



**Jefferson**

Philadelphia University +  
Thomas Jefferson University

# Thomas Jefferson x X-Mode

Enhancing On Campus Experience - Data For Good Initiative (Picket)

SDEU - 373 - X  
Professor Freeman

Spring 2020

## Research Team

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Divya Patel

*Research & Documentation Specialist*



Fredric Freeman

*Project Lead*



Sarah Aranda

*UX Designer*

## The Challenge

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How do we make the campus visit experience more memorable?



## Our Partner

We partnered with X-Mode social.

A tech industry leader that specializes in location based data.

The image shows a landing page for X-Mode. At the top left is the X-Mode logo, which consists of a stylized 'X' made of four dots and the text 'XMODE'. The background is a vibrant orange and yellow gradient with a cityscape and a hot air balloon. The main headline reads 'WE ARE X-MODE Premium Location Data Collected With You In Mind.' Below this are three vertical cards. The first card is dark blue and titled 'DATA LICENSING', with the text 'Powering companies with high quality location data to build great products and services.' The second card is teal and titled 'APP PUBLISHERS', with the text 'Easily integrate the X-Mode XDK to generate incremental revenue to invest in your app's success.' The third card is orange and titled 'ABOUT US', with the text 'Learn more about X-Mode and what we're doing to change the way you perceive data.'

**WE ARE X-MODE**

Premium Location Data Collected  
With You In Mind.

**DATA LICENSING**

Powering companies with high quality location data to build great products and services.

**APP PUBLISHERS**

Easily integrate the X-Mode XDK to generate incremental revenue to invest in your app's success.

**ABOUT US**

Learn more about X-Mode and what we're doing to change the way you perceive data.



## Our Stakeholders

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Thomas Jefferson University's Strategic Marketing and Public relations department is our internal associate on this endeavour.

TJU's UX/UI Masters program, has helped make this research course possible.

We are also interested in the support of any deans within the school of design and engineering.



# Jefferson

**Philadelphia University +  
Thomas Jefferson University**

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HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

## The Technology

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Location based data

Augmented Reality

Geocaching

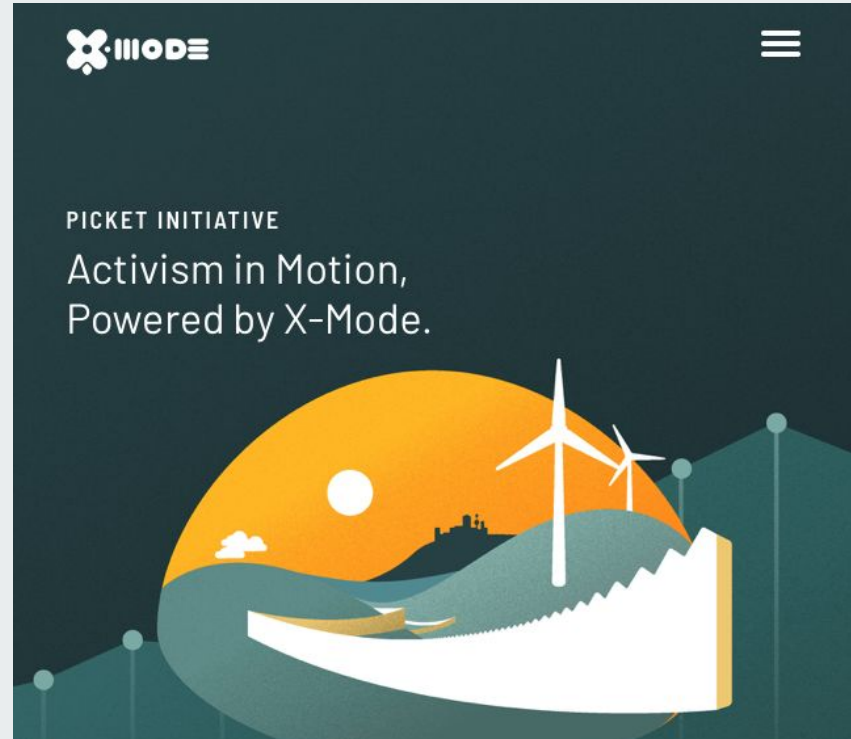
Geofencing

Beacons (bluetooth)

Developed for Mobile Platforms

Android (Primary)

Apple iOS (Secondary)



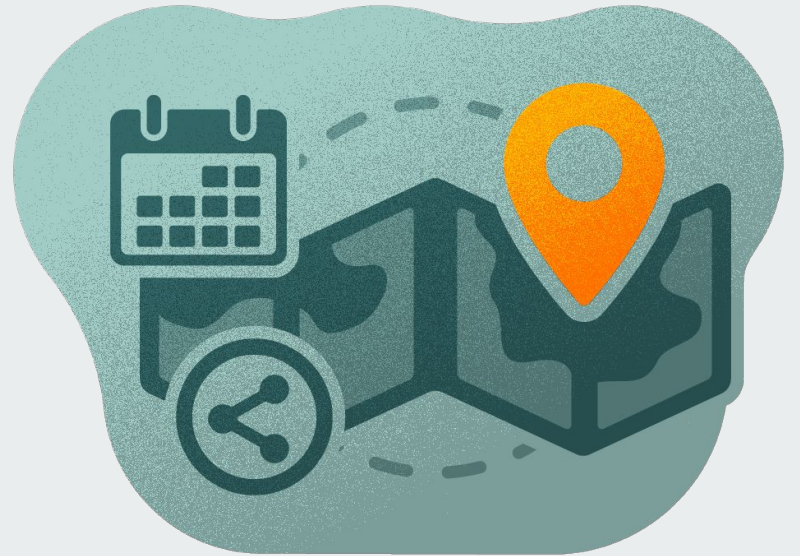
## Our Goal

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Utilize location based data to research, design, and prototype an augmented reality experience.

We're making an app.

We're Focused on one core feature.



## Our Schedule

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**Week 1 - 5** (User research and discovery)

**Week 6-8** (Define the problem)

**Week 9-13** (Ideate and prototype)

**Week 14-15** (User testing)

**Week 16** (Documentation and Findings)

Our approach to the schedule and project is rooted in design thinking.





The background features a dark blue field with a grid of lighter blue dots. The grid is distorted by wavy, perspective-like lines that create a sense of depth and movement, similar to a tunnel or a digital space.

# Secondary Research

## Location Based

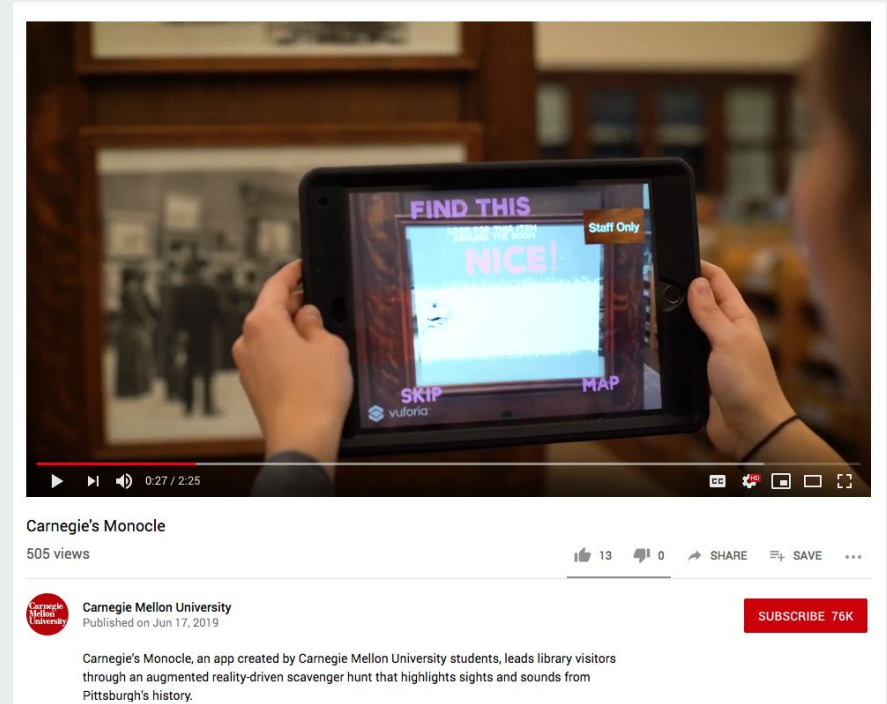
## Augmented Reality

## Examples

## AR / Location Based Events

### Carnegie's Monocle

- Student lead project
- Combines animation and sound
- New ways to activate archives
- "Mixed reality art walk experience"
- New way to engage physical spaces
- Live app downloaded to your device



# AR / Location Based Events

## Adventurous

- Guided AR experience
- Utilizes live actors to reassure users
- Full customized for the audience
- Loads models and animations from location based markers

ABOUT US CONTACT US **BOOK AN ADVENTURE**

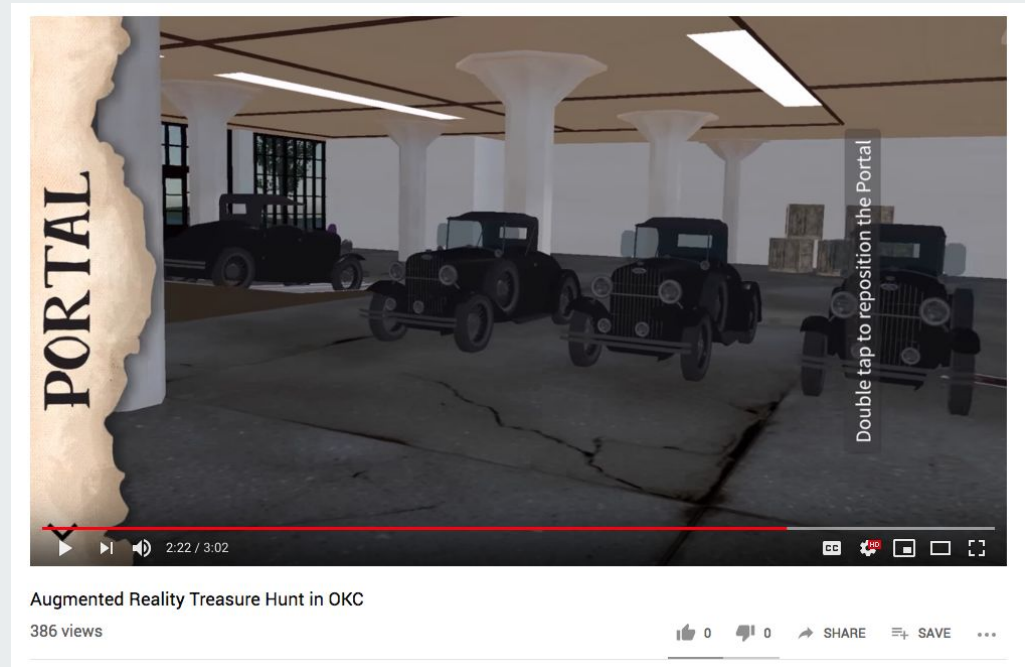
### HOW THE ADVENTURE WORKS

- 1 CHOOSE YOUR ADVENTURE**  
Book one of our adventures through a neighborhood
- 2 MEET THE CHARACTERS**  
Find our costumed actors to welcome you on the adventure
- 3 VISIT ALL THE LOCATIONS**  
Visit the different locations around the neighborhood to interact with activities
- 4 INTERACT WITH FUN AND EDUCATIONAL ACTIVITIES**  
The activities include anything from fun puzzles, meeting a fictional character in augmented reality, to interacting with an actor
- 5 COMPLETE THE ADVENTURE**  
Complete all of the activities and complete the adventure

## AR / Location Based Events

### Oklahoma City Treasure Hunt

- GPS based portals
- Each location provides a hint
- The goal is to learn more about the history of your Current location
- Utilizes mixed media  
Such as video, audio, animation, 3D.



<https://youtu.be/fAl1z53PFoE>

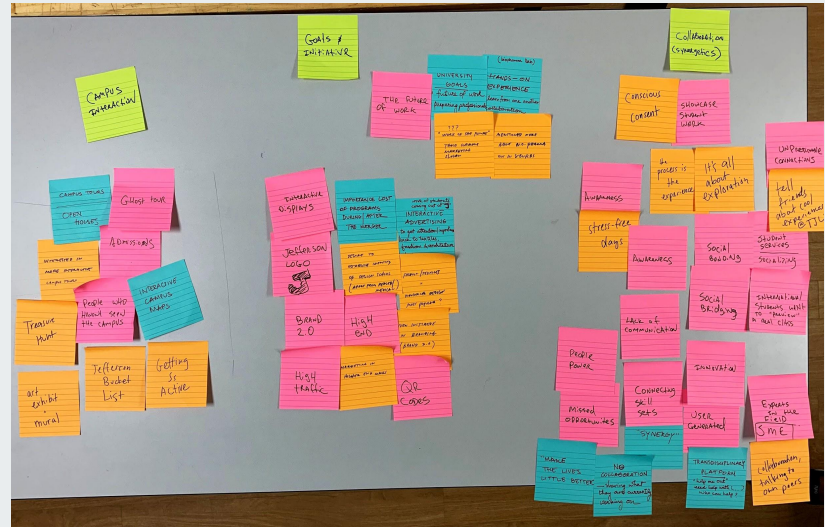
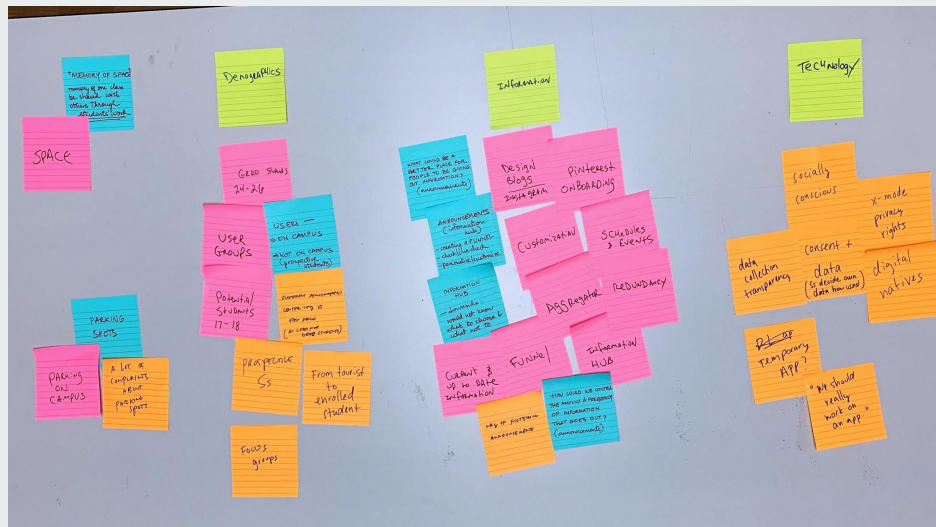


# Design Strategy & Mind mapping

The background features a dark blue gradient with a pattern of light blue dots and lines. The dots are arranged in a grid that appears to be receding into the distance, creating a sense of depth. The lines are thin and connect the dots, forming a mesh-like structure.









# TRAFFIC

## GROUPS

- CUBES
- CIRCLES

GATEWAY - EASE OF ACCESS

HANWOOD - FOUNDATIONAL CLASSES - DESIGN

HANBAR - FOOD OFFICE

DEC SEED

INTERDISCIPLINARY UNDERGRAD GRAD FOUNDATIONAL ENTERPRISE BUSINESS EVENTS

## OPENNESS

MEETING SPACE ENTERTAINMENT COMMUNICATION

## HAVE ACCEPTANCE

- good
- validating
- play ENABLES PLAY
- SAFE TO SHARE IDEAS

ICE BREAKERS  
COMMITTEES  
CLUBS

FREQUENCY  
INTERESTS  
PROXIMITY  
LOCATION  
BENEFITS  
NOVELTY & CHANCE  
RANDOM

FOOD  
RITUALS  
CAUSES ESP. ANGER  
CRISIS

## NOT TO ACCEPTANCE

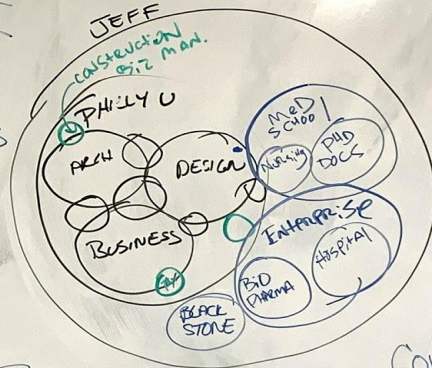
- CONSTRAINED
- LIMITED
- SMALL
- FEAR

NO REASON TO EXPLORE

# SAUNTER

## ACCEPTANCE

## SYNERGENICS



MIND MAPPING

## INSPIRATION

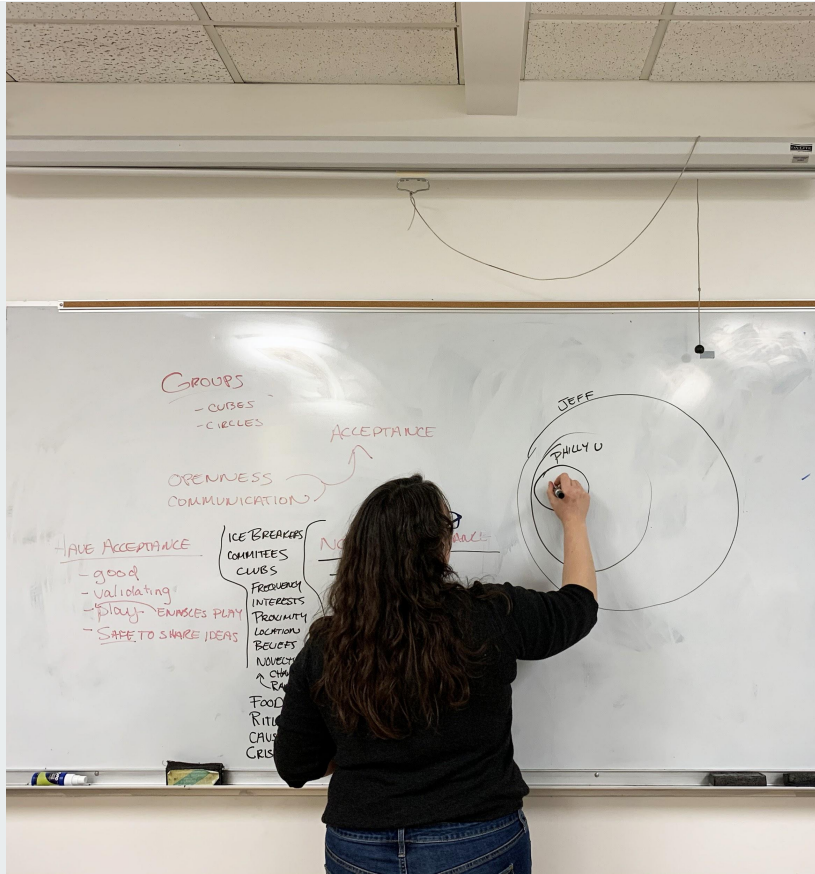
- LOCATION BASED GAMING
- GEO LOCATION

COMMUNITY W/ AR  
CURRENT / PROSPECTIVE STUDENTS

## BARRIERS

TIME OF DAY  
SCHEDULE  
LACK OF COMMUNICATION





## Key Findings



### Design strategy session synthesis

- Some barriers to collaboration include time of day, schedule, and lack of communication.
- Openness of communication and acceptance increases collaboration
- Play enables the safe sharing of ideas
- Elements such as frequency, proximity, location, beliefs, novelty, chance, and randomness help to increase collaboration.

# User Interviews & Synthesis of Research

The background features a dark blue gradient with a grid of light blue dots. The grid is distorted by a wavy, perspective effect, creating a sense of depth and movement. The dots are arranged in rows and columns, but the lines between them curve and warp, particularly towards the right side of the image.

# User Interviews



We interviewed 12 under-graduate students to understand their insights on the concept of “collaboration” on campus and what about the campus became a part of their identity

The interview script consisted of 31 questions under different categories like ‘memory of space’, motivations, technology, information, and collaboration.

## INTRO

What’s your name, major, class standing (freshman, sophomore, etc.)?

## COLLABORATION

### 1) How often do you interact with someone outside of your major?

Jade - no one

T- quite often.. Sometimes while walking on campus or at on-campus job

J- I make sure I interact outside most often.. Sustainable,, business.. Good opportunities.. Collaboration .. smart textile.. Director of engineering.. Engineering and design collab..

S- pretty often .. almost every day .. usually for fun social stuff.. For the work in class.. Compare answers

Amy- not very frequently .. one experience..

### 2) Are you familiar with the work of students inside of your major/background? If not, are you interested in seeing it, how often?

Jade - could be interesting .. commuter..h here for degree and leave

T- interested, but have not seen much ...

J- part of my job.. Working at blackstone .. there is a lack of a visual feedback to people .. definitely lack of seeing what is there... relevant to my interest .. once a week ... that would be good as people constantly work

S- yeah... usually just ask teachers .. go into the classroom and just look at the work in freetime .. definitely would like to see.. A show .. not too often .. once every month or two months.. Once a semester..

Amy- would say so.. Slow progress.. Wouldn't mind every month..



# Key Findings



## Collaboration

- High inclination towards collaborating with students from other programs
- Curiosity to know more about the projects other students work on
- Willingness to share academic work

## Information/Communication/Campus Life

- Currently, most interactions happen during on-campus events
- Campus emails ignored

# Key Findings



## Technology

- Hardly students (except Freshman) aware about Learn@TJU app
- Only Sophomore students use campus app for information, mostly navigation

## Memory of Space

- Students showed interest in behind the scenes (classroom life) of design studios

## Motivations

- Campus, history attached to it, and curriculum

# Learn@TJU Interview

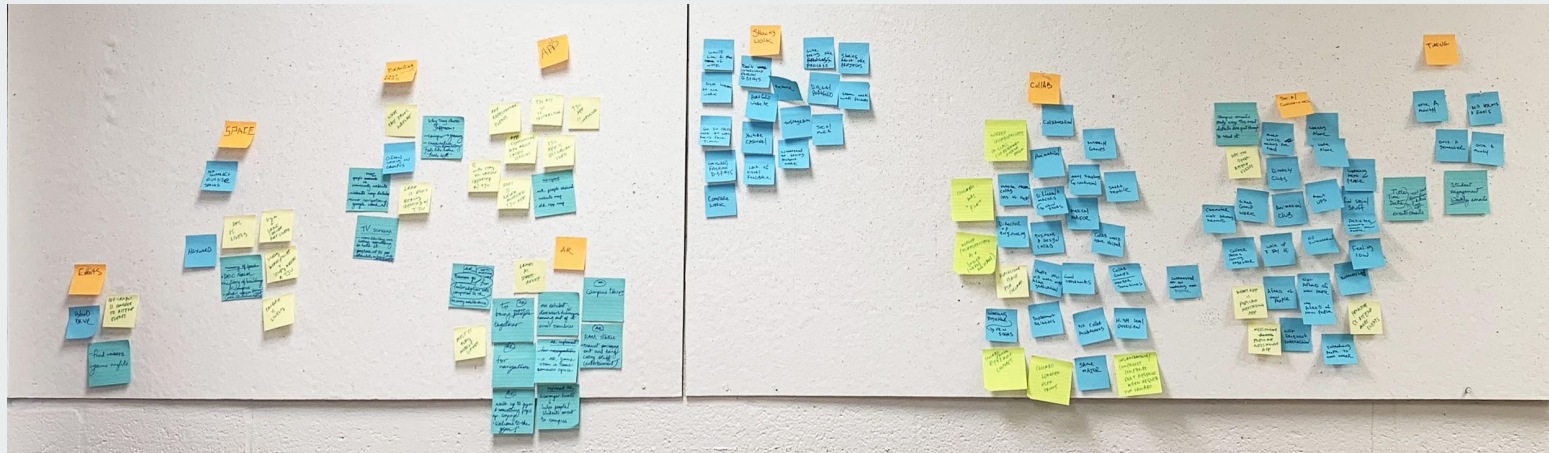
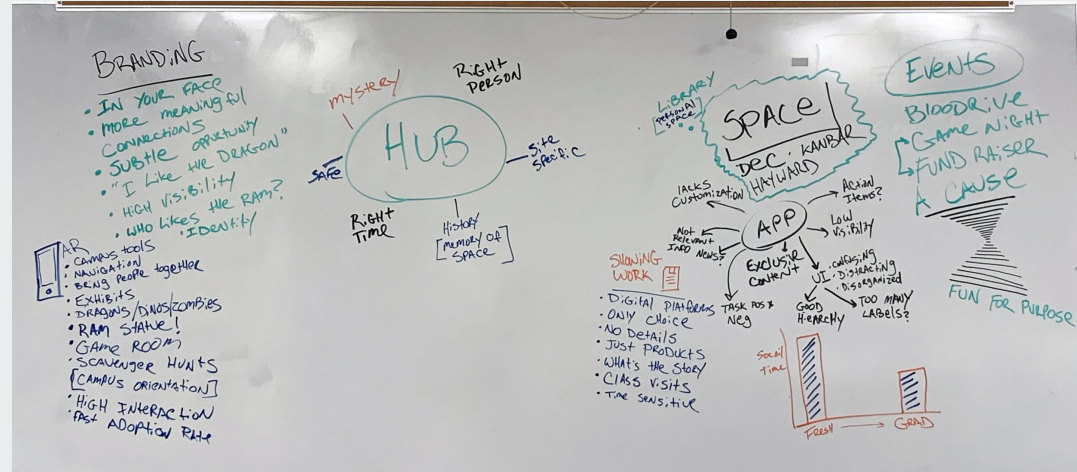
Internal associate regarding the current TJU app.

- Learn app mainly for curating info
- Features students use are very limited
- Virtual tour



# Synthesis

The interview data was synthesised through mind mapping and affinity clustering.





# Rapid Prototyping

The background features a dark blue gradient with a grid of lighter blue dots. The grid lines and dots curve away from the viewer, creating a strong sense of depth and perspective, similar to a tunnel or a receding road.



# Prototyping

We took the prototyping approach to explore various concepts and ideas using the research synthesis.

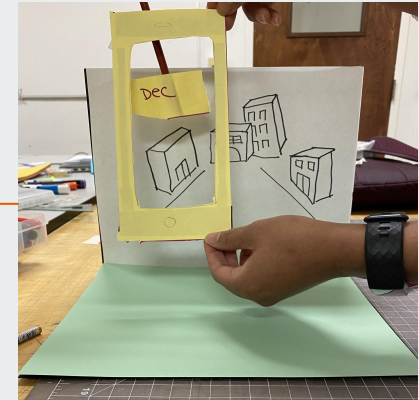
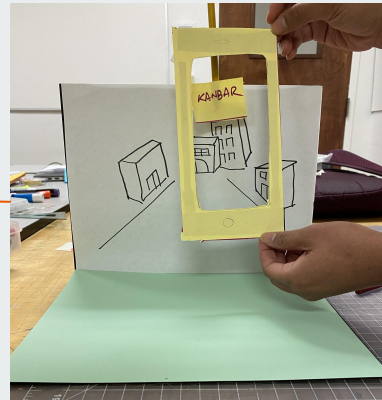
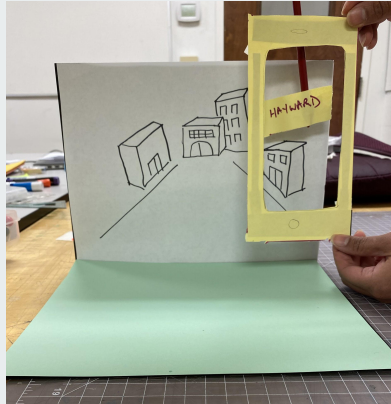
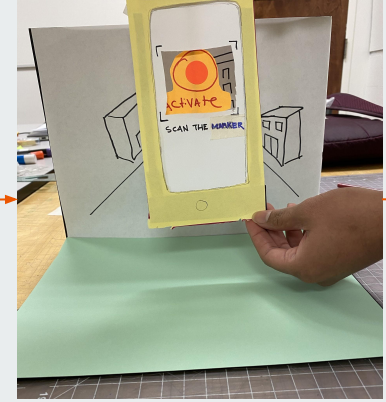
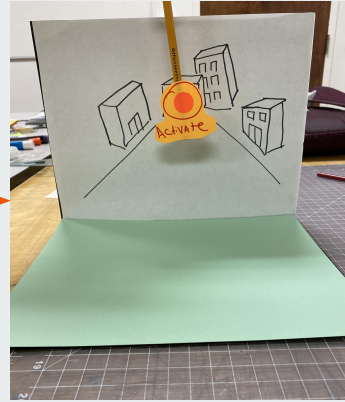
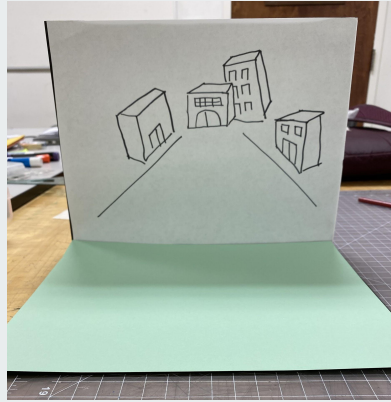
We explored total 8/9 examples.



# Paper Prototypes

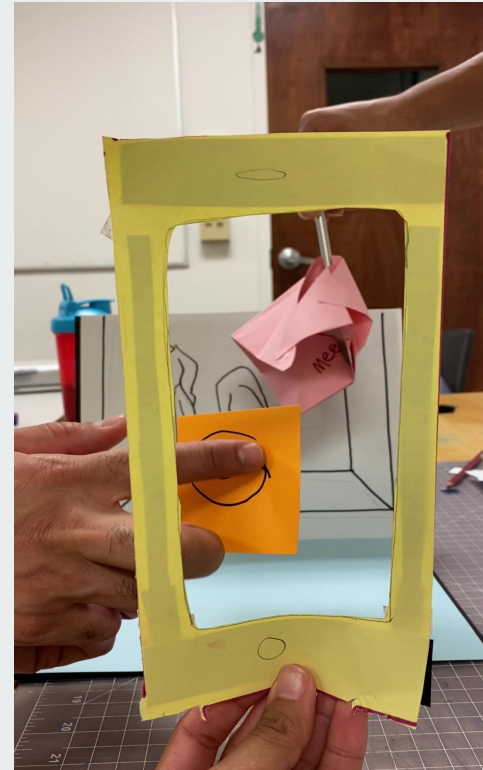
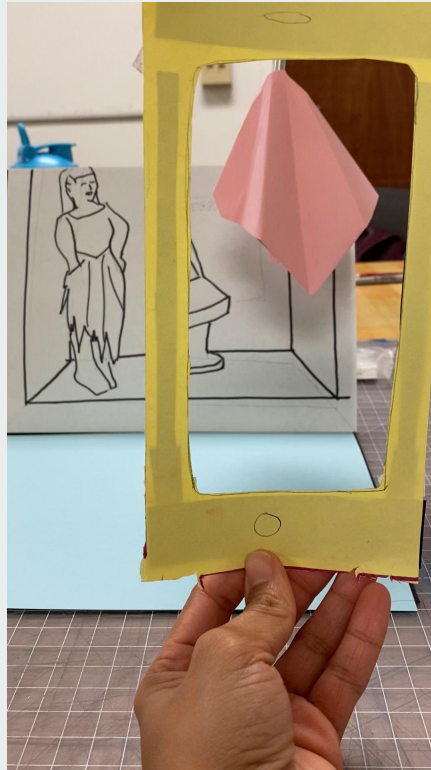
Example 01

Campus  
Navigation



# Paper Prototypes

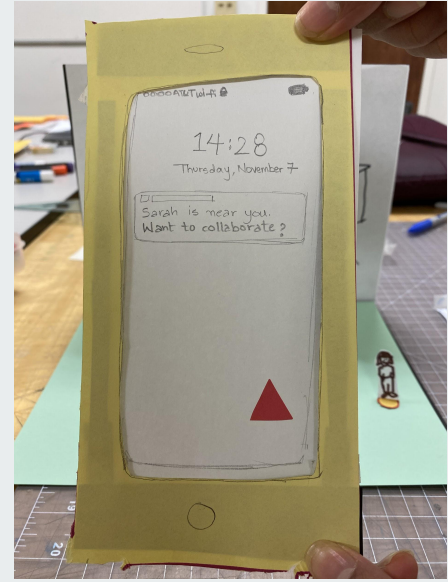
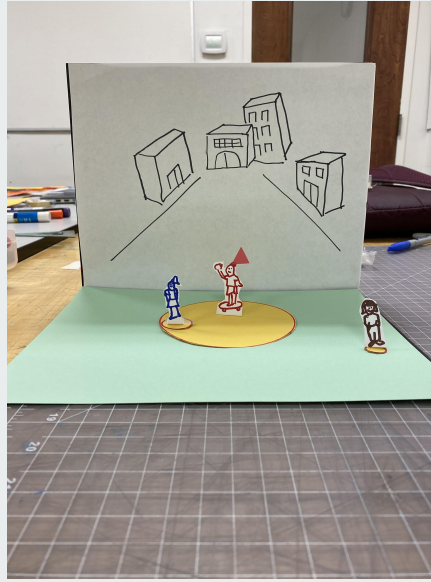
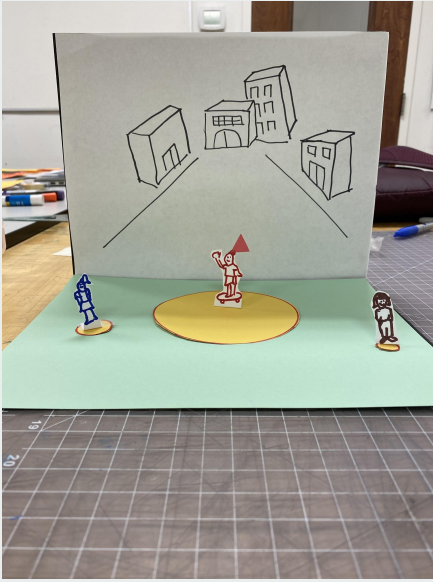
## Example 02 - Project Display Details





# Paper Prototypes

## Example 03 - Collaboration

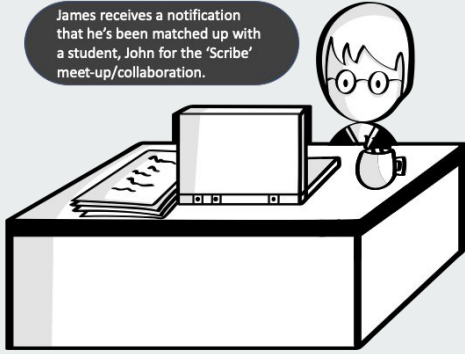


# Storyboards of Selected examples

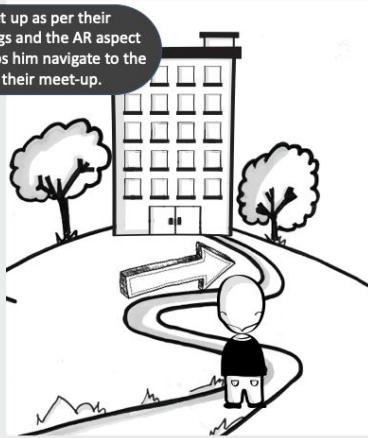
The background features a dark blue gradient with a complex pattern of light blue dots and lines. The dots are arranged in a grid that appears to be receding into the distance, creating a strong sense of perspective and depth. The lines are thin and intersect the dots, forming a mesh-like structure that also seems to curve and recede.

# Storyboard - 1

James receives a notification that he's been matched up with a student, John for the 'Scribe' meet-up/collaboration.

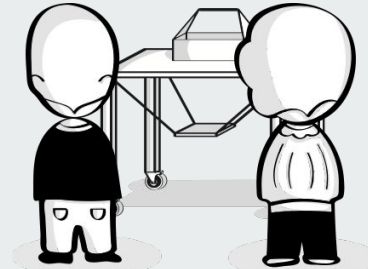
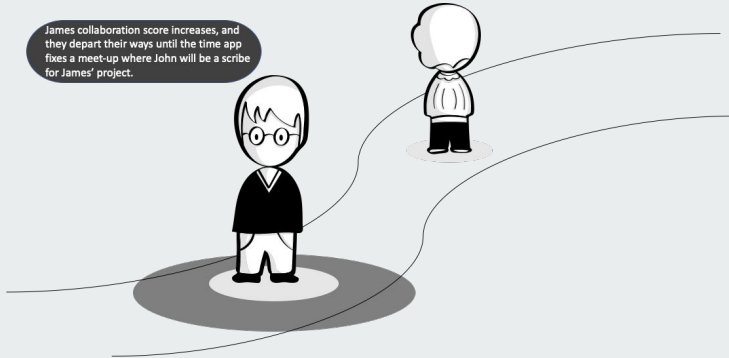


A meeting is set up as per their available timings and the AR aspect of the app helps him navigate to the destination for their meet-up.



In today's session, John is explaining his project and James is the scribe. The scribe, James asks John questions about his project and takes notes.

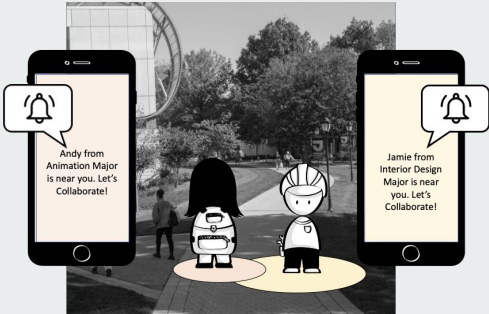
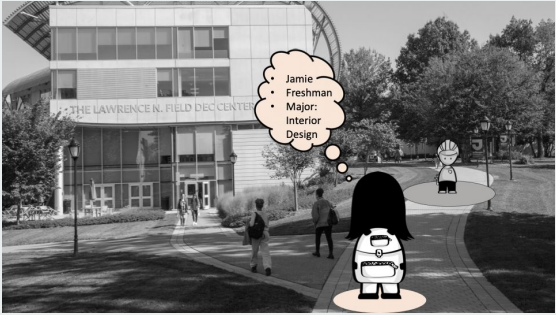
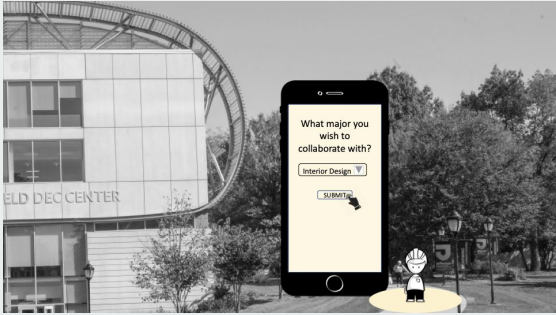
James collaboration score increases, and they depart their ways until the time app fixes a meet-up where John will be a scribe for James' project.



James understands John's project and answers the unlocked questions about the project in the app. John after reviewing ,posts the project review James submitted



# Storyboard - 2





# Partnering

The background features a dark blue gradient with a grid of light blue dots. The grid lines and dots curve away from the viewer, creating a strong sense of depth and perspective, similar to a tunnel or a road receding into the distance.

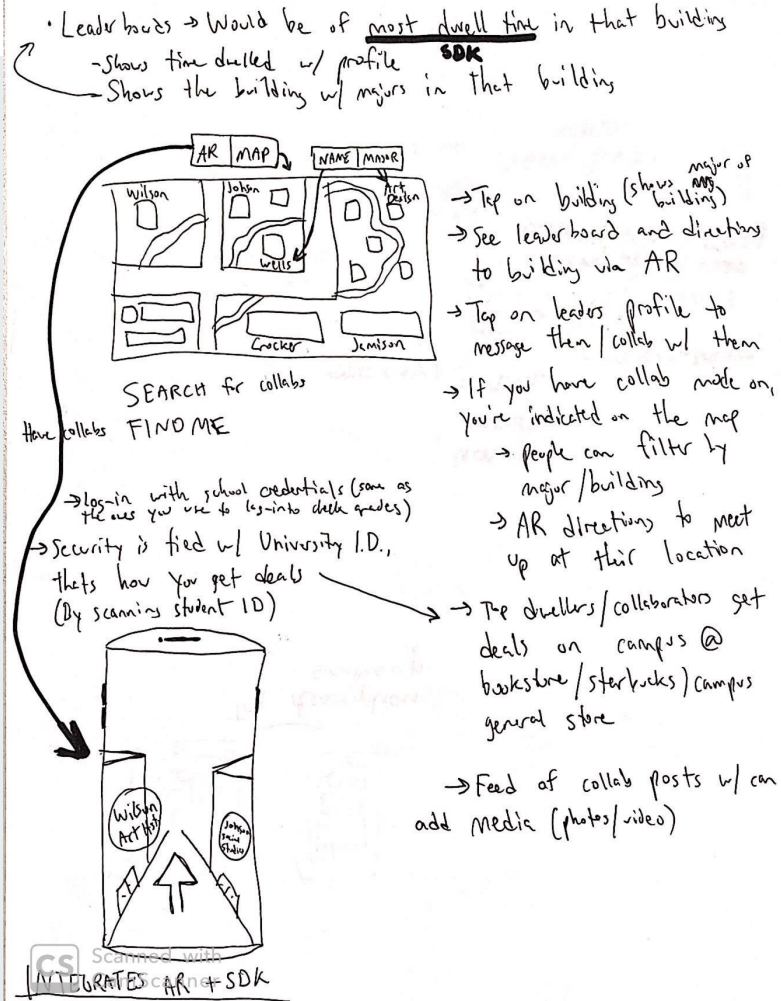
## Partnering

After our primary research we went to X-Mode's HQ office to discuss our ideas and execution possibilities.



# Wireframing

While working with X-Mode's Picket team we had a chance to collaborate with data scientists, information architects, designers, and app developers to brainstorm wireframe concepts using X-Mode's technology, AR, and gamification.





# Digital Prototype

The background features a dark blue gradient with a grid of lighter blue dots and lines. The grid is composed of horizontal and vertical lines that converge towards the center, creating a strong sense of perspective and depth. The dots are arranged in a regular pattern, and the overall effect is reminiscent of a digital mesh or a data visualization.



## Digital Prototyping the AR application

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We used Adobe XD for interface and UI design, Adobe Aero running on an iPhone 11 for Augmented Reality composing, Adobe Dimension for rendering the 3d objects, and After Effects for compiling the prototype footage together.



# Proposed Budget And personnel

The background features a dark blue gradient with a grid of light blue dots. The grid lines and dots curve away from the viewer, creating a strong sense of depth and perspective, similar to a tunnel or a road receding into the distance.

## Proposed Resources

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**TJU**- This project provides an opportunity to apply for research grants possibly employing facility, staff, alumni, and students. These grants may include the areas of learning and development, or technology workforce development grants. External funding may be an option as well.

**X-Mode pickett** - <https://xmode.io/picket/>

Under X-Mode's Pickett initiative there is an opportunity for pro bono support with data and analytics, along with initial front end development to help us advance our concept. Scope and timeline would need to be further refined to determine the length of the support on their end.

**ITI Systems** - <http://www.itisystems.co>

ITI systems provides physical to digital IT development solutions for companies such as Comcast HQ and Omaha Mutual. They will be able to provide a developer and technician to assist with secure installation of bluetooth markers and beacons at designated locations. Ultimately, this will work like a digital signage system.

## Suggested Next Steps



Apply for funding

Receive stakeholder feedback

User Test Prototype

Explore publication opportunities



**Thank you**

The background features a dark blue gradient with a grid of light blue dots. The grid lines and dots curve away from the viewer, creating a strong sense of depth and perspective, similar to a tunnel or a road receding into the distance.