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Problem & Solutions Overview

Problem

As social creatures, the relationships we build and maintain with others are very important to us. Communication is a key component to building and maintaining those relationships. Unfortunately, maintaining this communication in an effective, well-balanced manner can be very difficult. Additionally, it can be challenging to determine which relationships are the most important to us, and to make sure we devote an appropriate amount of time and energy to these relationships.

Solution

Our solution to this problem is a mobile application that helps users keep track of the balance, frequency, and quality of communication in their relationships. It will allow them to set goals pertaining to relationship balance as well as prioritize their various relationships. The applications users texts, phone calls, messaging services, Skype, email, etc. will be tracked to establish and meaningfully display data such as the frequency of contact, communication patterns, and overall strength of communication. Our app will focus on creating and maintaining strong relationships, where establishing well-balanced communication is key.



Initial Paper Prototype

Task 1: Setting a goal to balance communication in a relationship

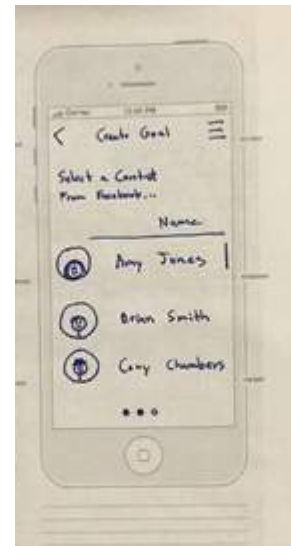
In the first version, our app focused on helping the user achieve relationship balance by setting a goal on the amount of effort to contribute to the relationship. After selecting a contact from a social network or address book, the user would select a value between 0 to 100%. This value represented the amount of balance the user wanted to be responsible for. For example, selecting 60% meant the user would want to initiate $\frac{3}{5}$ of conversations, write $\frac{3}{5}$ of substantive text, etc.



1) The user opens the app for the first time. They are presented with an empty view saying they have not established any goals. A large add button is present at the bottom and is the only button available.



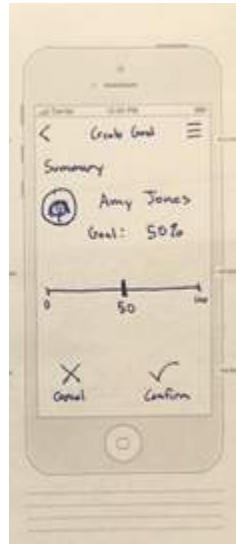
2) The user selects the large add button. The first step is to select a person from a list of available options. These options are contacts, Facebook, Google, and the option to manually type in. Progress indicator at the bottom show progress of steps.



3) After selecting a service to choose a person from, the user is presented with a list of contacts to choose from. The progress indicator at the bottom shows they are in the second step.



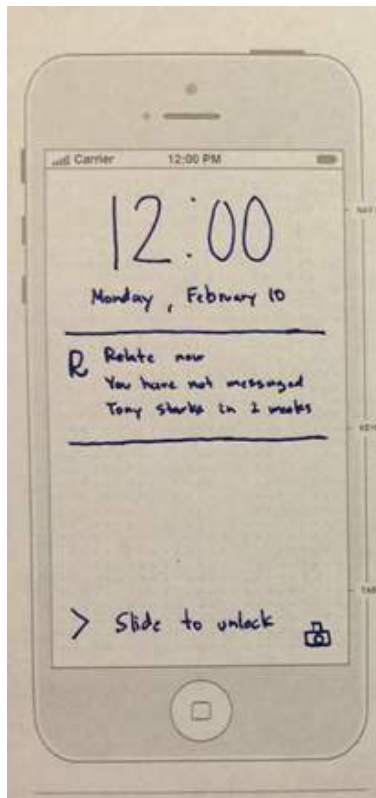
4) Next, the user must select the relationship balance they are striving to reach. There is a scale to manually adjust the percentage. The option of being done is provided and the progress indicator shows its the last step.



5) A summary page is provided with an overview of the contact selected, relationship balance goal chosen, and the option to cancel or confirm. The user is done selecting the relationship balance goal specifically.

Task: Remembering to contact someone you haven't contacted for a while

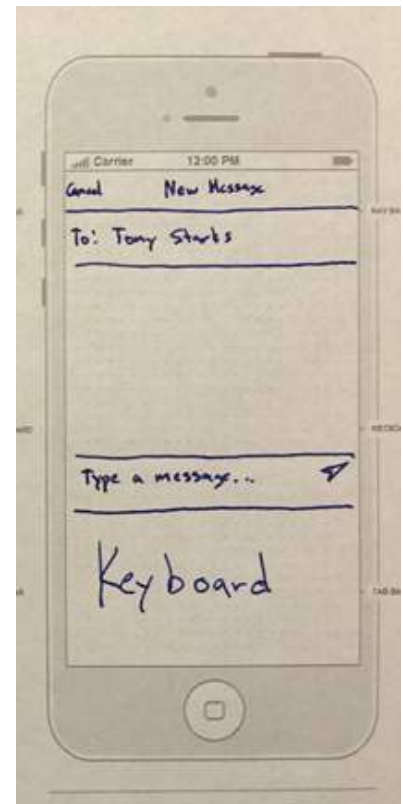
In the first app version, this task notified users to reach out and contact a friend after failing to message them in two weeks. The user would receive a lock screen notification that opened the app with a summary page of the user and the problem. The user would then select a messaging method/app and be redirected to create a message to send.



1) The user receives a lock screen notification from the app informing them that they have not messaged Tony Starks in 2 weeks.



2) The user selects the notification and is redirected to the relationship summary page. The name, picture, and relationship balance is presented. The users' attention is reminded they have not messaged Tony Starks in two weeks. They are given the option to message Tony immediately through the users' apps mainly used.



3) The user selects a message option as is redirected to the messaging app with the contact information already filled. Everything is ready for the user to type his message and send it.

Testing Process

Method:

We conducted all of our usability tests in Mary Gates Hall. We chose this location because students are generally always available, and it could simulate an environment in which our app would be used. For example, the user could receive a notification reminding them to contact someone when they arrived or open the application while waiting between classes to set a new relationship goal. We chose participants who did not appear busy and in order to simulate someone checking their phone while waiting for a class. Joel, Chris, and Luis came up with the script and pre-planning for the usability test.

All of our the tests consisted of a facilitator, a recorder and one participant. The tests started out with a short explanation of the test as well as a situation in which the participant has downloaded the application (detailed in the script below). This was followed by a short primer for Nielsen's think-aloud protocol. We then asked the participant to navigate the application as if they had just downloaded and opened it. This led them through our prototype's first task of setting a relationship goal. After this we asked questions concerning the clarity and ease of use of our prototype. Then we gave our participant a second scenario - having just received a push notification from our application - and asked them to navigate it then give feedback afterwards.

Participants:

Usability Test #1

Subject: female undergraduate student **Facilitator:** Luis **Recorder:** Christopher

The participant was somewhat confused about how our application was creating its initial relationship balance information, and about the presentation of this information. After this test we refined our design to correct some of this information.

Usability Test #2

Subject: Male international student **Facilitator:** Thomas **Recorder:** Luis

This test revealed more issues in our design, especially relating to the terminology of some of the text on our "Summary of Communication" and "Set a Goal" pages. For example, at one point the user was not clear if "conversations started" referred to himself or his friend.

Usability Test #3

Subject: female GWSS senior **Facilitator:** Luis **Recorder:** Thomas

This test exposed more issues with the wording in our application, and highlighted the parts of our application that were critical to change before our digital mockup. It helped us further refine terms in our app and prepare our final paper prototype mockup.



Retrospective:

Throughout our usability testing, our team implemented changes between tests to improve the presentation of the task and scenario to the participant, improve data collection, and improve data analysis. Initially, all our communication with the user was done directly from the facilitator to the participant verbally. This worked well, but at times instructions had to be repeated or directions were misheard. As a result, we required users to utilize the “think-aloud” method. This allowed us to actually get an understanding of the user’s thought process, their confusions, and things they got right immediately. Our first test with the “think-aloud” method worked well, and through each successive test we became better at enforcing this method. In addition, to improve data collection and data analysis, after usability test two the facilitator and note taker took time to debrief after the study. This meeting served to review the notes and add key observations and details before they were forgotten. It also helped us decide on changes immediately and present them to the rest of the team for rapid review and implementation.



Testing Results

Revisions to Prototype After Heuristic Evaluation:

Our most major revisions had to do with completely revising the original “Create Goal” screen. The original balance slider with a “Relationship Balance” percentage was completely unintelligible to users and provided no context. Overall it made the original version completely unusable. We learned that we had abstracted our concept of relationship balance too much and that we needed to give more information and context to allow the user to understand what goals they are setting.

- Added new screen to our application detailing the user’s current relationship balance in certain areas: proportion of conversations started, contact method and contact frequency.
- Changed goal setting to be specific to one of these three metrics to make the goal more concrete.
- Added multiple representations of the statistic for the goal that was being set in an attempt to increase clarity. (Representations were: x of 5, x%, pie chart)

Revisions to Prototype After First Usability Test:

Our first revision on this still had numerous problems revolving around difficulty in understanding the new information we added in the previous revision. She had a hard time figuring out what the numbers meant and what the numbers were measuring. This was especially obvious on the “Set a Goal” page where the user did not realize the multiple representations were conveying the same data and was confused by both the “x of 5” and pie chart representations. Additionally the participant was confused about where the application was getting the data for the statics we presented. These changes were important because they allow our users to quickly digest the information we present them, which allows them to expediently set informed relationship goals.

- Updated loading screen to include information on what information the system is gathering. Added text “Analyzing Communication with Amy Jones”
- Simplified interface by removing redundant information in “Set a Goal” page: the “x of 5” and pie chart displays of current conversations started. We retained the percentage method of displaying statistics.
- Simplified interface by removing redundant information in “Summary of Communication” page: the “x of 5” was removed in favor of emphasizing the x%.

Final Paper Prototype Revision:

The final revision of the prototype included mainly wording adjustments to clarify to the user what the different statistics we were presenting meant more expediently.

- On “Analyzing Communication” loading screen added the text “Analyzing for the past month” to clarify the period of time that data was being considered for the metrics to be displayed.
- Changed “Conversations Started” on “Summary of Communication” page to “Conversations I have started” to clarify that the information presented relates to the conversations the user has started not the person that is being analyzed.
- Changed x% to “x of 10” when displaying conversations started



- Changed “Frequency of Contact” to “Frequency I contacted [User]”
- Added text to the screen that says the user’s contact is now synced with Relate so that they know any form of communication is happening in real-time.
- Simplified goal setting from the user having to choose wanting to start “x%” of communications with the other person to wanting to start “a lot more”, “more” or “less” communications with the other person.

Final Paper Prototype to Digital Mockup Revision

- Most of the major revisions that were made was just an upgrade of the quality of the visuals of the application. The screen that changed the most was on the task of setting a goal. For the sixth task of setting a goal, we have given the users an option called “Manual Input.” This is for the more advanced users to set a more specific goal.

Final Digital Mockup Revision

- From the critique session we got feedback that we should include a screen that shows the home page with current contacts that already have goals. This addition helped make our application more cohesive. We also fixed spelling, and simplified the wording in some areas. For example, “Frequency I contacted [User]” became “My frequency of contact.”



Final Paper Prototype

Task: Setting a goal to balance communication in a relationship

The final app version refined and improved the relationship balance theme and goal setting procedure. Users are presented with a summary page that provides an overview of their communication behavior and patterns. The user can then set a goal for a specific category they wish to improve on. Setting a goal is simpler with a default qualitative scale, but the option to use a percentages/quantitative scale is still available



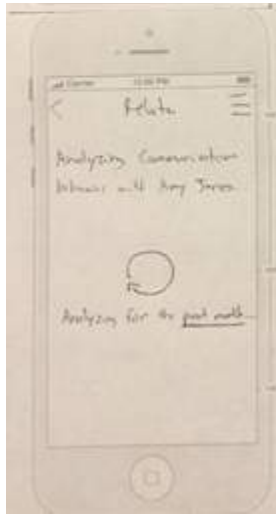
1) The user loads the app for the first time and is presented with an empty view. The only option provided is the + sign to add a goal.



2) The user is presented with a prompt to select what service/app they want to select a contact from. A progress bar at the bottom lets them know they are at the first step.



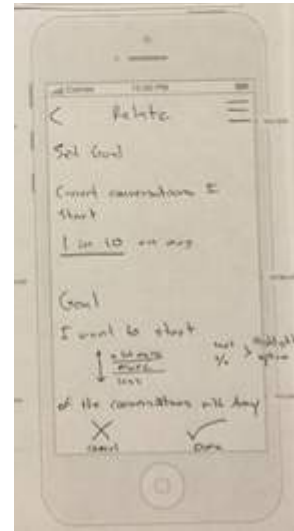
3) After selecting a service, the user is presented with a list of their contacts. They are prompted to select a contact from the list. The progress bar is updated informing the user they are on step 2



4) After selecting a contact, a loading screen appears informs the user that the app is analyzing.



5) After the app is done analyzing, the user is presented with a summary of the data analyzed. This includes various categories and it states their current pattern/trend. Next to each category a button exists that allows the user to set a goal. The progress bar lets the user know they are on the final step.



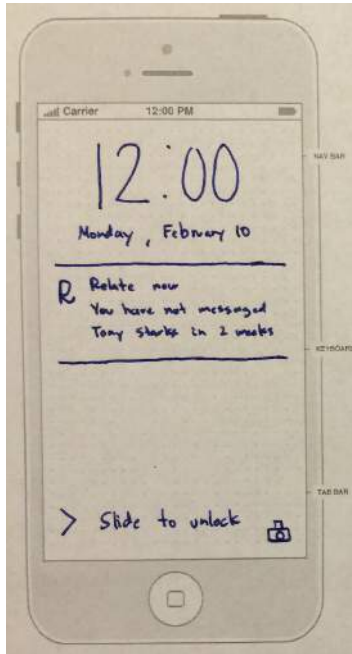
6) The user selects a category they are not happy with and sets a goal. We have a simple metric that allows them to selected if they want to start a lot more, more, or less conversations. This will update the percentage of conversations they want to start. The user then selects Done.



7) After setting their goal and confirming they are done, the user is presented with a screen letting them know their goal has been set. The goal set is repeated so the user knows what they set. They are informed that their friend is now connected on Relate. The task of setting a goal is complete.

Task: Remembering to contact someone you haven't contacted for a while

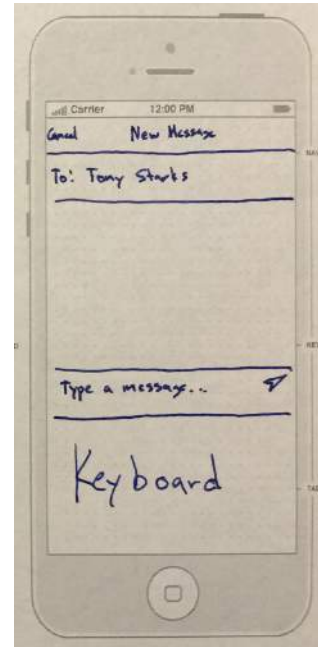
The final app version for this task remained consistent throughout the app testing. The layout, functionality, and steps remained the same because of strong feedback on its ease of use and simplicity. A snooze function was added to silence and re-alert the user of the notification later.



1) The user receives a lock screen notification from the app informing them that they have not messaged Tony Starks in 2 weeks.



2) The user selects the notification and is redirected to the relationship summary page. The name, picture, and relationship balance is presented. The users' attention is reminded they have not messaged Tony Starks in two weeks. They are given the option to message Tony immediately through the users' apps mainly used. They are also given the option to Snooze the notification to receive it at a later time if they are busy.



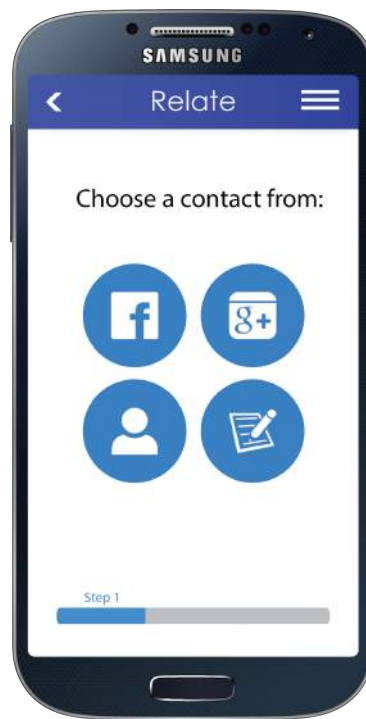
3) The user selects a message option as is redirected to the messaging app with the contact information already filled. Everything is ready for the user to type his message and send it.

Digital Mockup

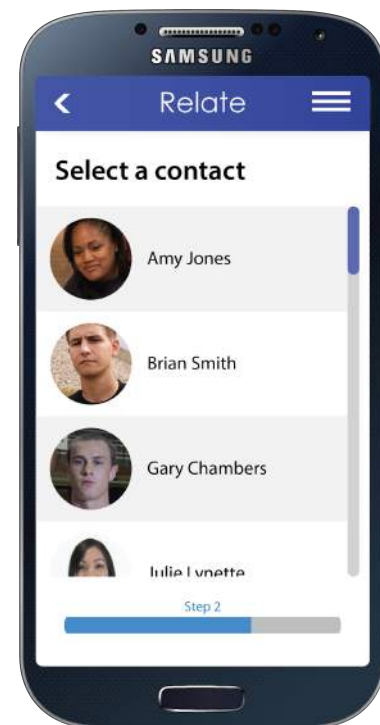
Task: Setting Relationship Goals



1) The user loads the app for the first time and is presented with an empty view. The only option provided is the + sign to add a goal.



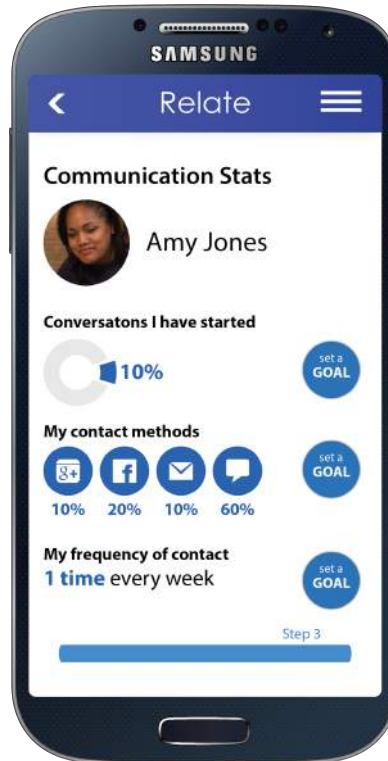
2) The user is presented with a prompt to select what service/app they want to select a contact from. A progress bar at the bottom lets them know they are at the first step.



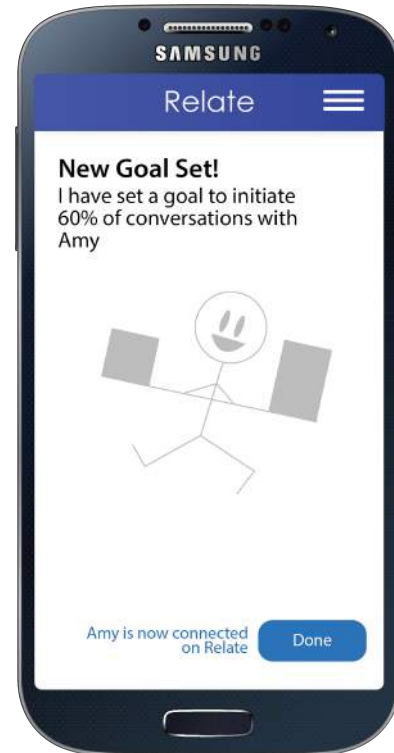
3) After selecting a service, the user is presented with a list of their contacts. They are prompted to select a contact from the list. The progress bar is updated informing the user they are on step 2



4) After selecting a contact, a loading screen appears informs the user that the app is analyzing.

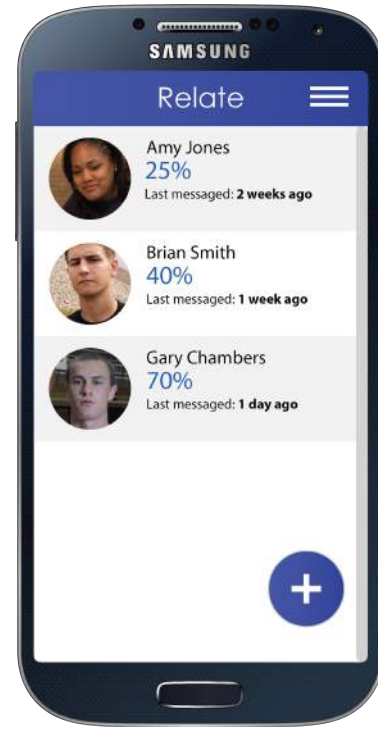
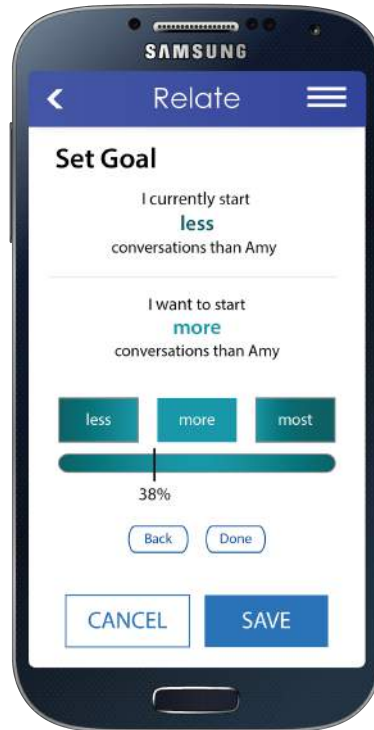
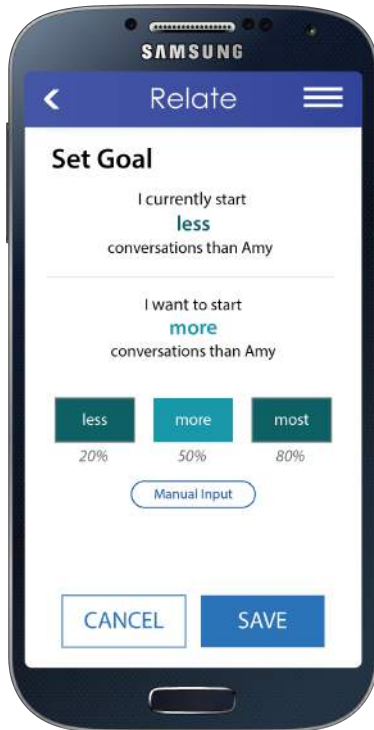


5) After the app is done analyzing, the user is presented with a summary of the data analyzed. This includes various categories and it states their current pattern/trend. Next to each category a button exists that allows the user to set a goal. The progress bar lets the user know they are on the final step.



6) The user selects a category they are not happy with and sets a goal. We have a simple metric that allows them to selected if they want to start a lot more, more, or less conversations. This will update the percentage of conversations they want to start. The user then selects Done.

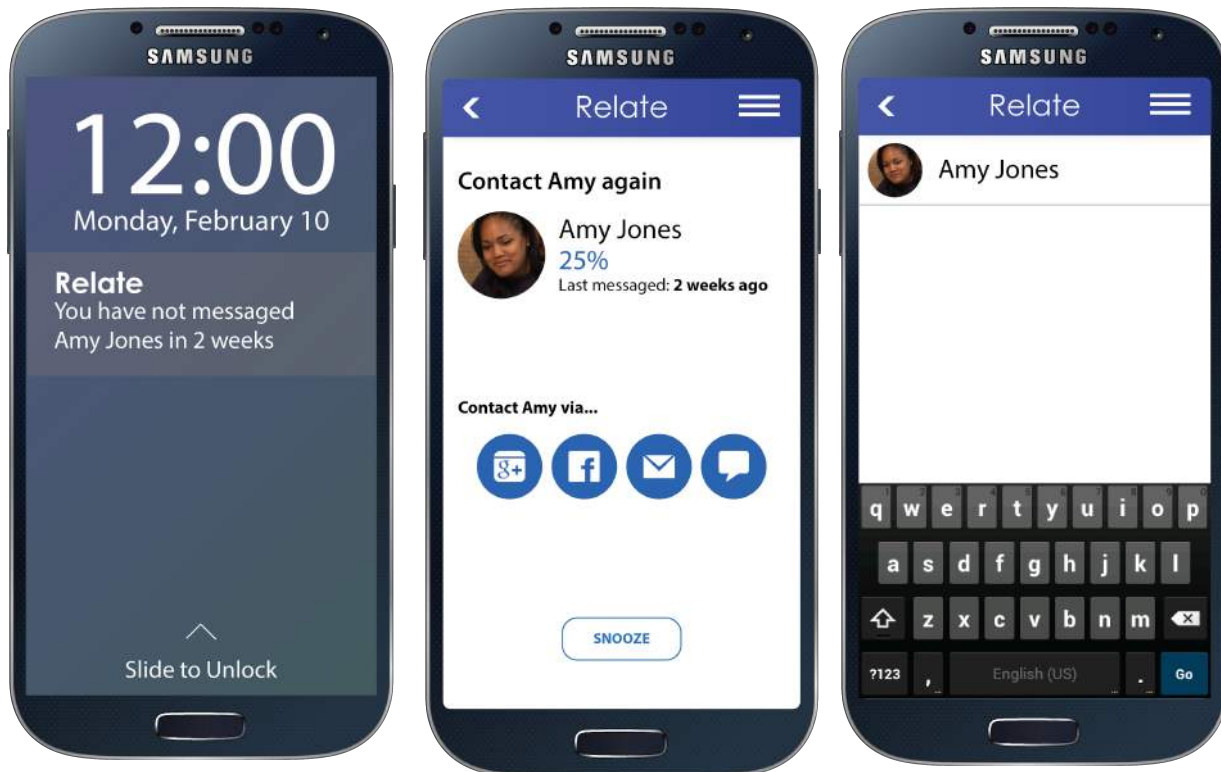
*The user can click "Manual Input." This will allow them to manually move a slider to set a specific goal. This is intended for more advanced, or users who are very specific



7) After setting their goal and confirming they are done, the user is presented with a screen letting them know their goal has been set. The goal set is repeated so the user knows what they set. They are informed that their friend is now connected on Relate. The task of setting a goal is complete.

8) After adding a new goal. The user's homepage will now be populated with contacts that they have added goals for. From here a user can either add a goal or select a contact to view their goals.

Task: Reminder to Contact Someone



1) The user receives a lock screen notification from the app informing them that they have not messaged Tony Starks in 2 weeks.

2) The user selects the notification and is redirected to the relationship summary page. The name, picture, and relationship balance is presented. The users' attention is reminded they have not messaged Tony Starks in two weeks. They are given the option to message Tony immediately through the users' apps mainly used. They are also given the option to Snooze the notification to receive it at a later time if they are busy.

3) The user selects a message option as is redirected to the messaging app with the contact information already filled. Everything is ready for the user to type his message and send it.

Discussion

Our team learned that a design is never perfect. As soon as we thought we had a solid design, and we would present the design to a user in a usability test, we would discover significant flaws. We also learned that we cannot please everyone. Everyone has a unique opinion on different aspects of a design, many conflict with each other. In scenarios like this, we learned to come together as a team to decide on which features to change to make our design the best we can make it. We also learned how important and difficult it can be to communicate ideas that we thought were simple to a user.

Going into the iterative design process with our initial design, we felt that the idea of relationship balance was something that would be universally understood. Our initial prototype had displayed it as a sliding scale with a percentage. Through the iterative design process, we discovered that our users had no idea how to interpret relationship balance and the way we were representing it. Through each iteration, we were able to narrow down better ways to communicate this idea to the user. We ended up making some large fundamental changes that have made our final design significantly better. The process was invaluable in shaping our final design.

We had to change the wording of our tasks to make sure that they are from a users perspective, although this was not a result of our usability tests. We have essentially kept our tasks the same throughout this process. However, the steps used to complete the tasks have been revised.

We think we could have used more iterations for our design, at least one. We could definitely have used a few usability tests on our high fidelity mockup. This would be useful in finalizing the wording on core parts of the application to make sure information is displayed clearly and concisely.

Appendix

Appendix A: Facilitator Script:

Hi, my name is (name). We are performing a usability study on an app for our class project. Would you be willing to test our app?

Great! Thanks! (Note taker) will be taking notes while I, the facilitator, will guide you through the app. Through this test I will ask that you speak out loud as you test the app. Although it may be awkward at first, it will be easier as you get used to it. If you forget to talk out loud I will remind you. To get started, let me introduce you to the scenario.

Your friend tells you about a cool new app called “Relate” that helps you keep a healthy communication balance in your relationships. You are interested in this app and decide to download it. You download the app and open it for the first time.