the same is true of some of the tasks in this design. The interface on the wearable (Figure 5) would allow easy input of new information, including the ability to begin mileage tracking quickly (**Task 1**), as well as recording a new business expense (**Task 3**), or starting up a new job (**Task 6**). The second half of this design is in a mobile application (Figure 6). Smart wearables are generally not able to function independently, but instead must be paired with a mobile device. The mobile device can accomplish the same tasks as the wearable, but also additional tasks, such as listing out the business expenses at the end of the year for easy access of information for taxes (**Task 2**).

## **Choice Of Design**

The design we chose to move forward with was our second design, which has a web/mobile interface that allows the business owner to interact with the client through the application. Out of all of the contextual inquiries we completed, an important theme between them was that the business owners needed to have transparent communication with their client. This design lends itself to that functionality while retaining many of the same features the other two designs had, such as ease of recording new information for a job.

The two tasks that we have chosen to pursue are Task 1, tracking mileage for a project, and Task 5, creating an invoice for a project. We chose these two tasks as it is critical for the SBO to maintain transparent communication with the client from the beginning of the project to the end of it in regards to expenses accrued for a given job.

## **Written Scenarios**

### **Task 1 - tracking mileage for a job (See Figure 7)**

As a freelance photographer, Gale is constantly traveling between locations for photoshoots. Tracking mileage needs to be done in an accurate manner in order to compensate for all of the miles he puts on his personal vehicles. Despite the fact that Gale makes a lot of money, he loves driving his 1988 Toyota Land Cruiser, which has a broken odometer. Furthermore, he often utilizes his dirt bike on projects that require him to travel into the backcountry. When Gale gets a job photographing an industrial building in town, he creates a new job page with the SBO application, and types in the address of the building he needs to work at. The SBO suggests the most direct route to the building and Gale uses the mileage from this route to calculate his travel costs, which is added to the invoice. When Gale gets a job photographing wildlife for a non-profit bald eagle conservation group, he utilizes the gps functionality within the SBO app as he will be on backcountry roads on his motorcycle in order to get to their nesting habitat. He goes to the job page he has created in the SBO app for the bird conservation group, and before he heads out for his trip, he utilizes the gps tracking feature to track the miles that it takes to not only get to where he starts riding his motorcycle, but everywhere he goes on his motorcycle. Once he gets back home, he stops the gps tracking and the total mileage from the day is used to calculate the travel cost, which will be added to invoice for the non-profit group once he confirms the route is accurate.

## Task 5 - generating an invoice for a project (See Figure 8)

Prim is a finish carpenter by trade, and works on multiple jobs at a given time. She might find herself working at job #1 in the morning, leaving to get supplies for that job, as well as supplies for job #2, which she needs to be at in the afternoon while she waits for flooring to get installed at job #1. Because she needs the same supplies for both jobs, she buys them at the same time. Job #2 requires twice as many supplies as job #1, so it is imperative that she accurately separates costs despite all supplies being on the same receipt. She uses the SBO app and navigates to her jobs page and selects job #1, scans a barcode at the hardware store for the item she is buying, and enters quantity she will use for that job. She repeats the process with job #2 and the information is loaded to the respective invoices. The client is able to see the invoice in real time on the web interface so that they have a clear idea of what the current costs are. Once Prim finishes job #1, she closes the job from homepage of job #1 and an invoice is generated by taking all expenses Prim has charged to the job and lists them so that the client can view it and pay.

## Storyboards

### Task 1 Storyboard

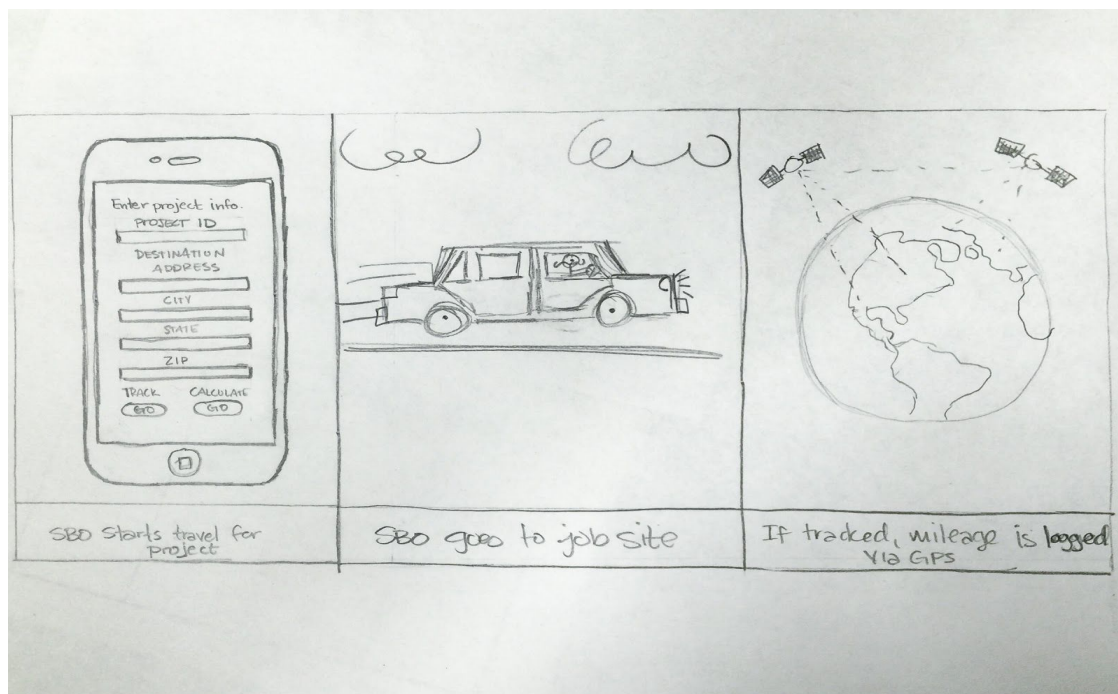
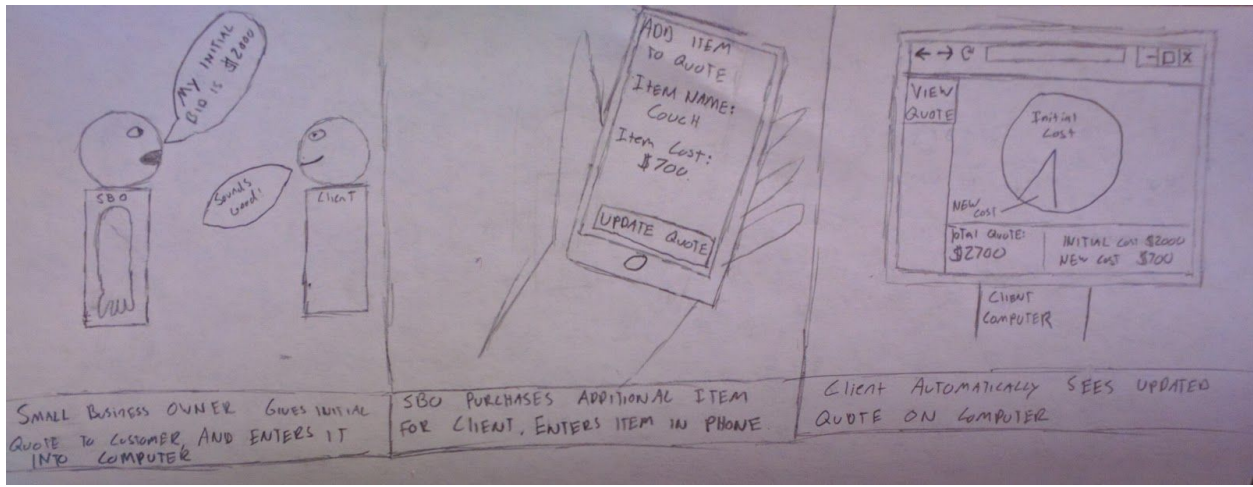


Figure 7 - SBO can either utilize GPS tracking, or type in an address to compute mileage costs.

## Task 5 Storyboard



**Figure 8 - SBO gives a potential client a quote. After the client accepts, the SBO can update the quote and add items to the invoice as costs are accrued. The client is able to see the details of the quote and invoice in real-time on the web interface.**