

Begin Your Journey to a New Career

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Problem and Solution Overview

America is currently home to over eight million¹ unemployed adults, 27.6%² of which are considered “long-term unemployed”. People who are part of this category struggle to find jobs for different reasons such as lack of education or a deficiency in marketable skills. Statistics show that 2.8%³ of people with Bachelor’s degrees still find themselves without a job. For those who are stuck in a perpetual cycle of unemployment and rejection, we believe pursuing a trade skill is a viable alternative. With the Baby Boomer generation (the population that comprises the majority of skilled trade positions) rapidly retiring, as many as 62% of firms are struggling to fill open positions. In fact, 31 million positions are expected to open by 2020 as a result of projected retirement trends⁴. However, society does not emphasize the importance and benefits of learning trades as much as it does higher education and white collar jobs, as seen by the fact that in a study conducted, only 16% of high school students were planning on taking vocational classes. The focus of our design is to provide members of a community with a mobile app that is centered on both interpersonal and personal development in the trade world. If a user wants to search for trade opportunities, they are walked through a questionnaire that narrows down their search to a field that would best match their personality, interests, and more. At the end, they are shown nearby mentors to begin chatting with them, and hopefully, begin an apprenticeship with one of them. If a user wants to focus on personal growth in their area of trade, they can view the number of “experience points” they have earned from learning/practicing certain skills, and recommended skills to tackle next. They can gain points by doing in-app exercises that help reinforce basic concepts of certain skills.

[1] “Unemployment Situation Summary” United States Dept. of Labor. March, 2016. Web. <http://www.bls.gov/news.release/empsit.nr0.htm> 01 Apr. 2016.

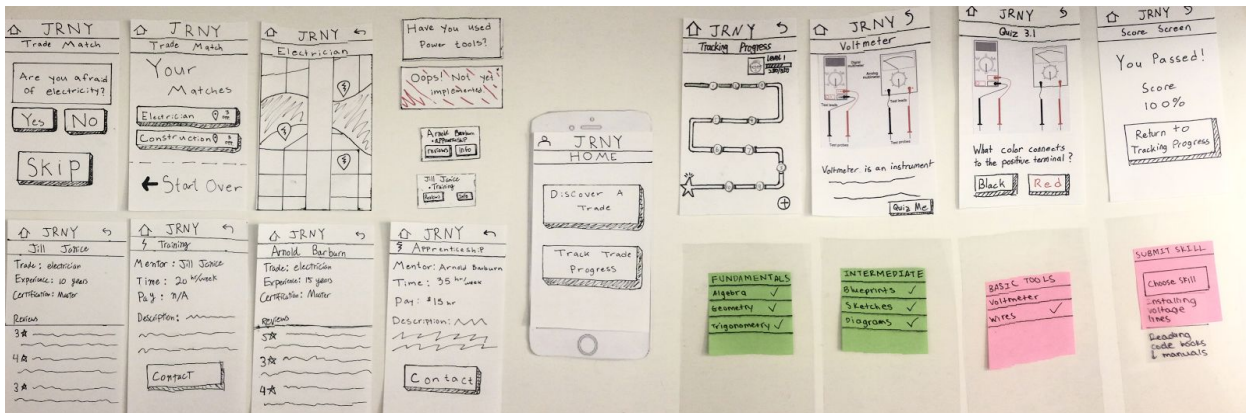
[2] <http://www.bls.gov/news.release/pdf/empsit.pdf>

[3] <https://research.stlouisfed.org/fred2/series/LNU04027662>

[4] <http://www.adecousa.com/employers/resources/Pages/skilled-trades-in-demand.aspx>
www.popularmechanics.com/home/how-to/a3972/4305487/

Initial Paper Prototype

For our initial paper prototype we have two pathways a user can take: (1) searching for opportunities, or (2) tracking their current progress. On every screen (except for the home page) a bar at the top has an icon that can take you back to the home page. If the page a user is currently on was arrived at from another page, the top bar also displays a back button.



Home Page



The user is greeted by this home page, where they can select either of the two tasks. We assume that the user has already signed into this app and has done all the onboarding (such as selecting whether they are a mentor or student.)

In the upper left hand corner, we eventually want to enable user profiles (for leaving reviews, receiving reviews, contacting others, etc.) For now, is a user "clicks" on the profile icon, we have an error message that will pop up to inform them that this feature is not implemented in the paper prototype.

Task 1: Searching for Opportunities



Fig 1.1: To search for opportunities, a user is taken through a questionnaire to find the trade skills of best fit.



Fig 1.2: This screen is presented at the conclusion of the questionnaire. A user can then click on a suggested skill to view a map of nearby mentors in that trade skill, or start the questionnaire over

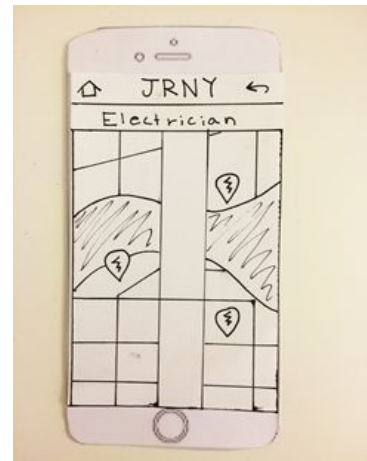


Fig 1.3: After clicking on a skill from Fig. 1.2, a map screen is shown with pinpoint locations of nearby opportunities.

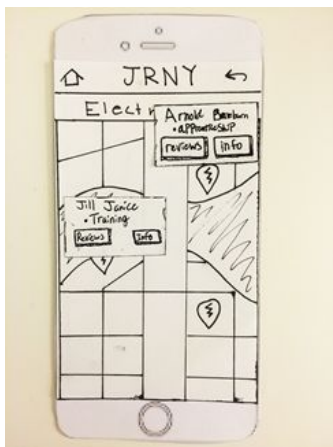


Fig 1.4: When a user taps on a pinpoint from Fig. 1.3, a pop-up appears with the info about the mentor



Fig 1.5: If a user taps on the "Reviews" button on a pop-up from Fig. 1.4, they are shown reviews about the mentor and workplace



Fig 1.6: If a user taps the "Info" button on a pop-up from Fig. 1.4, they are shown a review from the mentor about working in that trade skill

Task 2: Tracking Progress (Milestones)

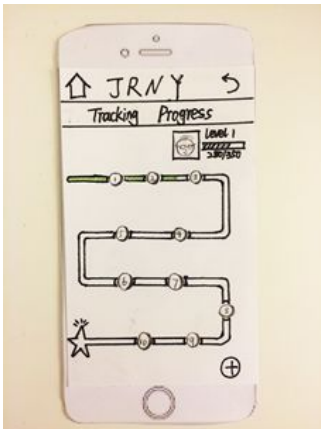


Fig 2.1: If a user taps “Track Progress” on the home page, they are brought to this page

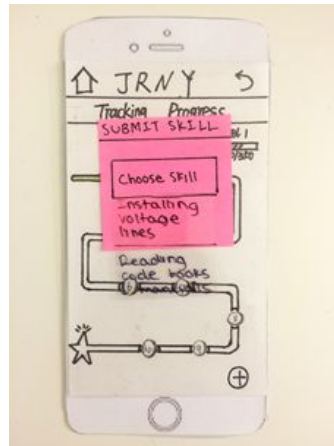


Fig 2.2: Tap the plus button in the bottom right to submit a “skill achievement request” that their mentor can approve. A drop-down list of pre-populated skills is available.

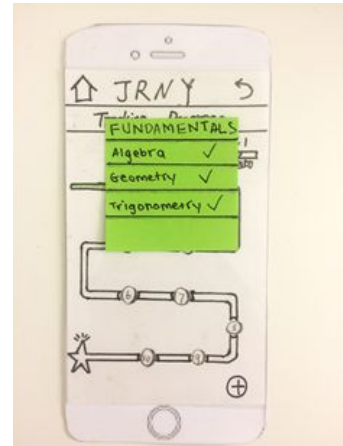


Fig 2.3: A user can tap a circle (a milestone) and a pop-up will appear with a checklist of skills required for that milestone.

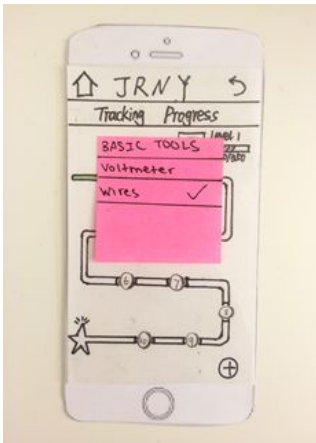


Fig 2.4: If a user taps an uncompleted milestone, a red pop-up will appear with checkmarks on only the skills

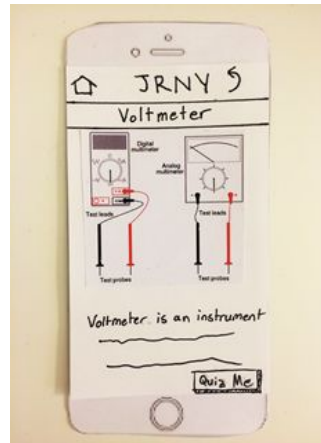


Fig 2.5: This screen pops up when they tap on an uncompleted skill. They can read info about the skill, and then can tap “quiz me” to take the quiz

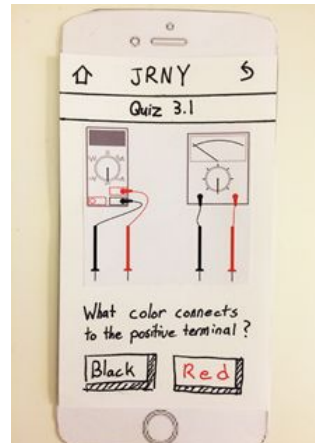


Fig 2.6: After tapping “quiz me”, a series of questions making up an entire quiz pops up.

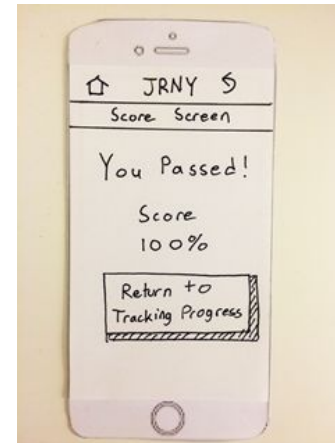


Fig 2.7: At the end of a quiz, a user is presented with their score and the option to return to the Tracking Progress page.

Testing Process

For our tests we first briefed the user on what the project was, explaining what the app was supposed to accomplish. After this we asked them to complete the first task, finding an apprenticeship. After they had done this we gave them an update on their situation, fast forwarding them to the tracking phase of their apprenticeship. We then asked them to record their progress with their trade. As we moved forward in our testing we made some slight revisions to our process. The first thing was being more careful with the words we used. It was difficult not to indicate to the user what button to press while asking them to complete the task, since the label on the button matched the task. Additionally we had to encourage people to talk more, and explain their process. That way it was easier to gauge where they had trouble and where they were just exploring.

First:

Our first usability test was conducted by two of our group members and a single participant. Alex currently resides in the greater Seattle area, and after graduating from a two-year architecture program has been looking for work in a technical capacity. The test was conducted in the Odegaard Undergraduate Library on The University of Washington campus. The participant was chosen because he is a target user of our solution, and an acquaintance of one of our group members. The test was conducted in the library as it is a convenient place on campus to locate, and is accessible by all parties. The library also provides private rooms for the study to be conducted. During the testing, Joe acted as the computer, and Austin acted as the facilitator and note-taker. The biggest takeaway from the first usability test was the difficulty with encouraging feedback. The user was familiar with technology, and navigated the system fairly intuitively, but did not immediately express issues or concerns. The facilitator had to repeatedly ask the user to think out loud and encourage an open dialogue. Moving forward it will be important to be clear about the expectations we have for our participants. We should introduce the tests with a brief discussion about how much feedback we expect from the participant, and how important talking through their actions is to our development.

Second:

For our second usability test, our test user was Preston, a current Junior in the Computer Science major at UW. Preston was chosen as a participant because we wanted to test someone who is under the negative stigma of vocational skills, and he has expressed before that he has never had an interest in working blue-collar jobs because his family consists of software engineers, businessmen, and other white-collar workers. We wanted to see what we could do to make our app more appealing towards audiences with this worldview (which is a view held by the majority of our generation today). We chose to test Preston in the Computer Labs of the Computer Science building because it was quiet and isolated at the time. Furthermore, the Labs exemplify the idea of pursuing white-collar jobs since everyone inside is actively engaged in pursuing a software/hardware career, and so it is an interesting extreme to conduct our test within. From the experience of last usability test, before the debrief process, we chatted with Preston a little to get him into the talking mode so that he would be more talkative during the test process. Also, before we conducted the testing process, we reminded Preston that he should speak up during the testing process if anything did not make sense to him and told him how critical his feedback was to us. As a result, we were able to get some really meaningful feedback from this usability test.

Third:

For our third usability test our user was Jason, he is an unemployed individual who is currently looking for a job, and an acquaintance of Joe's. He was chosen because he is a person who we would want to use our finished app. We felt he could give insight into what our future users would be experiencing. The test was conducted in the user's home both because it was convenient for the user and because as a phone app it is likely people would use it in their homes. For this test Austin was the computer and Joe was the Facilitator. In addition to the improvement we made in the second usability test, we made sure for this test to explain clearly what the situation was but not hint the user on how to interact with the app. We especially made sure not to say things like "search" when mentioning the task to avoid leading the user.

Testing Results

Heuristic Evaluation:

A few issues were pointed out to us during our Heuristic evaluation with another group. First there was some problems with the questionnaire we use before the map (figure 1.1, 1.2). It was stated that the users were not expecting it to show up, were unaware of their progress as they went, additionally they wanted to know what would happen if they skipped all the questions. To address these we added a screen explaining the questionnaire (fig. 3.1). We also added a progress bar (fig 3.2) and we added a popup for if they skipped them all (fig 3.3).

With the milestones the users did not find the function of the drop down skills, and adding skills intuitive (fig 2.3). We decided that the way you added skills was unnecessarily complicated and changed it. Users no longer manually add skills, instead they gain the skills by completing the quizzes on the topics. Also with the milestones they weren't clear with what happened after a quiz (fig 2.7), did they have to hit the back button, did they get credit? So we added a popup telling them they completed it and experience would be added (fig 4.8) and we also got rid of the back button after the quiz, instead using a retake quiz button to go back (fig 4.7)

First Usability Test:

In our first usability tests the users had two issues with the map (fig 1.3). First they weren't sure why all the icons were the same when some were training and some apprenticeships. We addressed this by making all icons mentorships (fig 3.8) since they really weren't much different concepts. Also they wanted to know more about a trade before selecting one. For this we added info about the trade in the page you get after clicking a pin (fig 5.2.8).

Second Usability Test:

The second user had trouble with the map (fig 1.3) and tracking progress (fig. 2.1). On the map they wanted to be able to search at a specific location. For this we added a search bar at the top (fig, 3.7). For the milestones they were wondering what happens if they click on a future milestone or the finish. To answer this we are making the finish star show a list of all skills in the trade and future milestones will be unclickable until reached (fig. 4.1, 4.2).

Third Usability Test:

In the third test we had issues again with our homepage and our map. The homepage (fig 0.1) was found to be confusing based on how it was split. It was strange that you could both search and track when you would usually only need one or the other. We made instead 2 home page versions (3.01, 3.02) based on if you already had an apprenticeship or not. They also found some terms ambiguous so we made the new page have more specific buttons. On the map they wanted to know if there was an alternative view. For this we added a listview (3.6) of apprenticeships, in case there was people who have difficulties with the map. This would also help for people who use accessibility features on their phones.

Design Critique:

In the design critique, the homepage was criticized for having no indication of any other functionality. In order to make it seem like a fuller experience we completed the home screen to include profiles and other functions of the app.(fig. 3.01).

There were also a couple issues with the map(1.3). The person who did the critique was unsure where the search was based, and how the pins worked. We decided to make our api more similar to google maps to make it familiar to many users. This involved adding a mark for their current location (fig. 3.7) so that you know where the search is. And to show that you can only have one popup we made the pop ups slide up from the bottom(3.8).

Final Paper Prototype

HomePage:

The homepage now centers on the user. Each user has a profile with an “about me” they can edit and a profile picture. Since mentors can review apprentices and vice versa, users can view reviews they have written and reviews other have written about them.

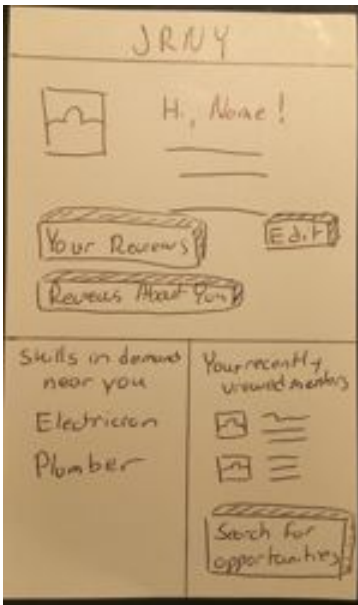


Fig 3.01: shows the homepage before the student selects a trade and mentor, the bottom two boxes will showcase skills in demand and allows the student to search for opportunities.

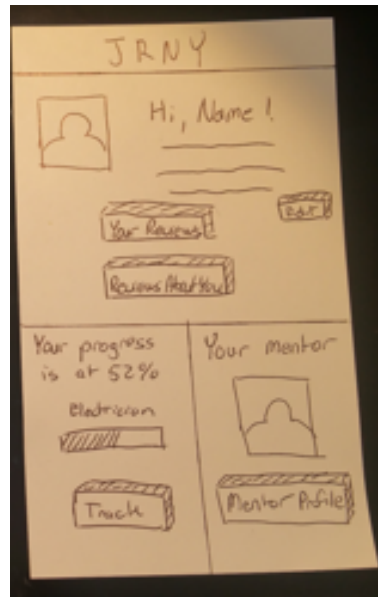


Fig 3.02: shows the homepage after the student selects a trade and mentor. The two bottom boxes changes to tracking progress and a link to the mentor's profile page.

Task 1: Searching for Opportunities

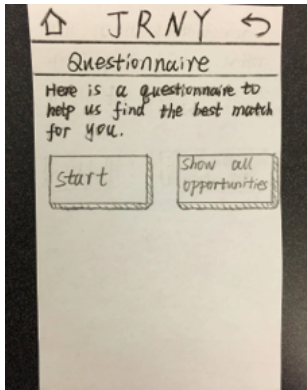


Fig 3.1: To search for opportunities, a user is taken through a questionnaire to find the trade skills of best fit.

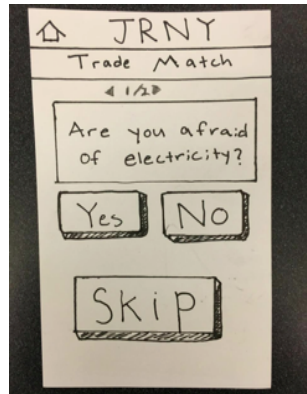


Fig 3.2: Similar to the original. Now there is an indicator of a user's progress through the questionnaire.



Fig 3.3: If a user tries to skip all questions, they are prompted to either retake the quiz or show an unfiltered map.



Fig 3.4: This screen is presented at the conclusion of the questionnaire. A user can then click on a suggested skill to view nearby mentors or start the questionnaire over if they are unsatisfied

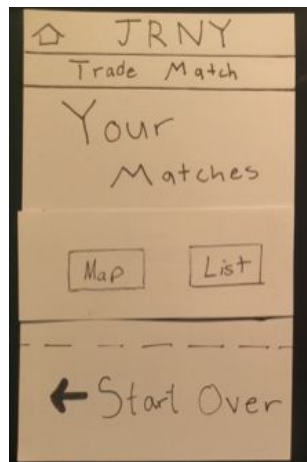


Fig 3.5: Users are now given an option for a map or list view after they select one of the options.

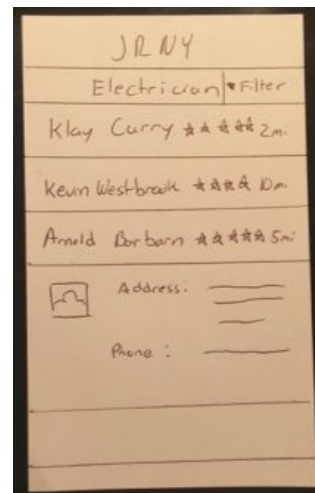


Fig 3.6: If a user selects the listview, this page will show up. The listview will allow for filtering and shows the reviews and distance to the mentor. Tapping the profile picture will give more info about the mentor.



Fig 3.7: If a user selects the map view, this page will show up instead. Users can see their current location on the map. There is now search by address box on top.



Fig 3.8: Clicking on a pin causes a window to pop up at the bottom, which will show the general info about a mentor.

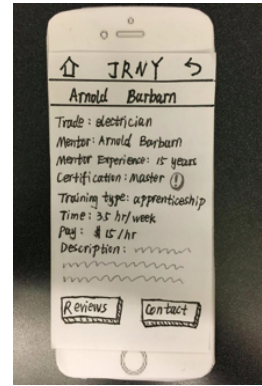


Fig 3.9: By pulling up the window, a user can view more info about the opportunity and mentor.

Task 2: Tracking Progress:

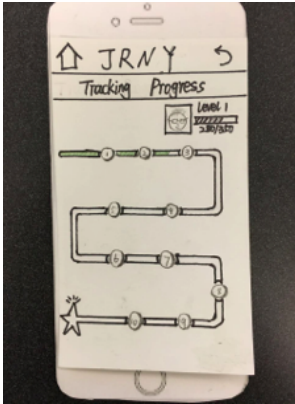


Fig 4.1: If a user taps "Track Progress" on the home page, they are brought to this page

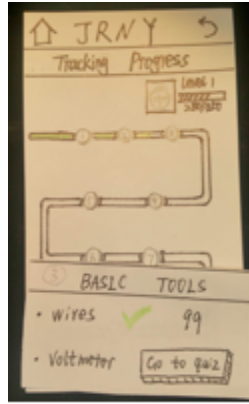


Fig 4.2: Tapping on a milestone will bring up the goals, which will come up from a window in the bottom.

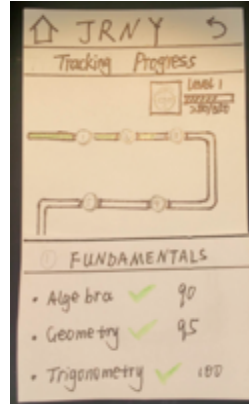


Fig 4.3: Users can now tap milestones outside of the current milestone they are working on. For the past milestone, the pop up window will show the scores of all the quizzes within that milestone.

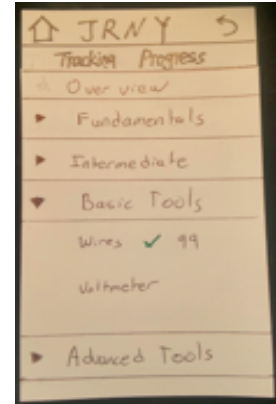


Fig 4.4: When users tap the star at the end, the summary of all the milestones will come up.

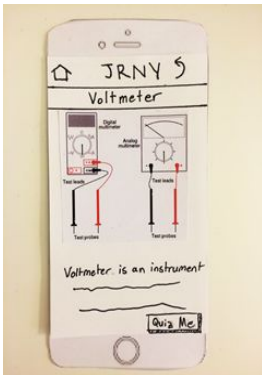


Fig 4.5: If a user clicks on the "go to quiz" button shown in figure 4.2, this quiz page will show up.

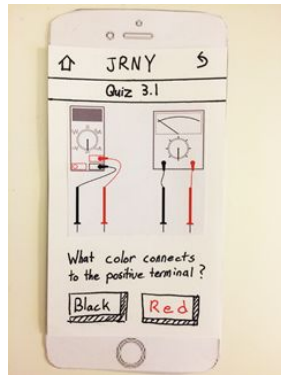


Fig 4.6: After tapping "quiz me" in figure 4.5, a series of questions making up an entire quiz pops up. The next question appears

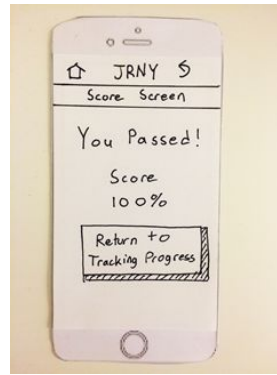


Fig 4.7: On completion, the user can retake the quiz again or return to tracking progress.

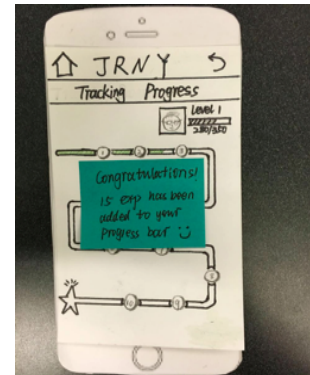


Fig 4.8: On completion a message informs the user they have gained experience points.

Digital Mockup

Login & Dashboard:

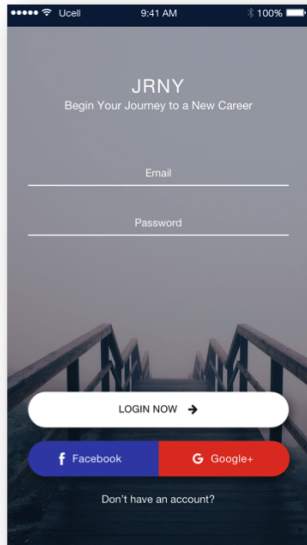


Fig 5.1.1: New users now are shown a login page where they can sign up using Facebook or Google+, or they can make an account using an email.

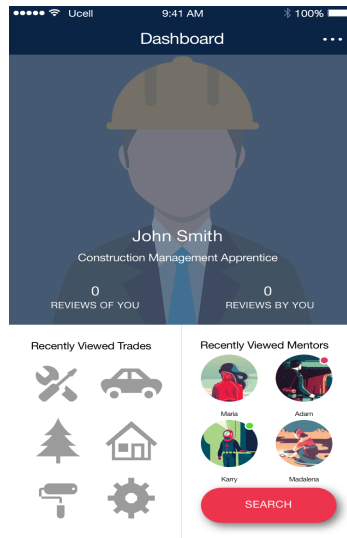


Fig 5.1.2: A user's central location is their dashboard. This is a page users can go to view a summary of their account (reviews of them, reviews by them, progress, and mentor.) For a new user, this page shows trade skill logos rather than a "track" panel

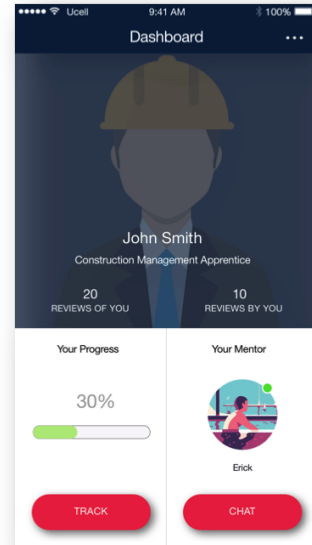


Fig 5.1.3: Users that have found apprenticeships see a slightly different dashboard. They can now track their progress, and can no longer search since they have already found a mentor. Instead of the search option, they can chat with their mentor.

Task 1: Searching for Opportunities (Questionnaire)

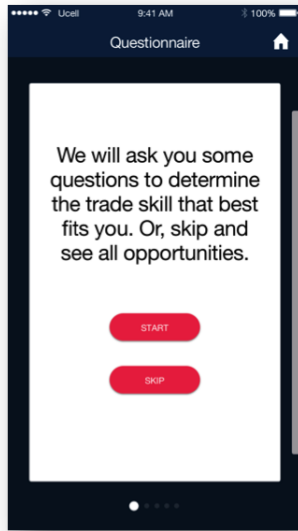


Fig 5.2.1: When a user chooses to search for opportunities, they are brought to a page that informs them of what is going to happen next. They have the option to skip the questionnaire or take it.

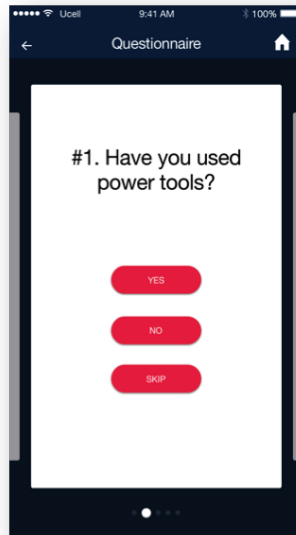


Fig 5.2.2: If a user starts the questionnaire, they are presented with questions that they can answer yes/no/skip to. They can view where they are in the questionnaire using the bottom dots.

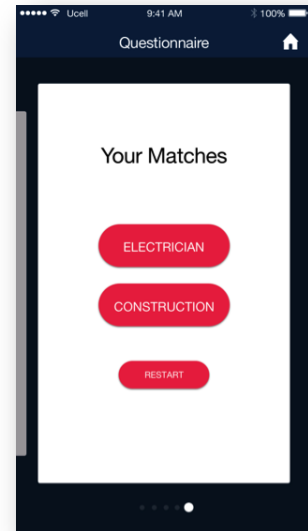


Fig 5.2.3: At the end of the questionnaire, users are presented with their best matches. They can either choose a match to view results, or retake the questionnaire.

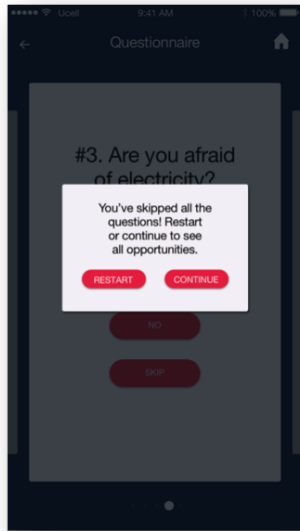


Fig 5.2.4: If a user skips all the questions, at the very last question they try to skip, a dialog appears informing them to either restart the questionnaire or see all unfiltered opportunities.

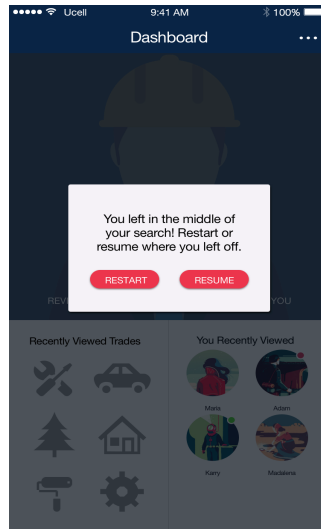


Fig 5.2.5: If a user leaves the searching process in the middle, when they are at their dashboard and try to search again, they will be prompted to restart the whole process

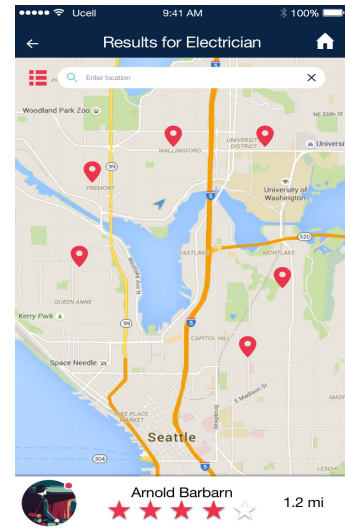


Fig 5.2.6: Once a user selects a trade skill, a map appears with pins of mentors nearby. They can enter an alternative location if they want to search somewhere that is not their current location.

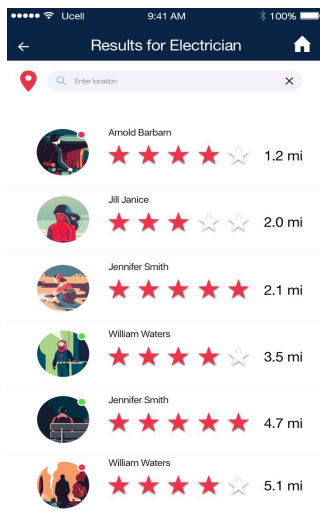


Fig 5.2.7: Alternatively, a user can view the results in list mode instead by tapping the toggle in the top left corner.

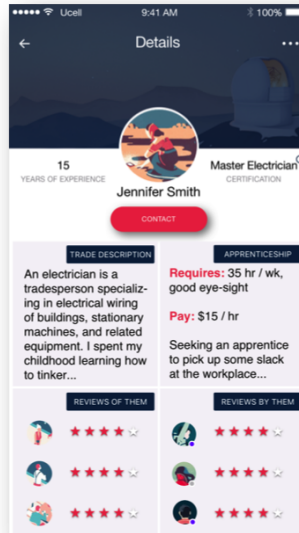


Fig 5.2.8: Tapping on a mentor takes a user to that mentor's profile page.

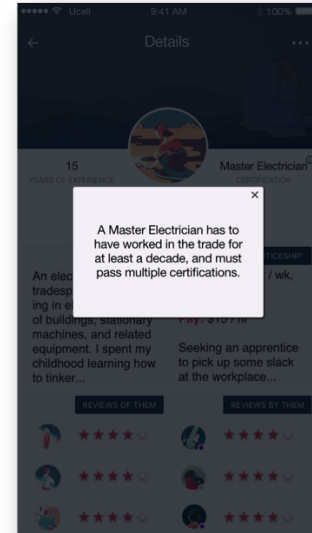


Fig 5.2.9: A user can tap on the mentor's certification to view an explanation of what it means.

Task 2: Tracking Progress (Quiz)

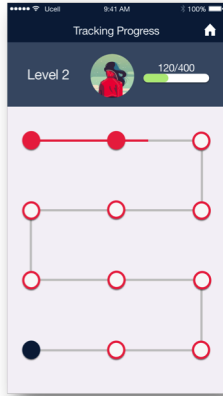


Fig 5.3.1: If a user wants to track their progress, they are shown this main tracking progress page. It gives a high level view of their current progress through experience points, current level, and a visual of how far they've come/have to go.

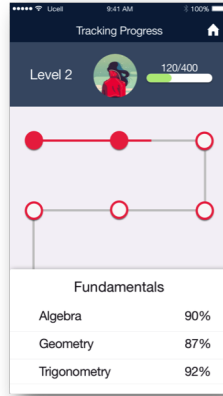


Fig 5.3.2: Tapping on a circle (milestone) brings up details about that milestone, with percentages reflecting their quiz results (see Fig 5.3.1). Completed milestones are filled in with red and the red line shows their progress.

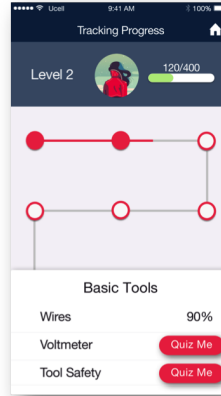


Fig 5.3.3: Tapping on the current incomplete milestone (shown as an unfilled circle) brings up details as well, but the incomplete tasks have a button they can click to test their knowledge.

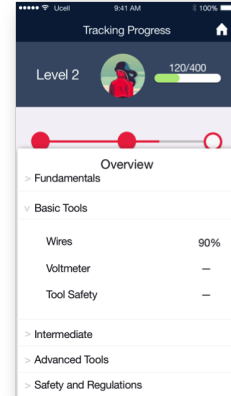


Fig 5.3.4: Clicking on the very last circle (indicated with filled-in blue) gives them an overview of what this entire trade skill entails and how they are doing.

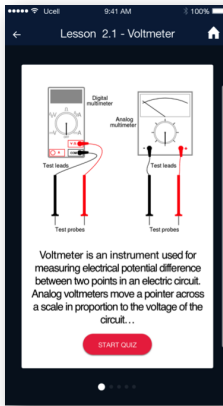


Fig 5.3.5: Tapping on a "quiz me" button in an incomplete task in a milestone brings up a quiz. A quiz starts with a short lesson.

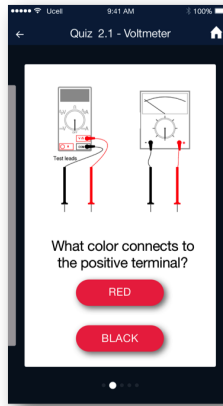


Fig 5.3.6: When a user begins their quiz, they are presented with questions to answer. They can see where they are in the quiz from the bottom.

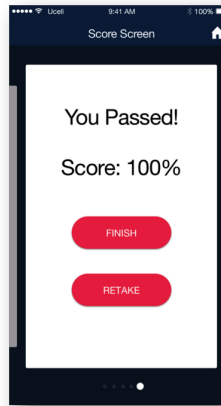


Fig 5.3.7: At the end of a quiz, a user is presented with their score and the options to either finish the quiz or retake.

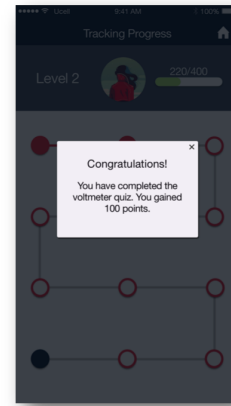


Fig 5.3.8: After they finish a quiz and return the tracking progress page, a dialog appears confirming their completion and updates their points.

Design Changes:

We added a login screen and updated the homepages of both new and apprenticed users to imply more features of the app (such as having a user profile). Before, the homepage of both types of users included the capability to search for opportunities; however, now only new users can search. This is because apprenticed users have already obtained an opportunity, and so should focus on their growth and relationship with their mentor instead of searching. After the feedback we got back from section, we changed the view of the homepage for the new user. It is now showing some symbols of trade skills rather than a greyed out “track” button.

Our questionnaire now uses the convention of progress dots to show the user where they are in the process instead of using a fraction for the question number. This was to be externally consistent with other mobile apps on the market. Also, the questionnaire now does not show how many of each trade skill opportunity are available on the “your matches” page. We deemed this unnecessary clutter since the map itself easily shows how many are available around a user. Lastly, we added one more dialog that appears when a user leaves in the middle of their search (either from the questionnaire or the map) that asks if they want to resume their old search or restart. This is to provide more user freedom.

For the map page, we added a toggle that switched between map and list views. This replaced the old design of asking the user whether they want to view the results as a map or list when they select a trade skill to view from the questionnaire’s “your matches” page. We changed this because we wanted users to have the freedom to switch between the two modes at any time, when before they were locked into a specific mode from the very beginning. Also, profile pictures of mentors also have little dots indicating whether they are currently online or not; this could aid users in knowing when a mentor may respond (if they are currently online, contacting them now is a better option than when they are not). For the feedback we got back from section, we modified the toggle on the map view page and on the list view page so that when a user is on the map view, the toggle is a list symbol, and when the user is on the list view, the toggle is a map symbol. This way, it is more obvious to the user this is a switch between the two views.

For tracking progress, we got rid of a minor detail: naming specific levels of experience. Instead, we chose to simply use numbers to reduce user confusion. The quizzes have progress dots like the questionnaire for system visibility. The biggest change in this area was the look of our “progress path”; we made it more modern and added the detail of filled vs. unfilled circles (to add to the effect of making progress, as filling circles may feel satisfying) and got rid of the milestone numbers since they seemed distracting and unnecessary.

Discussion

During the iterative design process, we learned how to improve our application step by step and work towards our final goal. Starting from the baseline of our initial paper prototype, we tried a lot of approaches to improve our app such as usability testing, heuristic evaluation and peer critique, each of which counts as one iteration of our overall design process. After each iteration, we would make some changes to our existing design and passed the revised design to next iteration. During each iteration, we focused on how to improve the app around the two main tasks. This is very important since it is easy to derail from our original goal and waste time on things that were not necessary to the design. At the end, we now have an app that is intuitive to use and helps the users to achieve the two tasks efficiently. We could not accomplish this without this task-centered iterative design process.

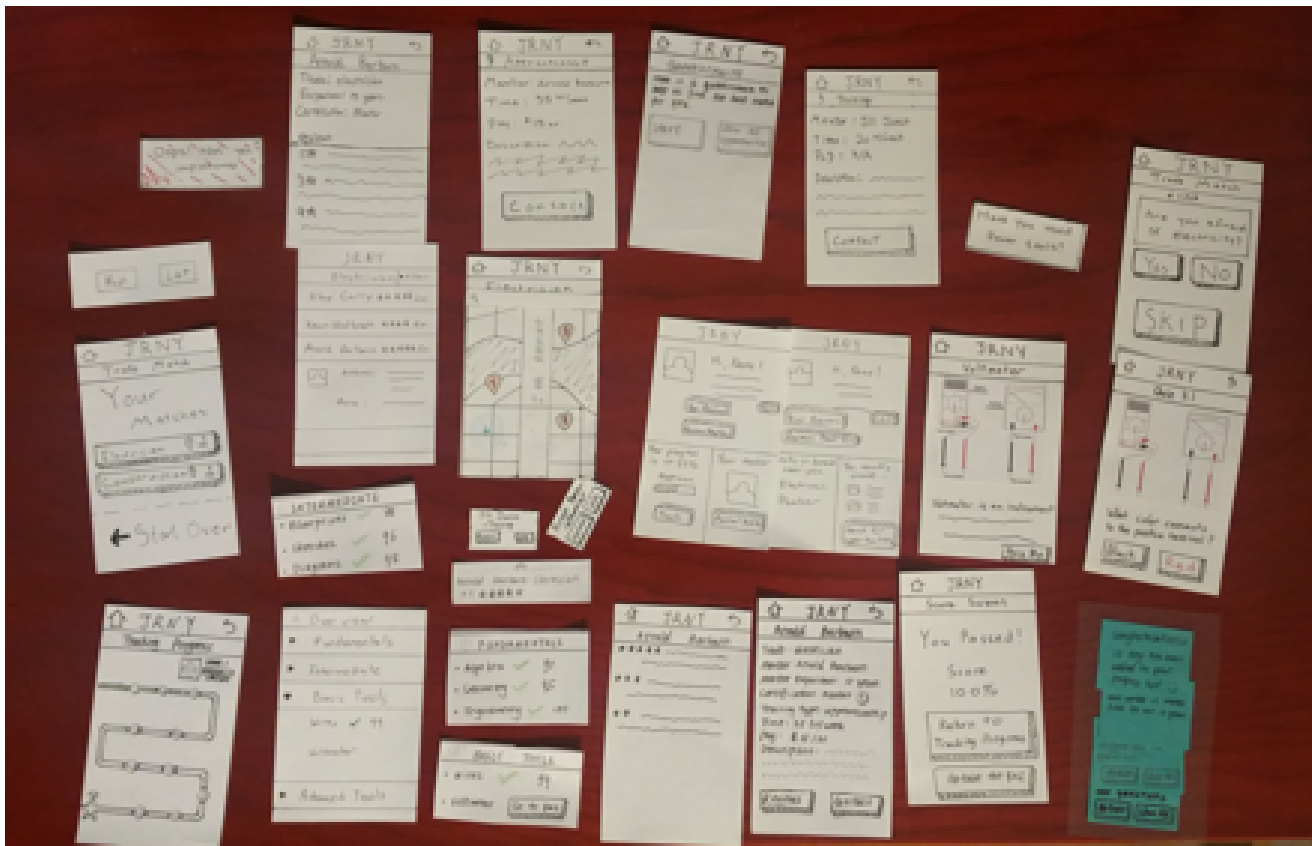
This process helped us a lot in shaping our final design. First of all, in the iteration involving usability testing, we made our app so that it made more sense in the perspective of the users. For example, the meanings of original buttons were confusing such as “discover a trade” (which was meant to be “find a mentor in a trade suitable for you”), or the plus sign in the tracking progress page. Even though those buttons made perfect sense to us, they did not make much sense to our users since the users did not know the tasks behind those buttons. After this iteration, we were able to change or eliminate some of those confusing buttons so that our app now is more intuitive to use. Secondly, in the iteration involving heuristic evaluation, we learned how to improve our app in terms of user control, visibility, and error prevention. There were a lot of shortcomings originally. For example, the user was brought to the questionnaire right after they clicked on the “search” button, which was abrupt and did not give the user much control over what he or she might want to do. Also, we did not deal with the case where the user skipped all the questions, and during the questionnaire process, the user could not see how many questions were left. After this iteration, we added some transition pages and some indication symbols to improve the visibility of our app and made our app less error prone while still gave the user control over the app. Last but not least, in the iteration involving peer critique, we took into account that the blind people could not see the map view of our app. So we added the list view so that people with disabilities could use our app as well.

Throughout the process, we re-designed our app around the two initial tasks, so our tasks have not changed as a result of the usability test. However, we did change the way of how our second task is achieved. Specifically, in the tracking progress task, the skill set was added by the apprentice by clicking on the plus button on the page originally. After the usability test, we modified it so that the skill set was predetermined because the user thought the functionality of the plus sign was confusing.

We think we could have more iterations upon our design. We did not make much improvement after the digital mockup except the functionality of switching between the map view and the list view. If we had more time, we would like to have more iterations devoted to the digital mockup so that the final deliverable could be more polished and easier to use when we actually code it up.

Appendix

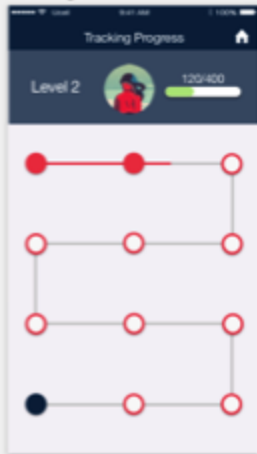
Final paper prototype overview:



Final digital mockup overview:



Main Page



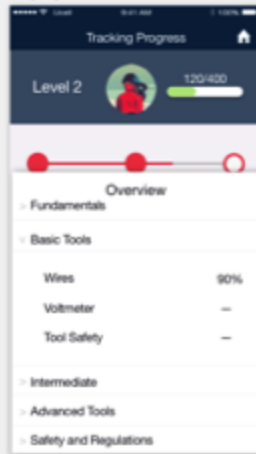
Pop up 1



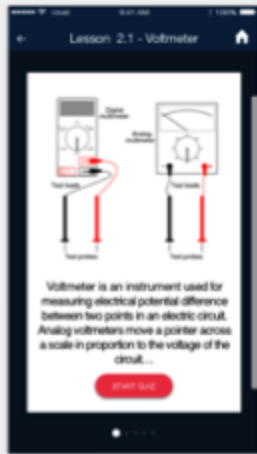
Pop Up 2



Pop Up 3



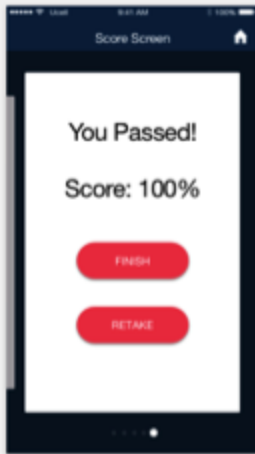
Lesson 2.1



Quiz 2.1



Score



Dialog: Score

