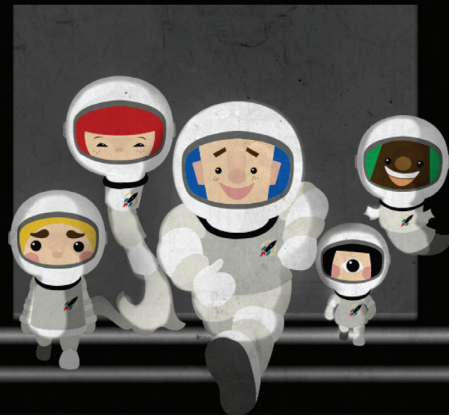


GOTHAM

SPACE AGENCY

ASTRONAUT SELECTION AND TRAINING



TEAM |



Ryan Thibeault

My collegiate career started out as an undergraduate at NYU's Tisch School of the Art designing motion graphics and special effects using programs such as Nuke, Maya, and RealFlow. After I graduated from NYU, I came back a year later as graduate student for Integrated Digital Media. I wanted to apply my love of 3D graphics with programming and interaction design. My latest projects include working on interactive projects for clients such as Dan Deacon and the Met.

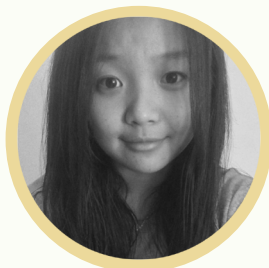
www.ryanthibeault.com



Jyotsna Gupta

I'm a designer by profession. A graduate student at NYU Steinhardt, pursuing my Ma in DMDL. I am dreamer, a keen observer, believer and forever curious in learning. Like to use modernist techniques of media and technology for creating engaging experiences that is unique, interactive and simple.

<http://jyotsnagupta.weebly.com/>



Xingyu Gu

I came from a software engineering background from Beijing Institute of Technology. After learning several kinds of programming language and development tools, I began to get involved in visual communication design. As a graduate student of the Integrated Digital Media program at NYU, I found my interest in ideation, prototyping and user experience. During my design exploration, I have worked with Sina Weibo, Miner and Viacom.

www.xingyu-gu.com



Geoff Duvall

I am a jock! Well....I am a nerd and a jock all rolled up into one. My background is an undergrad in Physical Education. I am an educator as well as a coach (soccer and basketball). My narrative as an educator is still in progress, but I approach it with an open outlook that embraces individuality and learning tailored for the specific user.

<http://geoffduvall.wix.com/narrative2015>



Celine Wu

My experience includes work in web design/development, as well as work in non-digital media like print advertising design and mixed media collections. My latest personal projects have focused on web development and alternative interfaces, with an eye toward user experience design and clean, clear aesthetics. I like cats, pumpkin ice cream, and video games.

www.celinewu02.wix.com/portfolio

TABLE OF CONTENT

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02	Discovery Process	10-14	User personas & User Flows
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01 | PROJECT OVERVIEW

The Gotham Space Agency, is a group dedicated to exploring the frontier of space and inspiring the next generation of citizen scientists. The Gotham Space Agency (GSA) was founded in 2015 in Brooklyn, New York City is a nonprofit organization dedicated to furthering STEAM education through exploration of space. GSA will utilize a 2U Cubesat deployment with a crew of 3d printed characters to educate kids about space and scientific experimentation in the space environment. In addition to building and deploying the CubeSat, GSA will develop a curriculum in partnership with NYC educational institutions.

Astronaut Selection and Training (Group B Kids): Kids will have the opportunity to select and design the Astronauts and will help the Astronaut participate in Astronaut training. Ideas for this section include; possible voting system for the crew selection, one crew member per class/school, input from “realAstronauts”, and other edu type ideas. An important aspect of this section is to create an engaging experience and tie it in with other sections of the site (prelaunch, mission, and postlaunch). Heavy emphasis should be placed on character development. Additionally this entire process should be a one of kind learning experience for kids. Material for astronauts: The crew members may be printed from a special material currently being tested MIT if radiation hits the crew member, while on an EVA, the material glows. Photos and videos of the glowing crew member will appear when the satellite is on the side of the earth where the glowing material can be seen.

Target Audience: middle school

List of desired features:

- **Character Design and Selection Process** Ability for kids to **custom design and submit characters**. There would be some type of selection process for the characters that get to go on the mission.
- **Partial Character Development / Character Prompts** General characteristics of the character personalities such as certain phrases, personality traits, area of expertise, appearance, history, voice, etc. How it looks like shape wise. More specific about what they need to design. they want kids in school to design the character **full color and full personality**.
- **Astronaut Selection and Training Process** Identify criteria for **which astronauts get to go to space** and the training they will need to go through in order to prepare for the mission. Look at resources such as Star City and NASA.
- **Student Engagement** How can **students and schools be part** of this.

02 | DISCOVERY PROCESS

The design process for this client project has been really amazing yet challenging at times. Our group had to struggle a little with showcasing exactly what the client wanted. Initially we went all out with the character selection process, **including facial recognition and really hi-tech stuff** in it. But, getting feedback at all times from the Client and our Prof.Dana, made the whole process of changing and making **things minimal and simple for middle school students** has been really enriching.

We have worked, reworked, iterated and reiterated our designs/wireframes a couple of times, with the guidance of the faculty and positive feedbacks to making everything much better.

Our Initial Idea

- Character selection that mimics many popular games such as The SIMS, NBS 2K15, World of Warcraft, and FIFA.
- All the images will be presented to them as sliders for gender, skin color, hair, accessories, and weight.
- Applying their own face onto their avatar(facial recognition) using computer camera/uploading picture.
- Background story of the character, which leads to creating different roles of the crew members.
- Next, training section of the game begins, which is an interactive assembly line(with animations).
- Goal of these characters is to obtain the"unknown glowing material" as a medal for completion.

Feedback From Client

"Let me be the voice of Calm. Simplify. Strip down. Bring the experience to its essence."

This helped us in narrowing down the whole process and make it more simple for the middle school students to come and use this website, create a character, **make it fun** for them to interact with it, **customize it** a little with their personal biography to each character created. And then go through some fun based questions about the **training process** of these astronauts, getting them to get to know a little about space and stuff like anti-Gravity, swimming, space walking and all.

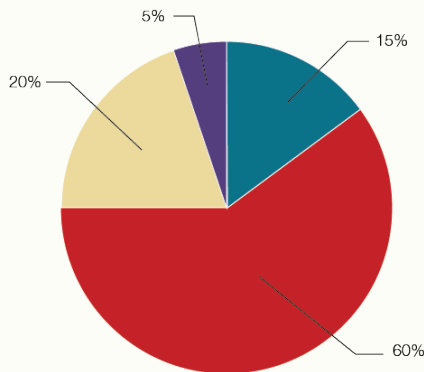
03 | COMPETITIVE ANALYSIS

A competitive analysis is a critical part of making the right choices for creating the best possible website which not just creates an engaging experience but also creates a brand for our client. With this evaluation, we were able to establish what we wanted to have and not to have in our website. We saw a lot of different things around, some good and some bad, and this analysis opened us up to decide as a team to have things that will work for our client and therefore decided what attributes we wanted to play up in order to attract our target audience, middle school kids.



SIMS game

We looked at SIMS as it is one of the popular games liked by all ages. Personality is a feature in The Sims FreePlay, which we also thought we would add to our selection process. Give a 3D feel to the character, make it rotating, while creating the character, you can actually feel the tangibility of the character.



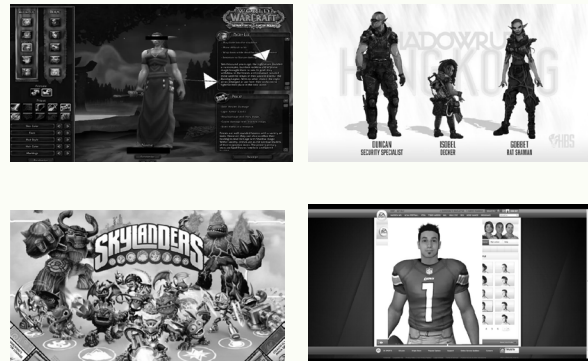
- Did not like what we saw out there
- Some things that we liked from different sources
- Things we would not like to use, seeing other stuff
- Things to get inspired from



Super Smash Brothers for Wii U

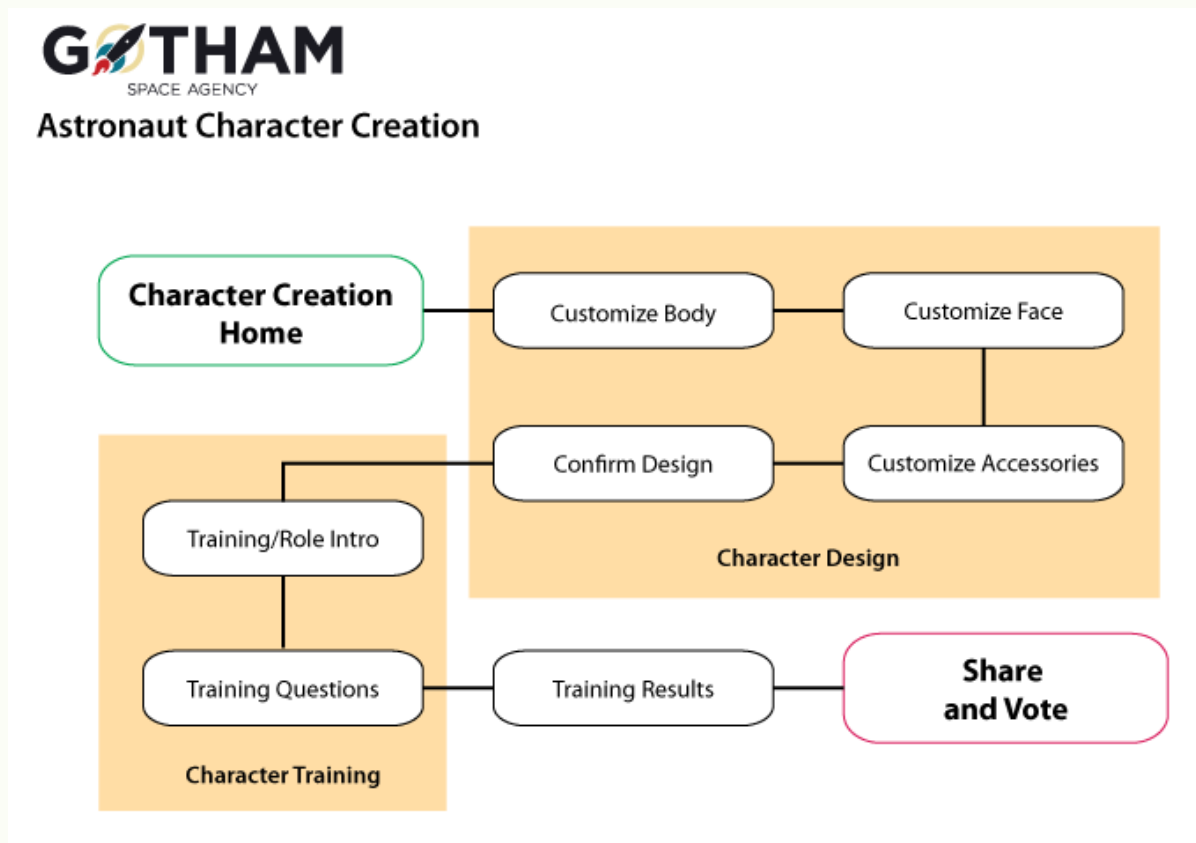
We looked at Super Smash brothers as a resource, to see how things when selecting a character, are super easy, yet challenging at the same time. Because, there is a lot of information provided at the same time for kids (especially middle school kids). It could lead to extraneous cognitive load on the working memory (Sweller, J., 1988) for them. So, seeing such an example also made us realize that all information that is being provided to the kids should be able to use the optimal cognitive load of the kids and not overload them with information.

Other Style reference



04 | FINAL PRODUCT

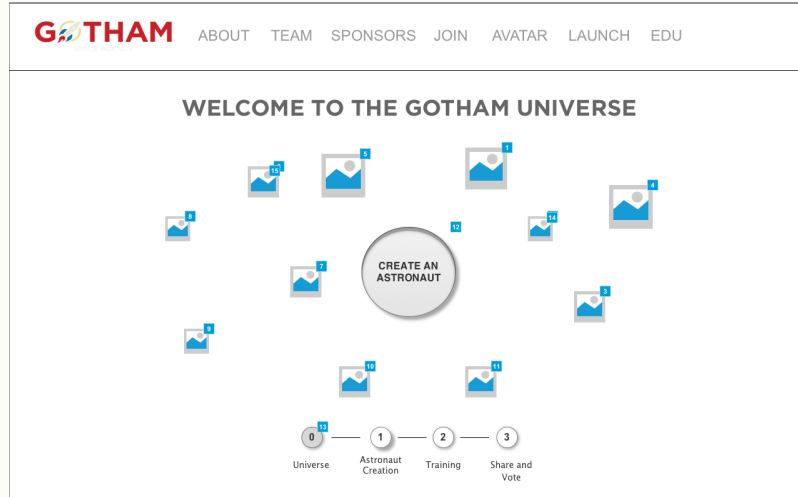
Website Sitemap



- The sitemap for our navigation through the astronaut selection and training site is quite simple and easy.
- The Avatar(Character Creation) section lands you to the character design section, which brings you to the Gotham Space universe.
- Character design lets the users customize the Avatars by selecting through a wide range of gallery of body, face, shapes, color, and different features.
- Once customized they can a little bio to the avatars created.
- After the Selection process comes the second part of the sitemap which is the Training process.
- This training takes the kids through a series of training questions on topics related to astronaut training like anti-gravity, space walking or swimming training.

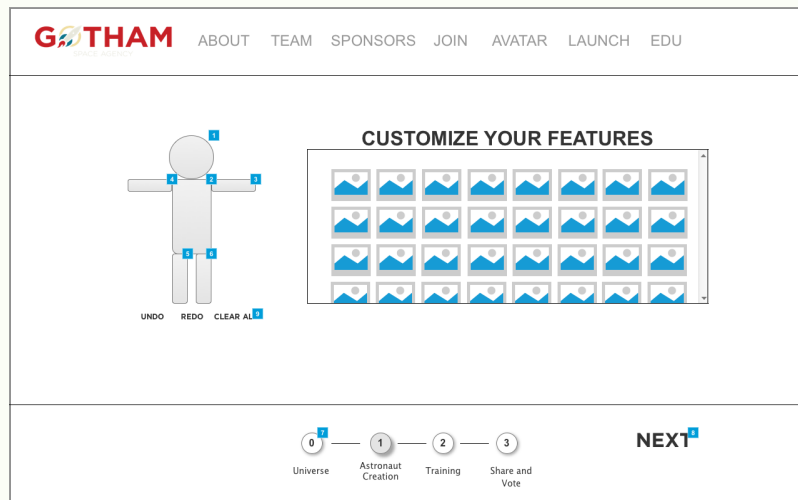
Website Prototype

1



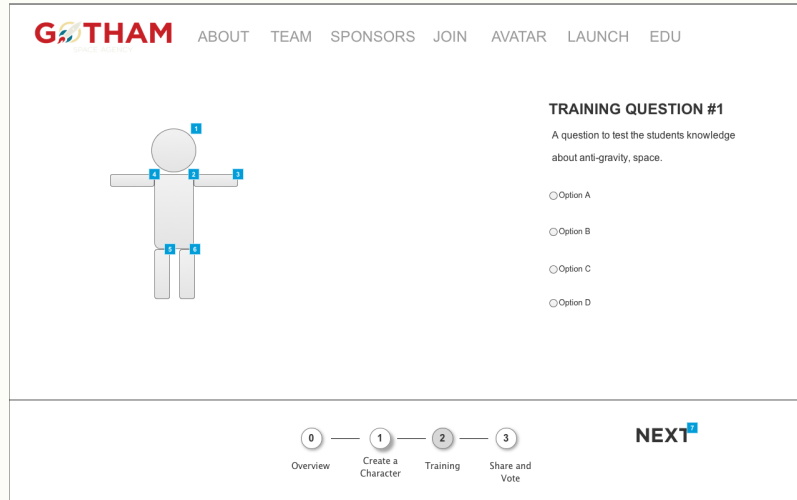
- The Avatar navigation bar brings them to this page.
- Avatar already created float in a cloud of thumbnails.
- The more votes a design has, the larger the thumbnail.
- Clicking a thumbnail brings up a pop-up with the astronaut's name and biography.
- Vote for the design by clicking the portrait in the pop-up window.

2



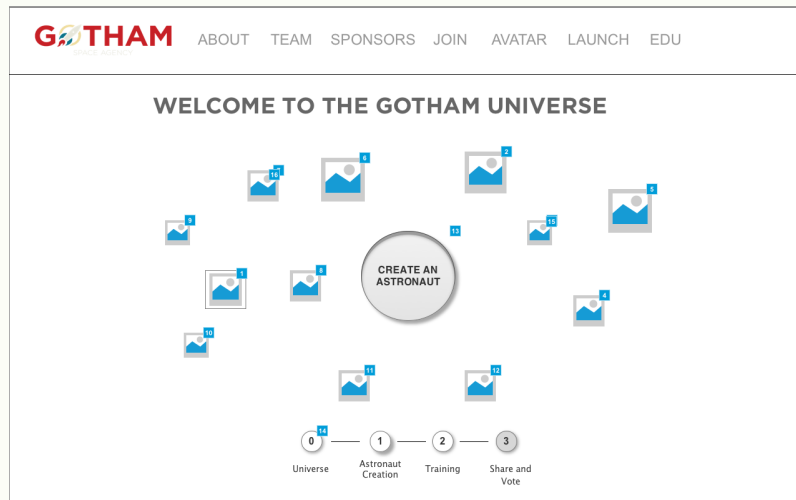
- Create an Avatar, takes the kids to the astronaut selection process. It lands them to a page that shows a 3D skeleton structure of the astronaut.
- Customize the features section to change each part of the body.
- A gallery of images of everything from gender, face, body, color, style, shape, everything.
- Click on each body part of the 3D skeleton to take them directly to the section of the gallery with the selection made.
- Add a little biography of the custom made avatar

3



- The training part is a series of questions on astronaut training process which deals with things about the space about Anti-gravity, space walking or swimming training.
- This leads to kids interacting with the different ideas and concepts of space training and how it leads to curiosity and eagerness.

4



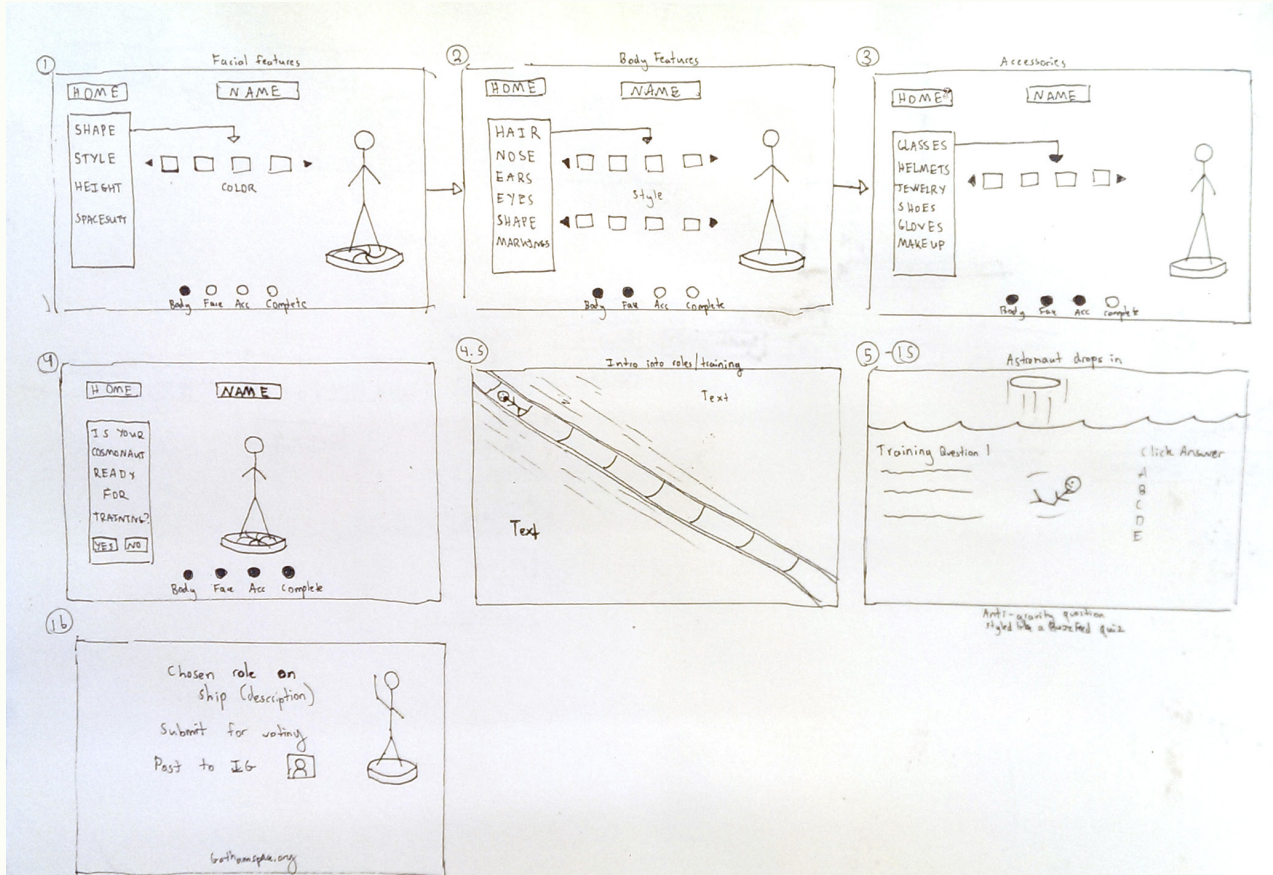
- Once hit complete, they can share their Avatar to the the Gotham Universe, which brings them back to the main landing page, where they can other floating Avatars.

Mobile wireframe



- This wireframe is based off on the ideas and concept of the website wireframe.
- This is just to get a visual idea of how the same concept will look on a mobile platform, if taken further on it.
- The basics remain the same, only the new feature added is Trending Avatars to show the popular ones and Latest News updates/announcement section made by the agency.

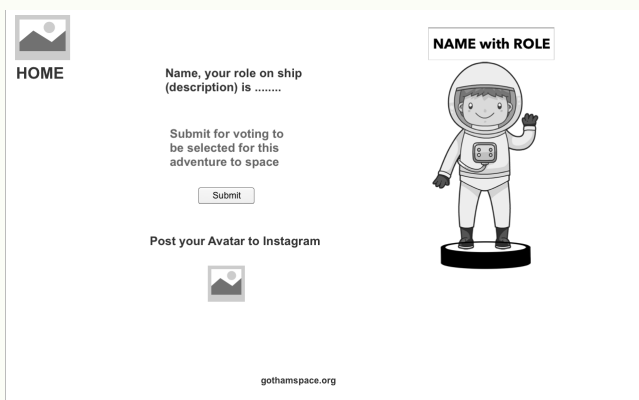
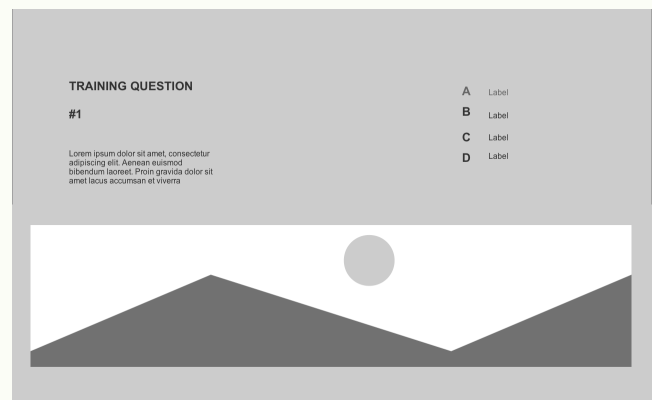
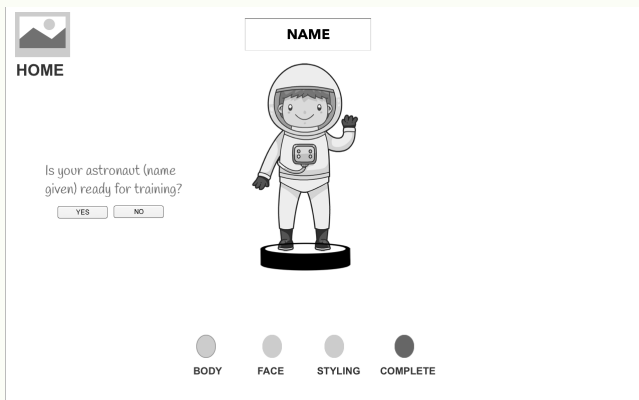
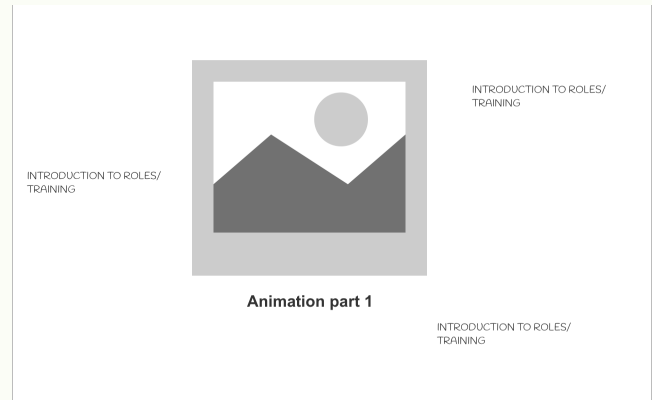
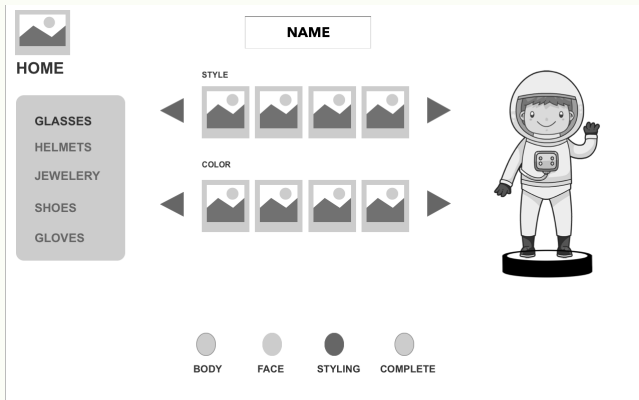
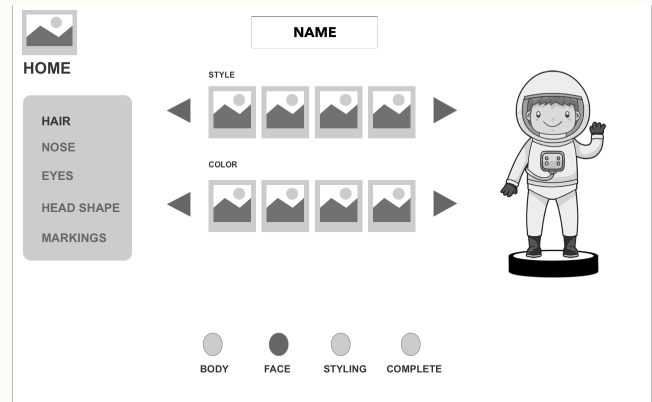
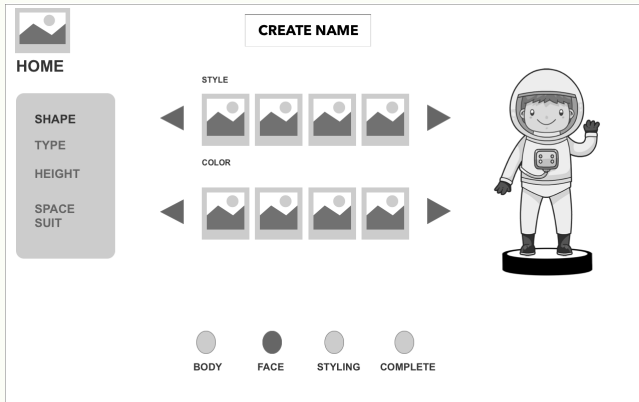
05 SKETCHES INITIAL PROTOTYPE



Steps 1-4 Our initial sketches were primarily intended to storyboard the user's process through the character creation process. We wanted everything to be completely customizable, on the scale of the commercial games from our competitive analysis. This meant that the shape, style, weight, hair, nose, eyes, accessories, space suit, and color of each attribute could be customized.

Steps 4.5-15 Once the user was satisfied with the look of their astronaut, his/her avatar was dropped (down a slide) into training. Training consisted of ten questions, each relating to a part of real astronaut training. The kid's answers would affect what role the avatar would take in the crew.

Step 16 Once training was completed, the kid would share their design on Instagram and vote for the best designs.



Our initial prototype was a medium-fidelity version of the paper sketches. We cleaned up the customization process a little so that the body and face were clearly separate sections, and within those sections the shape, color, style, etc. were subsets of the bottom navigation.

06

USER PERSONAS USER FLOWS



Gordon
Aspiring teacher
31 years old
White American
Male

Gordon is a grad student at NYU taking classes for an Masters in Education. Gordon has an undergraduate degree in Science and wanted to obtain this degree to help him in the classroom.

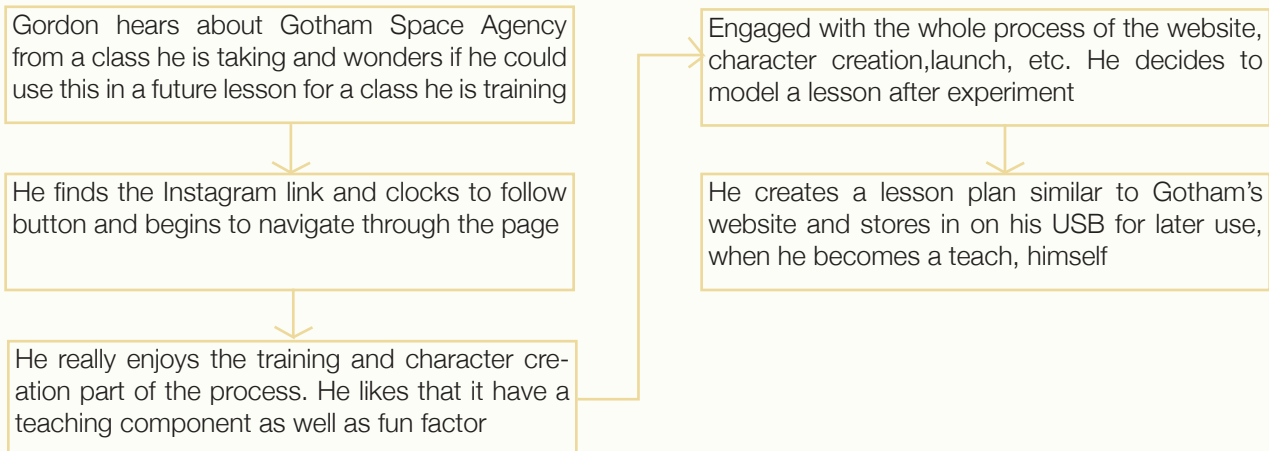
He heard about this Gotham Space Agency event through a class he is taking. Being that this includes science information, his ears perked up, instantly.

He wants to see where the project goes and if he could use this for a future lesson when he starts teaching. He saw this project posted on Instagram and decided to look into it. Being a new teacher, he wanted fresh ideas to excite his future classrooms and thought this would be the perfect way to launch into that.

Pain points

- Likes websites and platforms which are responsive and intuitive
- Does not like too much information
- Likes to learn things on his own

User Flow





Justine Bell
3D Fan Student
11 years old
American
Female

Justine is a middle school student, who is a big fan of 3D videogame. Because of that, she begins to learn 3D modeling and 3D printing in her spare time and dreams of creating 3D characters for video games one day.

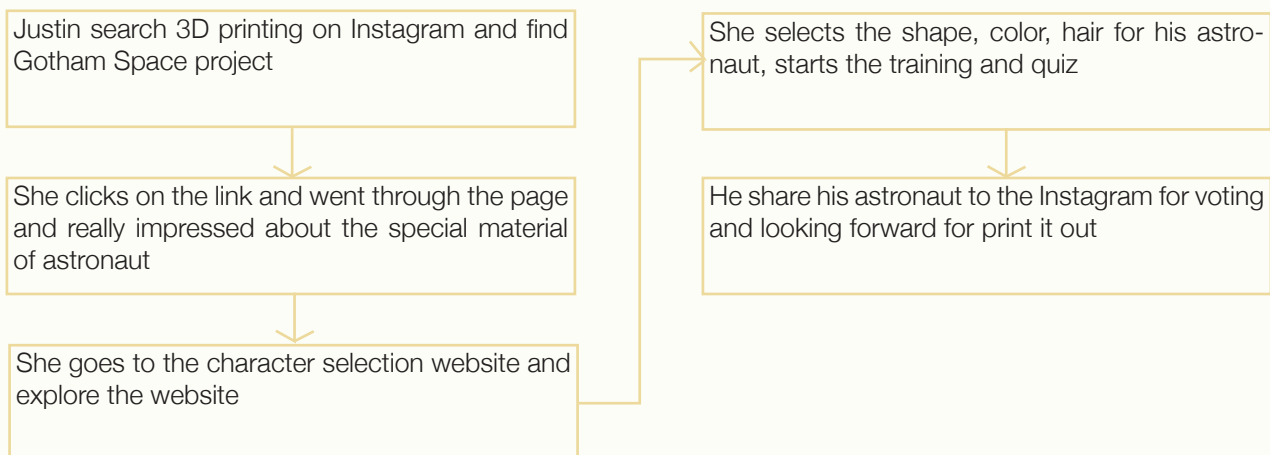
She took a summer workshop, a week-long program targeted on middle school students about 3D modeling and 3D printing. The MakerBot Education Team, Liz Arum and Jon Santiago, were leading the instruction. During this one-week intensive workshop, Justine learned how to make and personalize 3D models with free, readily available software like Tinkercad, OpenSCAD and Blender. She made gears, interlocking parts and other physical mechanisms to make her creations, walk, shake, dance and fly.

After the workshop, she bought a 3D printer and start playing around with it at home. As she searched for 3D printed characters on Instagram, she found the Gotham Space Agency and learned about Astronaut Selection and Training camp, which provides the opportunity to send these 3D printed avatars to space.

Pain points

- Wants everything precise
- Balancing her school assignments and her love for 3D print objects
- Not able to find things online of her interest

User Flow





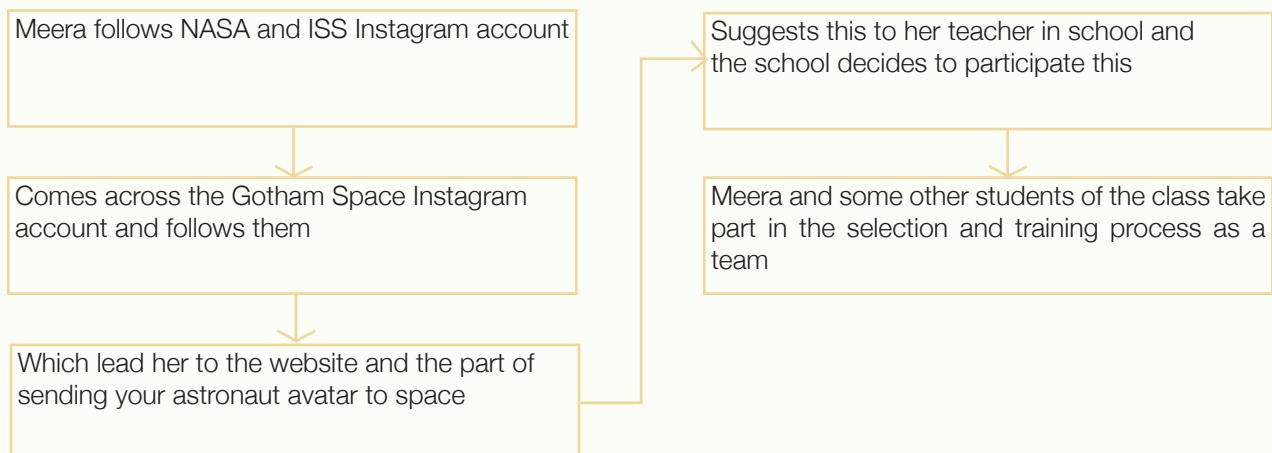
Meera Mittal
Geeky student
Age 11
Indian
Female

Meera is a bright, energetic middle school student who is busy with doing something creative. She is an overachiever and likes to use her learning of schools into more of a practical ground. Like using her iphone to create videos to capture her DIY experiments. She spends most of her afternoons reading and experimenting with different concepts of Science and Maths. Loves to study about Space and research going on currently. Stays updated with NASA's research. She comes across the article on 100to Mars and becomes super excited and wants to be a part of this project. Realises that she is too young and late for it. Follows NASA and ISS on Instagram and while going through their post and tags, she comes across Gotham Space agency and gets to know about Astronaut Selection and Training camp, which she wants to be a part of. She wants to grab on to this opportunity of sending these 3D printed Avatars(Astronaut crew) to space. A little more research into this leads her to take this to her teacher and they decide to develop their Astronaut character/Avatar for this exciting mission to space.

Pain points

- Wants to have the process of Astronaut selection and training as realistic as possible, maybe see her face in the avatar.
- Wants her story and depiction of her avatar to be just like her.(wants to be seen and heard)
- Feels limited in terms of time management. Wants to do a lot with her time.
- Balancing school and her interests.

User Flow





Shaun Bertrand
Teaches math to 6th graders in Bushwick
29 years old
African-American
Male

Shaun is in his third year of teaching math and finds that it is hard to retain his kids attention during class. Shaun finds that teaching has not been as rewarding as he hoped for in the beginning. However, he came into this career as a social justice advocate and wants to teach kids early so that they do not fall into a deep end. His ultimate goal in education is becoming a principal.

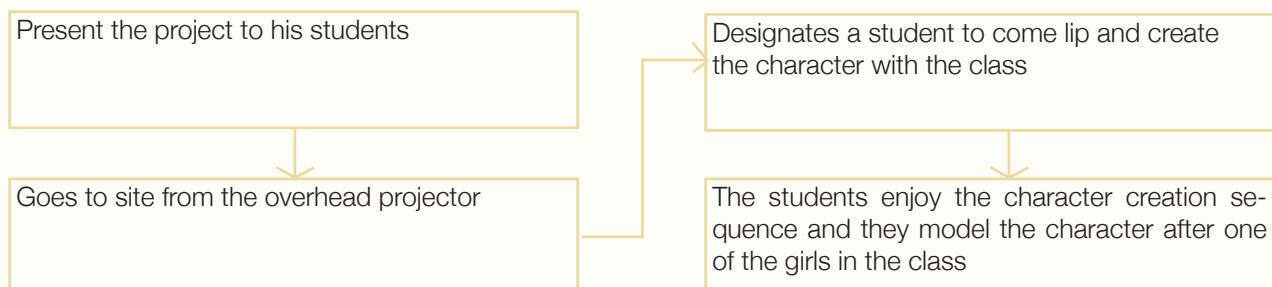
In his opinion, he is extremely critical of the new charter school system, in that these schools cater more towards middle-class to upper-class white kids. He views that this system is in place to fix and send kids over from public school, but how do you fix the problems of public schools when charter schools are not an option? He views that this system is flawed because education starts with caring parents, and many kids in his class do not view their parents as role models.

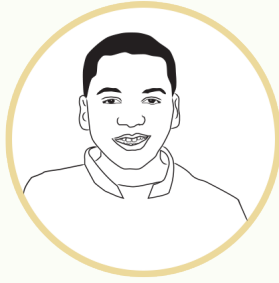
He recently found out about Gotham Space Agency from an article on TechCrunch, which will send a 3D printed avatar into space. He believes this could be a wonderful tool to engage students about beginning to learn about out about physics and math, but is apprehensive about how well this can actually teach kids. On top of that, it can change his image of being the pushover to being the cool teacher. Shaun goes into this program with a positive goal in mind of just getting kids engaged in something that can teach teamwork long-term and encourage the quiet kids to interact with the more popular crowd, and vice-versa. On top of this, he wants to celebrate diversity in his kids in a school that denotes individualism and expression. He wants to break down boundaries and get his classes to mix together more.

Pain points

- Sometimes feels challenged in terms of use of technology.
- Doesn't use instagram and other social media sites
- Feels challenged to find good information online.

User Flow





Timmy
Student at Bed-Stuy Middle School
11 year old
African-American
Male

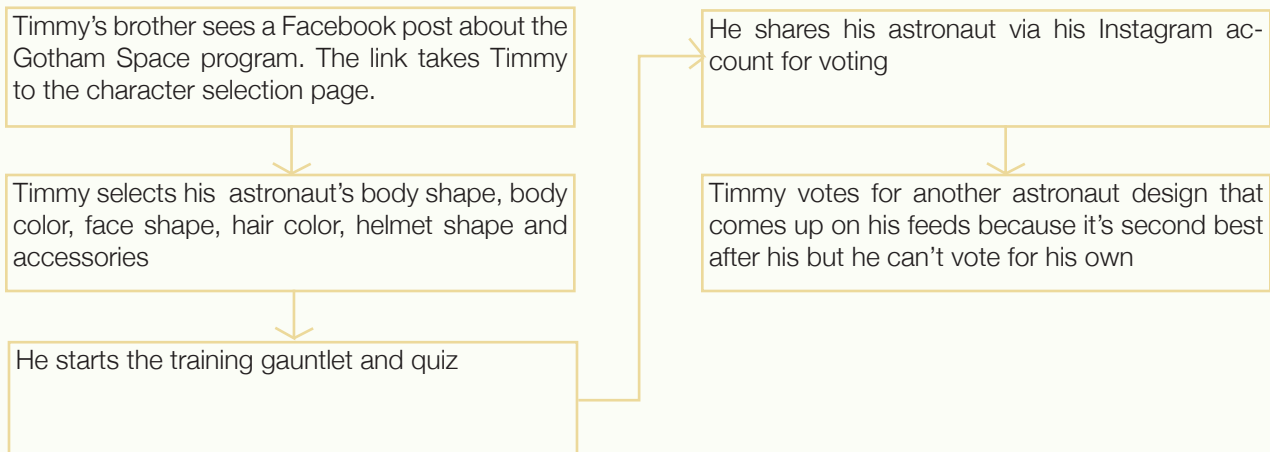
Timmy has always loved anything to do with space. Timmy has decorated his room with posters of and about space, and has glow-in-the-dark star and planet stickers. He recently replaced a poster on his wall of the 8 planets and Pluto for a poster of a compilation of images of space from various international deep space satellites. He's concerned that he can't learn all the things there are to know about space, so he wants to be a part of anything space-related that he can get access to. In terms of space-related characters in games or movies, Timmy identifies most closely to the Space Sphere from Portal 2.

His favorite brands are NASA, ISS, Cosmos TV series, NOVA TV Series. Follows NASA and ISS's Instagrams. What he needs from this character selection that he wants to pretend it's him going up into space wants the training and character roles to be similar to what real astronauts do/go through wants the character to look awesome.

Pain points

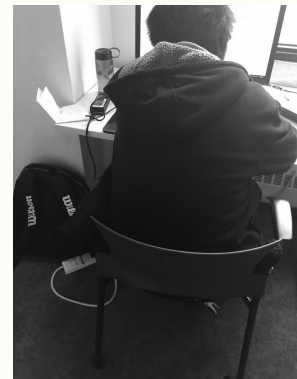
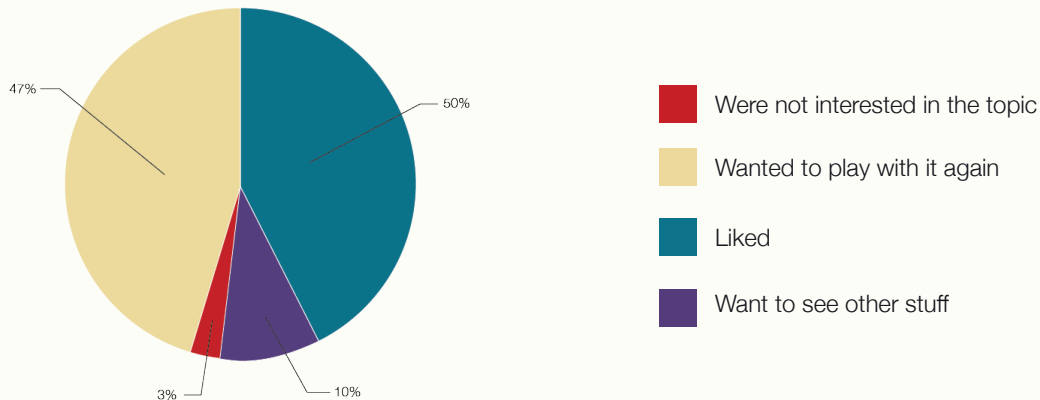
- Obviously unrealistic depictions of space
- Pluto isn't a planet, just an honorable mention

User Flow



07 | USER TESTING ITERATION

Where contact with actual end-users is very difficult, we do get to learn about users user testing. Using prototypes to test on them, observing them, taking notes while they are actually interacting with the prototype actually helped us making required changes which sometimes as UX designers you might neglect or feel is trivial, but could actually lead to different actions for these users. User testing helped us take our prototypes in the right direction, by iterating our designs again and again. Sometimes, changing the tab, to have “Go Back” button vs the “Start over”. All these small changes were made while user testing. We tested on kids, young college students, teachers and space geeks. This approach provided us with great insights.



- “Make a landing page to create your avatar”
- “Add home page, gallery at the top, signup”
- “Make the astronaut black and white”
- “Show them the animation a little idea about it, some information”

- “Add a progress bar”
- “The progress bar is super helpful for navigation”
- “The gallery Universe is exciting, but make sure it sorts”
- “Buzzfeed quizzes are fun”

- “It’s great how customizable the body parts are”
- “I can make infinite designs and vote for everything I like? I want to do it.”

- “My astronaut is going to space? Real space?!”
- “Like, like, like everything! The voting and ordering by popularity is useful.”

08

REFERENCES LIST

Sweller, J., Cognitive load during problem solving: Effects on learning, *Cognitive Science*, 12, 257-285 (1988).

<http://www.sciencechannel.com/tv-shows/how-do-they-do-it/videos/how-do-they-do-it-training-astronauts/>

https://www.nasa.gov/centers/johnson/pdf/606877main_FS-2011-11-057-JSC-astro_trng.pdf

https://www.nasa.gov/multimedia/imagegallery/image_feature_2350.html

Post avatar information, personas, research on training....etc.

Found this activity done in school for astronaut selection:

<http://www.ontariosciencecentre.ca/Uploads/TeachersAndStudents/documents/AstronautAvatar.pdf>

NASA Class of 2004 Training journals:

<http://spaceflight.nasa.gov/shuttle/support/training/ascan/2004/index.html>

ESA ISS Spacewalk Training summary:

http://www.esa.int/Our_Activities/Human_Spaceflight/Astronauts/Spacewalk_training

Example kids game - gather materials, design a rocket, navigate space obstacles, defeat the martians, and place a flag on Mars:

<http://www.lavigames.com/game/play/3767/Baby-Astronaut.html>

Add a story creator as part of the path of character creation. Drag and drop modules?

NASA ISS overview:

http://www.nasa.gov/mission_pages/station/main/onthestation/facts_and_figures.html

Current ISS Captain's Bio PDF:

<http://www.jsc.nasa.gov/Bios/htmlbios/kellysj.pdf>

Avatar creating game

http://marvel.com/games/play/31/create_your_own_superhero

This website teaches about sci-fi and planets using stories/narratives for learning.

<https://www.literacyshed.com/the-sci---fi-shed.html> (This could be a good resource in terms of content about planets and stuff if we want to add to the astronaut training as a backdrop)

Certain activities done at NASA - TRAIN LIKE AN ASTRONAUT

http://www.nasa.gov/offices/education/programs/national/summer/education_resources/lifescience_grades4-6/LS_train-like-astronaut.html#.VhPXQY9Viko

http://www.nasa.gov/sites/default/files/542363main_LS1_Train-Like-Astronaut_C1.pdf

Skylander game

<https://www.skylanders.com/video-games/skylanders-spyros-adventure>

Mission in Mars - 100TO MARS

<http://www.mars-one.com/news/press-releases/the-mars-100-mars-one-announces-round-three-astronaut-candidates>

DIY.org space camp

<https://camps.diy.org/camps/52>