

# Speaks App

To help children with learning disabilities improve their social and communication skills through an easy and accessible outlet

## List of Team Members

Shanaya Ukuwela (UX Researcher, 56649043)

Allison Bennett (Project Manager, 85571966)

Alvin Nguyen (Engineer, 28864658)

Victoria Adebona (Engineer, 12582008)

Jessica Zhang (Designer, 25821790)

Nefertiti Rogers (Designer, 47444330)

## Introduction

Children with autism have trouble identifying civil servants and service personnel: what purpose they serve, how they help the community, and what items/automobiles/tools they use and why. We want to provide a product that helps these children identify the purpose of service workers and show that these children do not need to be afraid or anxious around them. The Speaks app aims to familiarize children with autism with service personnel, the items or tools they use, and what services they provide to ease the children's anxiety and confusion when they encounter these types of workers in their daily lives.

# Lean Canvas

<p><b>Problem</b></p> <ul style="list-style-type: none"> <li>Children with autism/learning disabilities have trouble identifying and responding to social cues</li> </ul> <p><b>Existing Alternatives</b></p> <ul style="list-style-type: none"> <li>Therapy</li> <li>Teachers</li> <li>Picture Exchange Communication Systems</li> <li>Proloquo2go</li> </ul>	<p><b>Solution</b></p> <ul style="list-style-type: none"> <li>Create an application that allows children with communication disabilities to express and learn through images, scenarios, and words</li> </ul>	<p><b>Unique Value Proposition</b></p> <ul style="list-style-type: none"> <li>Low-cost, easy-to-use, aesthetic app to help kids with autism/learning disabilities respond to social situations</li> <li>Our goal is to give children users the unique opportunity to communicate and learn from our application through images and words based on the PECs system. The part that makes our proposal unique is through an affordable and accessible application</li> </ul>	<p><b>Unfair Advantage</b></p> <ul style="list-style-type: none"> <li>Similar apps cost \$300+, but ours is only \$2-3</li> <li>Profits beyond what we need to develop/maintain app go to charities/research</li> <li>We intend to implement an AR feature that will be utilized like Snapchat filters for the application, but that will not give us a distinct advantage over other competitors, technology-wise</li> </ul>	<p><b>Customer Segments</b></p> <ul style="list-style-type: none"> <li>Children directly</li> <li>Parents with children with Autism</li> <li>Teachers that lead classrooms that have children with learning disabilities</li> </ul> <p><b>Early Adopters</b></p> <ul style="list-style-type: none"> <li>Children with autism</li> <li>Parents of children with autism</li> <li>Teachers of children with disabilities</li> <li>ABA therapists that work with behavioral organizations that work with children and people with autism</li> </ul>
	<p><b>Key Metrics</b></p> <ul style="list-style-type: none"> <li>A - Download free (beta)/paid app</li> <li>A - Run through a scenario</li> <li>R - Reaching out to parents/teachers for app feedback</li> <li>R - App downloads</li> <li>R - Family and friends</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>Friends</li> <li>Family</li> <li>Word of mouth</li> <li>Tumblr/Facebook/Snapchat</li> <li>Teachers</li> <li>Buzzfeed</li> <li>App Store reviews</li> <li>Conventions</li> </ul>	

#### Cost Structure

- Personal salary for team, in the future may need funds for more advanced software (AR developers), design, research
- Advanced software design/development tools costs
- Renew InVision account

#### Revenue Streams

- \$2-3/per app download with additional purchases for more features (future iterations)
- Group “subscriptions” for a school or classroom - \$100/lifetime subscription

## Additional Notes for Lean Canvas

- What characteristics of your early adopters make them valuable to the product development?
  - Children with autism: actual target users of our product, in addition to other children with learning or communicative disabilities
  - Parents of children with autism: also need to cater our product to the parents of our children because younger or lower-functioning children may need guidance. Parents need to understand how to use the app as well and should also be incorporated in the progress and reporting of their child's success.
- Why are your channels effective in reaching your targeted early adopters?
  - Friends, family, teachers, and word of mouth: we're expecting these channels to be most helpful in spreading our product - as more of our early adopters use our app and see results, we hope that there will be incentive for them to tell their friends, family, and children's teachers. For example, the fact that we will be giving profits above what we need to continue operating to charities and research that help children with autism should help spread the word that we are not just looking to make profit, but actually help those for whom our product is made.
  - Tumblr/Facebook/Snapchat: these channels are vessels for word of mouth about our product to spread. Facebook and Tumblr also provide the opportunity for us to advertise to targeted users of these services. Care needs to be made when advertising using these methods because of the way in which data is collected about their users, for example, children's privacy and confidentiality.
  - BuzzFeed: often highlight up-and-coming products - could potentially be in one of their list videos to give us a spotlight on our product

- App Store reviews: As part of our minimum success criteria, we would like to have no less than a 4-star rating in the App Store at any given time. This will boost our reputation and value to others and potentially lead to more downloads and subscriptions.
- Conventions: Learning conventions and other public events that focus around children with autism would be a key channel to provide word of mouth of our application. These events tailor to audiences that have a direct connection with our early adopter target audience, which would provide an essential boost to our approach in tackling this demographic.
- How do the listed key metrics provide accurate evaluation of your product's success?
  - Download free (beta)/paid app: Beta downloads show interest in our product, further validating our MVP. Paid downloads will help us to hire more staff and allow us to push out new scenarios and features more quickly.
  - Run through a scenario: If we can successfully have our target users run through scenarios consistently, our MVP will be validated.
  - Reaching out to parents/teachers for app feedback: Feedback from early adopters makes sure we are on track to our minimum success criteria. If not, we will know what changes need to be made.
  - App downloads: Same as above, either further validating our MVP or providing us with revenue to grow.
  - Family and friends: If our early adopters share their good experiences with our app with their families and friends, we can continue to grow.

# Value Proposition Canvas

## Product

<p><b>Gain Creators</b></p> <ul style="list-style-type: none"> <li>• Our app will help children with autism respond appropriately to those trying to help them because they will have already interacted with representations of these people digitally through our app</li> <li>• After having a successful interaction with those they</li> </ul>	<p><b>Product Features</b></p> <ul style="list-style-type: none"> <li>• App will help to alleviate fears of social situations through training and play; when children recognize the people who are in our app, they will be more inclined to interact with these people knowing what they do and who they help</li> <li>• After using the app in play, therapy,</li> </ul>
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## Customer

<p><b>Needs &amp; Goals</b></p> <ul style="list-style-type: none"> <li>• Children with autism want to fit in and be heard</li> <li>• Accepted: when correctly recognizing social cues and responding appropriately, children feel accepted by their peers and parents</li> </ul>	<p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>• Children with autism need a communication guide to help them through common social interactions</li> <li>• Ordering food in a restaurant, meeting someone new, and stressful situations can be hard</li> </ul>
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<p>normally would not, children will be more accepted by society</p>	<p>school, or with parents, children will feel less scared to interact with the world around them because they know why people with certain occupations are approaching them</p>
<p><b>Pain Relievers</b></p> <ul style="list-style-type: none"> <li>• Our app reduces isolation by having children play with and recognize people they will encounter in real life; we hope interacting with our characters will encourage curiosity to engage with people</li> <li>• Our app reduces anxiety when in real life stressful situations by</li> </ul>	

<p><b>Pains</b></p> <ul style="list-style-type: none"> <li>• Isolation: children with autism can often feel isolated from their peers and society when not able to communicate</li> <li>• Anxiety: not being comfortable in social situations causes undue anxiety</li> <li>• Disappointment: when someone is not accepted after trying to engage socially, children will feel disappointed in themselves</li> </ul>	<p>to handle for children with autism</p>
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knowing, for example, what a doctor does and why	
<ul style="list-style-type: none"><li>• Our app will reduce disappointment from the children and those around them by helping them to react positively towards people who are firemen, doctors, mailmen, veterinarians, police officers, etc.</li></ul>	

## Additional Notes for Value Proposition Canvas

- What customer pain does each product pain reliever address (and how, if not obvious)
  - Isolation
  - Anxiety
  - Disappointment
- What customer gain does each product gain creator address (and how, if not obvious)
  - Fit in and be heard
  - Be accepted
- More information about Customer Pains:
  - Anxiety: Not being able to communicate on a high-level with others, thus not being able to receive or complete what they want in different situations
  - Disappointment: Situations where their behavior is unaccepted in a social setting, thus being rejected by others that do not understand what they are trying to communicate or emotional display
  - Behavior: Many children suffer from non-normal social behaviors associated with stemming from high social cues. This app is geared toward to helping children cope with those behaviors and apply them to settings and instances outside of the classroom or learning setting.

## 3 × 3 × 3 Goals

### Three-week

- Goals: Confirm product is a Minimum Valuable Product
- Minimum Success Criteria: Through research and testing (interviews), confirm MVP is wanted and needed for our target users
- Assessment Plans: Answer following questions:
  - Do versions of our product already exist? Are they digital or physical? How successful are they for our goal?
  - Do professionals in either mental health or educational fields find our product to be useful? What features would they encourage/discourage from their experience with similar products?
  - If other products like ours exist, what are their price points? How does our product compare to what is already on the market?
- Agenda: Shanaya will research above questions and our general target users. We will need to interview professionals to answer above questions.
- Main Risks: Potentially invalidating our MVP or requiring a pivot in our MVP
- Results: Other versions of our product exist (listed in our lean canvas), but they are either trying to solve a slightly different goal, are not digital products (children physically group pictures into buckets to organize people and objects that go with them), or they are very expensive compared to our future price point. Interviews confirmed our MVP given some constraints: no advertisements, pictures over text, and no in-app purchases.

### Three-month

- Goals: Create a high-fidelity prototype and start creating the web app to use for testing
- Minimum Success Criteria: Creating a product (either prototype or web app) that is functional enough to take into a classroom and test with children
- Assessment Plans: If there are gaps in our testable product, will it throw off our testing? If so, need more progress to be made before starting the testing.
- Agenda: Jessica will start progress on our high-fidelity prototype; we need it to be finished no later than week 8. Alvin, Vicky, and Nef can start building web app as Jessica creates our assets and scenarios; we need it to be finished at least by the time we present our final presentation, hopefully we can also use it for testing.
- Main Risks: Not enough time to finish our true MVP - web app, potential development setbacks (bugs, etc.), clashing schedules for testing with children
- Progress: We finished our high-fidelity prototype in time for testing, and even tested our web app with some. We still need to finish the end of the “Mailman” scenario and the other scenarios we did not prototype for the web app before we can move forward.

### Three-year

- Goals: Have a fully-functional app on the market, adding 5-10 new scenarios each month
- Minimum Success Criteria: 25% retention rate 90+ days after initial download plus no less than a 4-star rating in the App Store at any given time
- Assessment Plans: Logging and checking our users' retention rates, rating, and feedback from users. Potentially need to reach out to users who lower our overall rating and definitely make changes to issues that will improve our user experience.
- Agenda: First need to finish our web app version of our product, then work on converting to a native version in iOS and Android, add AR functionality, and place app on market when ready to go live.
- Main Risks: Without good marketing, we could do all the work to get our app on the market and then no one uses it. Without steady revenue, would not be able to hire talent to integrate AR functioning and more designers to create our 5-10 scenarios/month. A failure at this stage in our product development could be potentially catastrophic.

# Research Method 1

Title: Understanding the User (Know People)

Method: Subject Matter Experts Interview + Ethnographic Interview

## Method Summary:

Based on the book Design Methods 101 by Vijay Kumar, Subject Matter Experts Interview is a “method for getting up to speed quickly on your area of interest”. It provides one with information on the most advanced developments and guidance as to where to look for more information on the topic desired. The interview is a “guided conversation” where one can gather important information, facts, expert opinions and more. The Ethnographic Interview, also drawn from Design Methods 101, is used in order to understand people’s activities and experiences from their own perspectives and own places. It allows the researcher to understand people through their own personal stories, making it a less-biased and scripted interview. Usually these interviews take place in person to make it a more intimate, engaging conversation.

### Research Design/Implementation:

This research was conducted via a phone call due to conflicting schedules, thus making myself and the interviewee unable to meet in person. I combined these two interviews as I wanted to understand the user personally before asking questions relevant to the implementation and development of our application, Speaks. I wanted to identify any possible bias as well as how the user developed their answers, due to their own personal experiences. I created a set of questions I wanted to ask the user, starting from personal questions such as their career, career goals and more, ending with specific questions related to the implementation of our application and how it may affect the intended users. As you can see, I began the interview with ethnographic interview questions, and ended with subject matter-related questions. Since the users who will actually use the application are children with autism, it is difficult to obtain concrete information from them, so I asked teachers and aids that work with them.

### Data Collection:

To begin, the intention of these interviews was to better understand the users that would be learning from this application: children with learning disabilities. Our team had a great opportunity to interview Alvin's sister Sarah Nguyen, a teacher that works with children with autism, as well as her aides Ingrid and Rania, who work with the children as well at Davis Magnet School. I was able to collect data on the personal occupations of our interviews, including challenges and career traits. Furthermore, I collected data on the use of mobile applications with children with autism, highlighting possible features and concerns necessary to accommodate their needs. Lastly, I asked about competing applications in the industry and how the positive and negative traits they have, as well as how a mobile application like ours compares to learning social scenarios in the classroom (which is what they do).

## Analysis:

Overall, the key data we collected from the interviews focused on behavioral aspects the children have that will affect how they interact with our application, as well as how parents will benefit from the application. Sarah helpfully explained the behavioral tool S.E.A.T. (Sensory, Escape, Attention, Tangible) which helps identify and resolve behavioral issues. She also stressed the importance of parental controls and features in the application design such as progress meter, time constraints, and history so that parents can measure the achievements their children are making. Another key feature to address is the absence of advertisements which could confuse and frustrate users because children and adults may accidentally tap on the ad and be redirected outside of the application with no way to return to it. Sarah's aides Rania and Ingrid identified that the children's capability in using the application also depends on their functioning level, meaning that the higher-functioning children are more likely to be able to use the application without assistance and lower functioning children will most likely need more help in using the application.

## Findings:

[User Interview Deliverable](#)



## Research Method 2

Title: Testing with Users

Method: Usability Tests

Method Summary:

Taken from [this article](#), a usability test is a method where users of a product or service complete a set of tasks, while researchers observe their behavior and determine how usable the product or service is. This method can be done in various ways, such as prototyping or an application, to name a few.

Research Design/Implementation:

Our team decided to divide our testing into three different types: smoke tests, prominence and recall, and finally moderated task-based tests. Courtesy of Sarah Nguyen, a teacher who works with children with autism, we were given the opportunity to test our prototype as well as web application with actual users via mobile devices as well as laptop. We tested whether a user could easily login and pick a social scenario to play via smoke tests. We wanted to see if the flow of the game from question to question was easy to learn via prominence and recall testing. Lastly, we had adults guide the child through the game via moderated task-based tests.

#### Data Collection:

We collected data on what parts of our application was confusing for the children, what was usable, what the children liked, and what changes we could make to improve the performance, accessibility, and usability of our application via the tests described above.

#### Analysis:

After performing the tests, we found that the children were very receptive. Both higher-functioning and lower-functioning children were able to grasp the application, though lower-functioning children needed more adult guidance to learn. The first time the children played the scenario, they were not sure what to do and how to use the application. However, after an adult explained what to do, they began to understand the flow quickly and easily, displaying great recognition as they answered each question. It was prominent that the children were visual learners, completely disregarding the text and tapping on the images they were familiar with. It soon became apparent that the children could understand and pick the right answer to the questions almost immediately, and started to become impatient, incessantly tapping the screen until it changed. They did understand the cues when they answered correctly and incorrectly as well. It should be noted that our future application should be fast and interactive so that it can keep the children engaged.

#### Findings:

on next pages

## USER TESTING

SMOKE

WEB APP

→ ONLY APPLICABLE TO HIGHER FUNCTIONING CHILDREN, LOWER FUNCTIONING UNABLE TO PLAY DUE TO UNFAMILIARITY W/ COMPUTER-BASED-APPLE DEVICES (MUSES)

TASK:

① STARTING WEB APP (PRESS PLAY BUTTON)

② CHOOSE CHARACTER (SOCIAL SCENARIO TO PLAY)

③ ANSWER SOCIAL SCENARIO QUESTIONS (WHAT CHARACTER NEEDS TO PERFORM NECESSARY TASKS)

④ CONTINUING TO NEXT QUESTION

⑤ COMPLETING GAME

SUCCESS:

① DIFFICULTY USING MOUSE, NEEDED GUIDANCE OF ADULT AT FIRST, BUT SUCCESSFUL

② SUCCESSFUL

③ ADULT GUIDES & EXPLAINS QUESTION, BUT UNDERSTANDS WHAT TO DO BASED ON PICTURES PROVIDED - SUCCESSFUL

④ CONFUSED AT FIRST, BUT WITH ADULT GUIDANCE, LEARNED QUICKLY

⑤ SUCCESSFUL

PROMINENCE  
+

→ APPLICABLE TO BOTH LOWER & HIGHER FUNCTIONING CHILDREN, BUT LOWER NEEDS MORE ADULT GUIDANCE

RECALL  
TESTING

KEY TASK:

① CHOOSING CHARACTER

② ANSWERING SOCIAL SCENARIO QUESTIONS

SUCCESS:

① LOWER & HIGHER ADULTS HAD TO VERBALLY EXPLAIN WHAT TO DO, BUT SUCCESSFUL AFTER FIRST

② 1ST TRY: DID NOT UNDERSTAND WHAT TO DO, ADULTS GUIDED  
FOLLOWING TRIES: PICKED UP FASTER, GAVE EASILY & QUICKLY, DOES NOT LOOK AT TEXT, JUST LOOKS AT PICTURES TREATS IT LIKE A WATCHING GAME

MODERATED  
TASK-BASED  
TESTS

→ APPLICABLE TO BOTH HIGHER & LOWER

TASK:

SUCCESS

① CHOOSE A CHARACTER

① SUCCESSFUL, BUT NEEDED ADULT GUIDANCE TO UNDERSTAND (CANNOT <sup>DO</sup> ~~SEE~~ NOT READ TEXT)

② PLAYING THE GAME

② AFTER ADULT EXPLANATION, UNDERSTOOD WHAT TO DO

NOTE:

- VERY QUICKLY UNDERSTOOD <sup>PURPOSE</sup> ~~PURPOSE~~ OF GAME AFTER 1<sup>ST</sup> QUESTION, KEPT TAPPING SCREEN AFTER GAME WES CHILD PICKED CORRECT ANSWER (GREEN HIGHLIGHT)
- ~~MATHMAN & FIREFIGHTER PROTOTYPES~~
- IGNORES TEXT, UNDERSTANDS THROUGH PICTURES EASILY, SINCE THEY COMPLETED W/ IN-CLASS LEARNING THEMES

③ COMPLETING GAME

③ ADULTS TAKE OVER, CANNOT DO ON OWN

OVERALL NOTES/ OVERALL NOTES:

THINGS TO  
CONSIDER

- SCREEN TRANSITIONS MUST BE QUICK: CHILDREN ARE IMPATIENT, WILL CONTINUE TO TAP THE SCREEN UNTIL APPLICATION REACTS
- THE MORE IMAGES, THE BETTER, RELATE TO VISUAL MUCH QUICKER THAN TEXT, MUCH MORE ENGAGED

## Prototype

Goal: High-fidelity prototype to use for testing of our MVP

### Summary:

The assets were created in Figma and placed on the screens. The screens were then migrated over to inVision to add hotspots. Jessica created the hotspots in inVision instead of Figma because Figma's navigation tool was buggy and hard to use.

Link: <https://projects.invisionapp.com/share/Q5FQREWT4WM#/screens>

Assessment: We used the prototype for testing because we were short on time to finish a testable version of our web app. We all downloaded the inVision app on our phones to test the prototype with the children.

Data Collection: Shanaya's research notes can be found under "Research Method 2 - Data Collection."

Analysis and results: Shanaya's analysis and results can be found under "Research Method 2 - Findings/Analysis."

### Lessons Learned:

Shanaya's results and future changes can be found under "Research Method 2 - Analysis."

## MVP Visual Design and Specifications

Product Hypothesis: The Speaks app aims to familiarize children with autism with service personnel, the items or tools they use, and what services they provide to ease the children's anxiety and confusion when they encounter these types of workers in their daily lives.

Implication:

The development of apps for children is not as simple as dumbing down adult concepts; us designers cannot rely on what we know about designing for adult users and apply it to children.

Evaluation

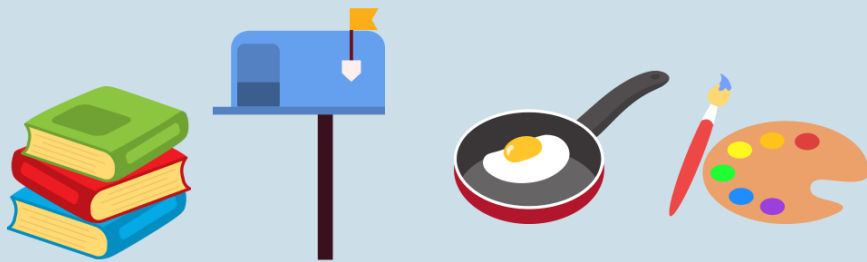
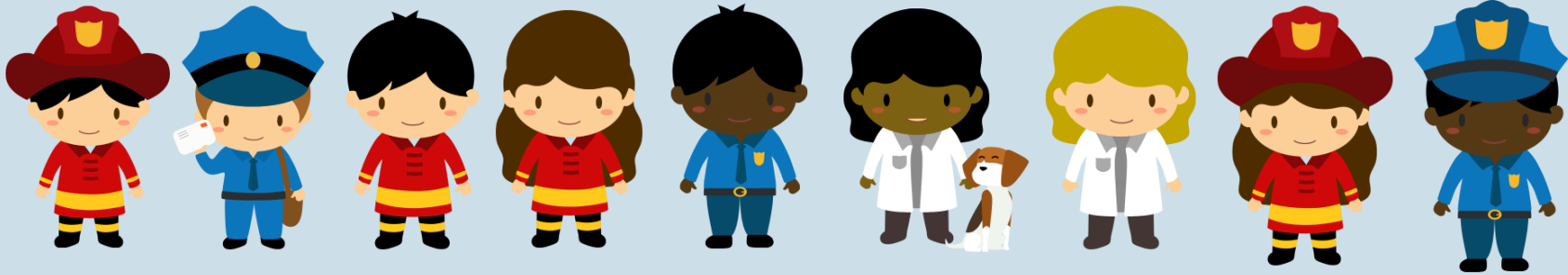
- Metrics: Children's responsiveness to product
- Data Collection: Smoke tests, prominence and recall, moderated task-based tests
- Assessment Plan: Research -> Prototype -> Test -> Redesign

Design:

Since children have a lower attention span than adults, our design needed to have interactive elements that utilize graphic components and vibrant color combinations to keep them interested. While our MVP is meant to be an instructional aid, our design is still aimed at children.

We wanted the overall look and feel of the prototype and MVP to be consistent. Finding clipart or images on the web that suited each scenario and were similar in design was hard to do, which is why we created custom created art assets for the

project. When designing the MVP, we also considered our children users' cognitive and physical abilities, as well as which developmental stage they are in.





### Specifications:

The hardest part about designing for children is that us designers cannot fully relate to children, which is why observing and testing our prototype with our target audience was such an important and a crucial part of the development and design of the MVP. Through testing, we can observe how children respond to the images, colors, text, and buttons then combine it with feedback from teachers to improve our application.

### Design practices we kept in mind while designing for the app were:

- Retaining consistent user experience
- Images over text
- Giving feedback on everything
- Removing any unnecessary elements from the screen (such as ads, extraneous buttons)
- Using buttons instead of gestures for navigation
- Give interactive elements indication that they are touchable
- Bold colors and images

It is important for our user interface and interactions to be intuitive and consistent; the same icon should perform the same action and the same feedback should be received when completing a section. Since some of our users lack high-level language abilities, we wanted to focus on visual cues rather than textual cues when a selection is completed. We achieved this through the usage of colors and images, and limited the amount of text displayed.



We wanted to maintain visual hierarchy when emphasizing clickable elements. Using this frame as an example, the clickable boxes are contrasted against the background to suggest that they are clickable (tappable). Similar to the selection screen, all clickable icons are squares, providing a unified theme throughout the application. When a selection is made, the icons change color reflecting if the selection is correct or incorrect. Ideally, there would be auditory feedback as well, but we did not have enough time to implement it. We would also implement some sort of animation to further emphasize clickable icons.



Yes! The mailman delivers mail





## Choose a character!



Firefighter



Mailman



Veterinarian

Instead of relying on gestures, arrow buttons are the most reliable method of navigation for children. We did not include any unnecessary buttons on the bottom of the screen, because children often accidentally touch that location. Furthermore, we did not include any advertisements or in-app purchases to avoid children being redirected to a different screen or accidentally making purchases. Finally, we did not include anything else that would distract the children from completing the task at hand, such as menus, settings, logos or unnecessary navigation elements.

# Implementation Documentation

## Technical Description

Our current MVP is a web application that was developed from scratch using HTML, CSS and JavaScript. Not much JavaScript was needed beyond making the application respond to what the user clicked (with red or green cues and making the next screen appear).

All the of the JavaScript code was written using the jQuery Library, for simplification and compactness. For some of the icons (like the back buttons on all of the pages and initial play button on the landing page), Font Awesome was used (so we didn't have to draw any of our own). Google fonts was used for all of the fonts displayed on the page. The app was also developed on Brackets, a text editor that allows you to see changes made to your site in real time as you're programming.

BitBucket was the platform that we used to host our website, which is why we have the domain name `speaks.bitbucket.io`. This also made it easier to do version control using Git and BitBucket, so we didn't have to do anything new beyond creating BitBucket accounts.

## Implementation Plan

	Time Required/Started	Contributor(s)
Started development, solidified MVP, loaded everything to BitBucket	Week 7 ( 1 week )	Victoria, Alvin, Nefertiti
Landing Page (start button, etc.)	Week 7 (1 - 2 days)	Victoria
Implementing design of choose character page	Week 8 (1 day)	Victoria
Design/Implementation of firewoman choose icon scene	Week 8 - Week 9	Nefertiti, Victoria
Design/Implementation of mailman choose icon scene	Week 9	Victoria
Final bug fixes/changes	Week 10	Everyone

## Latest MVP

Link: <https://speaks.bitbucket.io/>

### Findings:

Working with this latest MVP, we were given the opportunity to actually test the application with our target demographic. We took this iteration of the application to a classroom setting where we had access to multiple children with autism to test how they would respond to the application. Working individually one-on-one, we first tested the children to see how they would respond to the high-fidelity prototype and if they understood the concept of what our app was trying to achieve. Without much guidance, they were able to follow along with the application and took very little time to understand what was needed from them to complete the “goal.” In fact, some students were so quick, that they tried to advance too quickly in the application to the point where the response was not quick enough, resulting in a item being mistakenly chosen. After being able to test our prototype, we decided to try testing the latest MVP model shown here to the same target audience. We soon realized a new difficult situation had arisen with this iteration of the app. The children had very little to zero familiarity or fine-motor skills to be able to use the mouse that was required to navigate through our application. This proved to be a major roadblock in our testing since it was difficult for the children to choose the option they wanted and show how much they understand from the application, without the help of an instructor or another individual. We tried to load the web app on a team member’s iPad, but either because we did not have access to any Wifi signal or due to some other app bug, the start page would not finish loading. Taking this into consideration, for our next iterations of this application, we would like to create a fully touch-friendly mobile application that utilizes the same characteristics, scenarios, and goals that our web application had. We found that the children had very little to zero trouble navigating through the

prototype, which was a mobile-hotspot iteration of the app. This testing definitely gave us further insight on the direction that we would want to advance further with this application and how much more development and testing that would be required to fully optimize our hypothesis.



## Conclusion

The Speaks app has evolved from a simple vision aimed at helping children with autism improve their social and communication skills to a web-based game. The evolution of this product has been carried out through various stages of prototyping, testing and implementation. We began with identifying a problem, its solution, customer segment and value proposition. From this we were able to dive further into our product to determine how it meets the needs of our customers and functions to relieve pain points. After having a clear vision, we began to think about milestones in terms of three weeks, three months and three years. Our initial three week goal was to determine our minimum viable product (MVP) and research if it has already been done and if it would provide benefit to our customer segment. Our three month plan was to develop a high fidelity prototype and initial version of our MVP. Our MVP includes a scenario-based game for children with autism to familiarize themselves with service personnel, the items or tools they use, and what services they provide. Focusing on our three month goal, we went through various rounds of testing that included an ethnographic interview and usability tests. Through testing, we were able to identify ways in which to improve our current MVP as part of the three year goal which also includes converting it from a web-app to a mobile application, marketing the application to users and determining a system for users to track their progress.

## Contribution and Acknowledgement

Task	Contributor	Notes
Introduction	Allison Bennett	
Lean Canvas	Allison Bennett	90%
	Alvin Nguyen	10%
Additional Notes for Lean Canvas	Allison Bennett	90%
	Alvin Nguyen	10%
Value Proposition Canvas	Allison Bennett	
Additional Notes for Value Proposition Canvas	Alvin Nguyen	
3x3x3 Goals	Allison Bennett	
Research Method 1	Shanaya Ukuwela	
Research Method 2	Shanaya Ukuwela	
Prototype	Allison Bennett	
MVP Visual Design and Specifications	Jessica Zhang	
Implementation Documentation	Victoria Adebona	
Latest MVP	Alvin Nguyen	

Conclusion	Nefertiti Rogers	
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