

Emerging Technology for an Interactive El Paso

City of El Paso — Department of IT, UX Team

Ivan Gris — UX Researcher



Yuval Keren
Columbia University
Computer Science

Alyson Lam
Georgia Tech
Industrial Design

Parita Shah
Harvard University
Computer Science

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[Click here to view the video
recording of this presentation](#)



We're a team of fully remote visiting Fellows from the Civic Innovation Corps, a 10 week fellowship designed to bring early career technologists to local government teams.



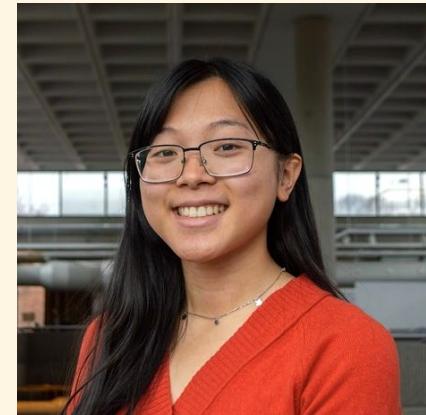
Yuval Keren
Columbia University

Developer



Parita Shah
Harvard University

Developer



Alyson Lam
Georgia Tech

Designer

Our Project Goal

Develop a project that ultimately improves the lives of El Paso residents through emerging technology.

El Paso Strategic Planning

- Goal 4:
“Enhance El Paso’s Quality of Life Through Recreational, Cultural & Educational Environments”
- Goal 3:
“Promote the Visual Image of El Paso”

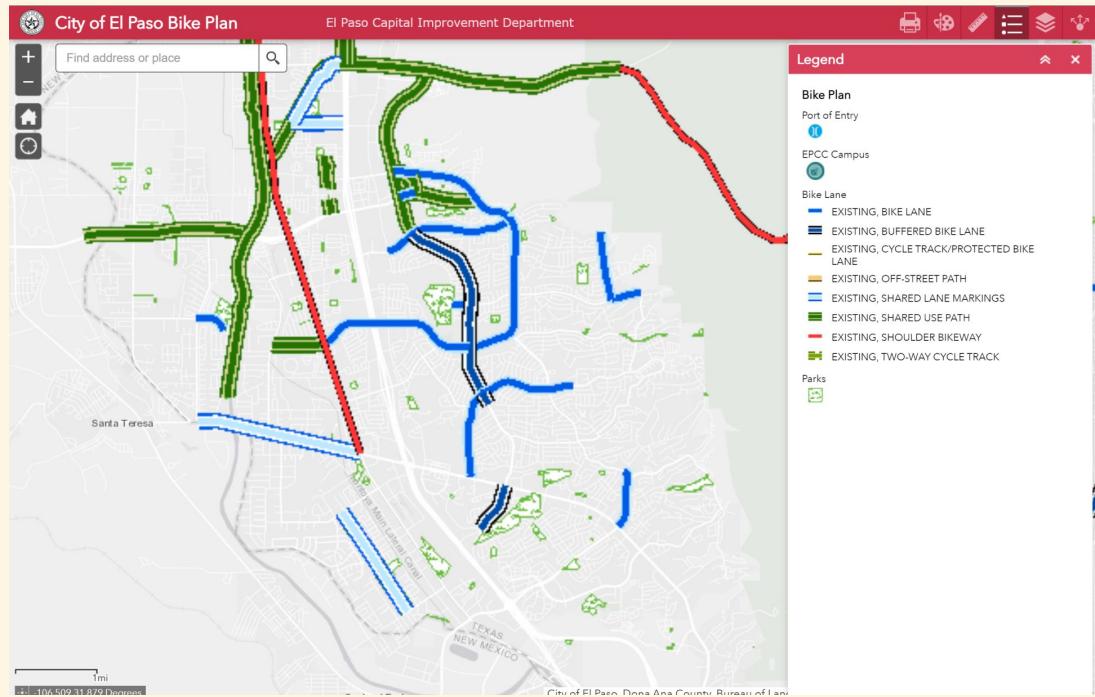
Emerging Technological Resources

Geographic Information Systems (GIS)

Augmented Reality (AR)

Game Engine, Unity

Design Software, Figma



Technological Resources

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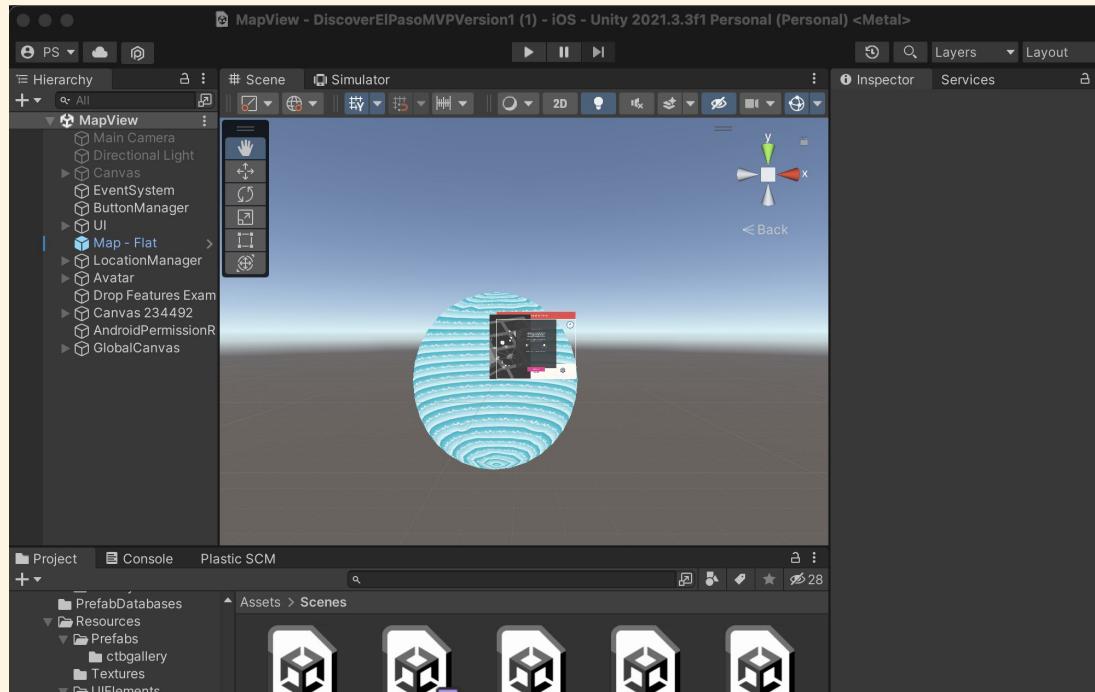
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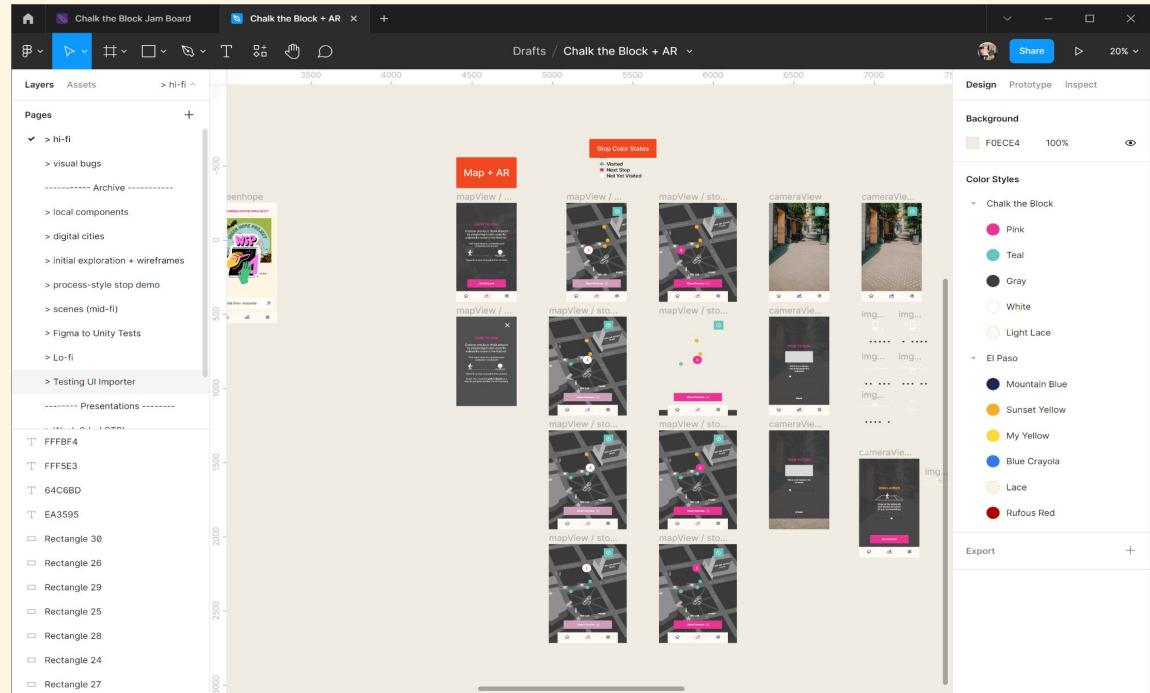
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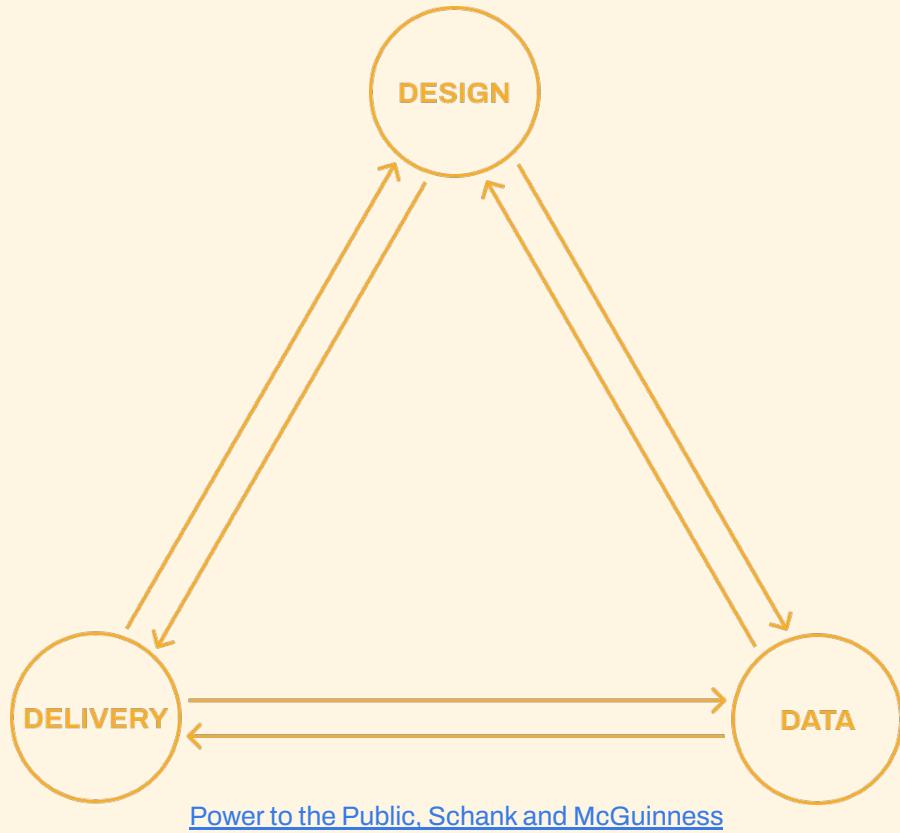
Something to Keep In Mind...

**People, and their
needs, are our
priority.**

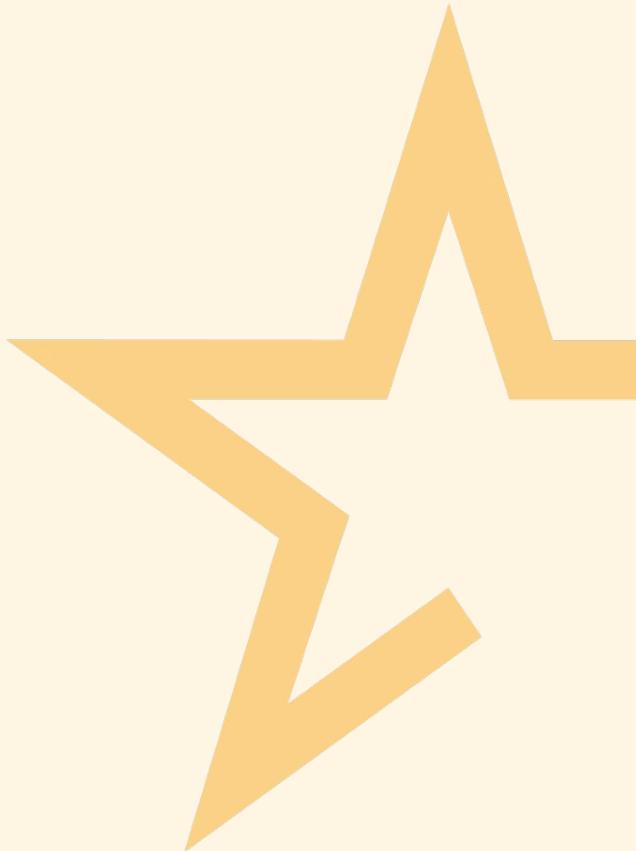


And especially in government...

Technology does not exist within a vacuum.



Digging a bit
deeper into the
project



Project Constraints

9
weeks

- We were fully remote
- None of us have ever been to El Paso
- We were relatively new to some of the technology
- We wanted to deliver a good MVP

What we were looking for in a project

Personally:

- Learn about working in a local government
- Have a strong impact on the people we were working for
- Deliver a technically strong project
- Learn new tech and interpersonal skills

Technically:

- Feasible within 10 weeks
- A project with strong visual elements
- Limited to a specific location
- A subject that benefits from AR's functionality
- Accessible to the residents of El Paso

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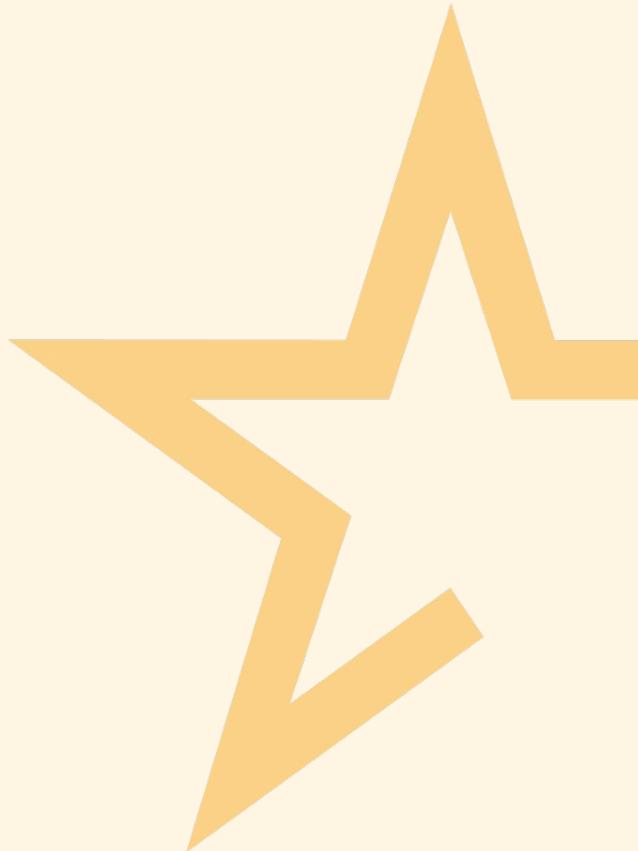
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Getting to know El Paso



RESEARCH

Understanding El Paso

- Videos of DTN El Paso
- Social media pages (Reddit, Instagram), both official and by the public.
- Spoke with members of the UX Team about their experience in El Paso
- Existing GIS resources
- UX Department

ArcGIS REST Services Directory
[Home > services](#)
[JSON | SOAP](#)

Folder: /
Current Version: 10.81
View Footprints In: [ArcGIS Online](#)

Folders:

- [AnimalServices](#)
- [CachedServices](#)
- [CIP](#)
- [CIP](#)
- [CitySourced](#)
- [CMViewer](#)
- [CommunityDev](#)
- [DCHD](#)
- [Downtown](#)
- [EconomicDev](#)
- [EnvironmentalServices](#)
- [EnvironmentalSevices](#)
- [FCC](#)
- [FiberROW](#)
- [Landmark](#)
- [MyElectedRepresentative](#)
- [OutdoorRec](#)
- [ParcelArchive](#)
- [Parks](#)
- [PD](#)
- [PdnMapa](#)
- [Planning](#)
- [PlanningPublicApp](#)

GIS Maps

Bike Lanes
Type your address to search for TxDot and EPDOT bike lanes available in the area.
[Learn More](#)

City Facility Viewer
View city-related services, projects, and locations including parks, museums, pools, police stations, libraries, and more.
[Learn More](#)

City Maintained Streets
View which streets are maintained by the city or state, and what district streets fall under.
[Learn More](#)

Development Incentive Area
See if your property is within a Transit Oriented Development Incentive Area.
[Learn More](#)

Developments in Process
View which Quality of Life projects the City is working on.
[Learn More](#)

Digital El Paso Wifi
Find Free WiFi hotspots provided by the City of El Paso
[Learn More](#)

RESEARCH

Our Perspective

- El Paso's downtown seems vibrant and lively.
- Strong community and support for art.



[March 2021, Wind Walk Travel Videos](#)

IDEATION

Initial Ideas

At this stage, we explored a wide range of domains we could potentially work in.

However, a lot of our ideas centered around this idea of incorporating and displaying artwork within different areas of El Paso.



NARROWING SCOPE

Chalk the Block

Then we learned about
[Chalk the Block.](#)

El Paso's yearly chalk art festival and competition held at the Arts Festival Plaza. It's a celebration of El Paso's art community that brings together 200 local artists and 45,000 visitors each year.



NARROWING SCOPE

Chalk the Block

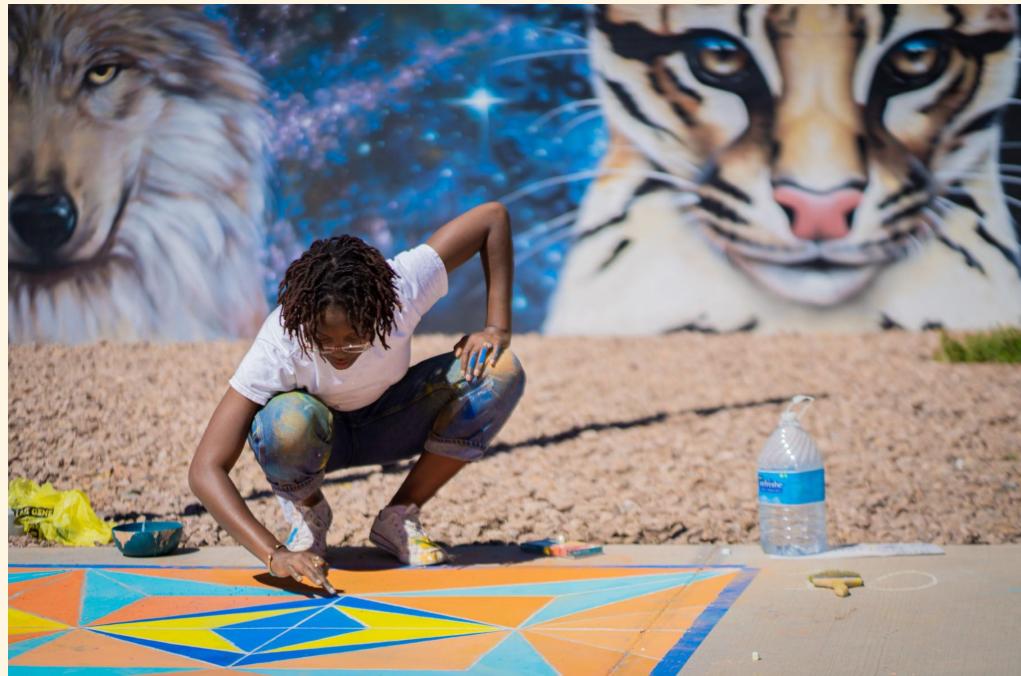
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NARROWING SCOPE

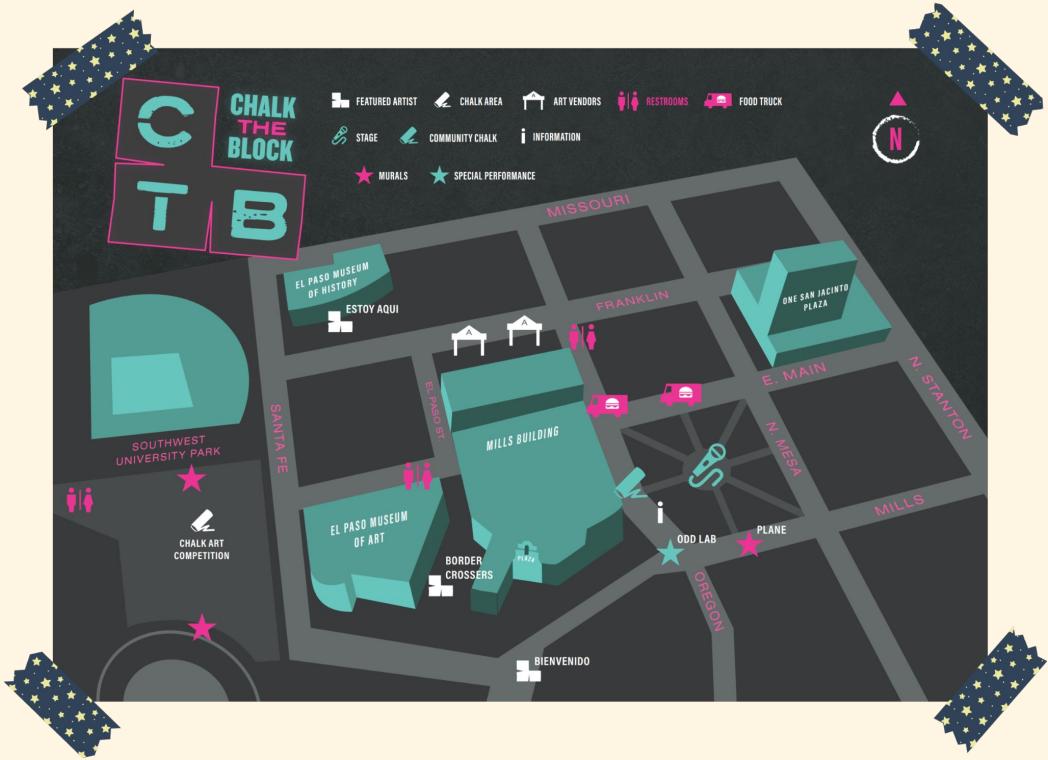
Chalk the Block

- ✓ Feasible within 10 weeks
- ✓ Accessible to the residents of El Paso
- ✓ A project with strong visual elements
- ✓ A subject that benefits from AR's functionality
- ✓ Limited to a specific location



**“Start small,
learn, improve,
scale.”**

[Power to the Public, Schank and McGuinness](#)



Redefining Our Project Goals

1. Develop a basic AR framework
for future applications.
2. Using that framework, develop a
MVP that demonstrates how AR
can be used in a civic minded
application.

Redefining Our Project Goals

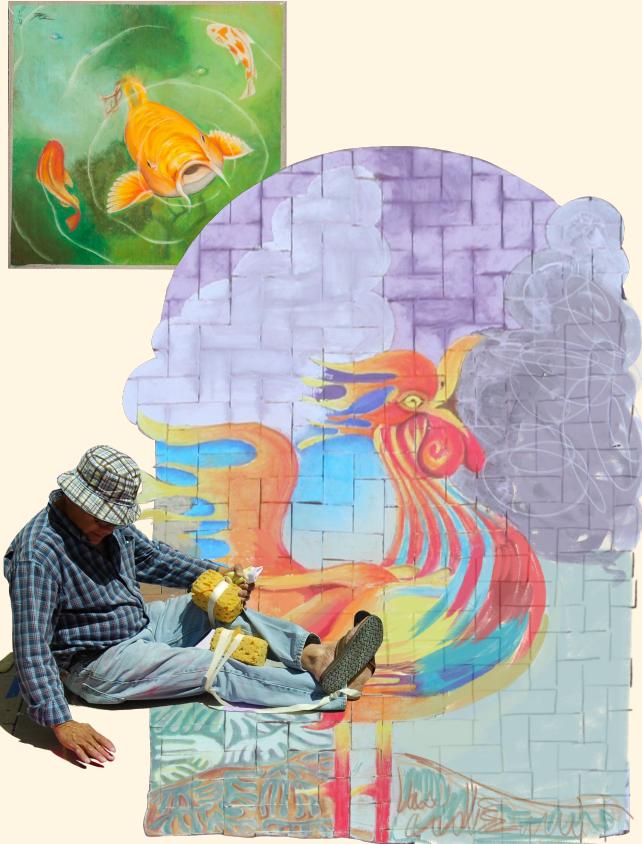
1. Develop a basic AR framework for future applications.
2. Using that framework, develop a **MVP** that demonstrates how AR can be used in a civic minded application.

Minimum Viable Product

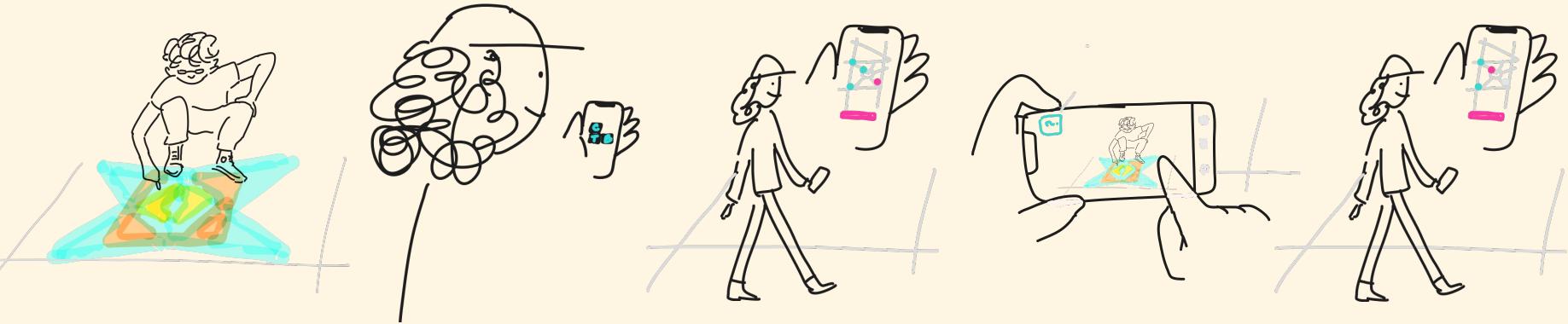
An early version of a product that demonstrates enough early features to validate the concept with users.

MOVING FORWARD

How might we share and honor chalk artwork, an inherently fleeting medium, with the future El Paso art community?



Creating that experience



Each year, the chalk artwork disappears

When a visitor arrives to the festival they could download the app

Walk over to the first stop

And tap to place the artwork to view it as it was meant to be seen

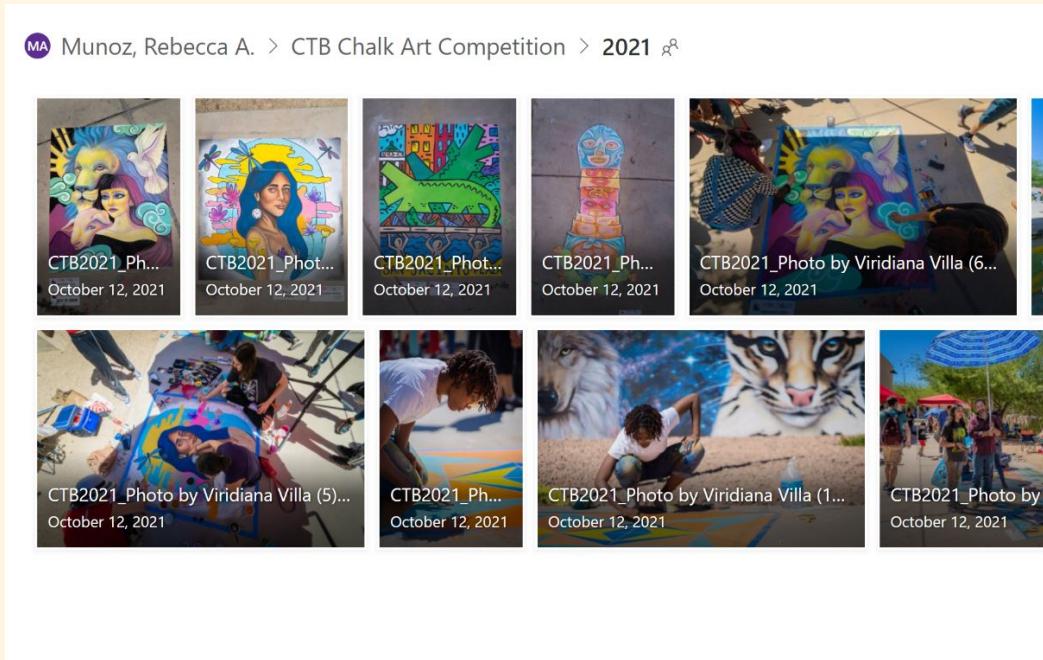
Then continue along their visit to see years of Chalk the Block work

COLLABORATION

Working with MCAD

MCAD is El Paso's Museum and Cultural Affairs Department.

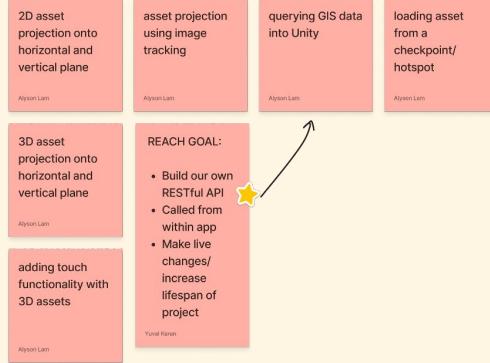
We met to discuss our concept with organizers of CTB, Rebecca Muñoz and Andrea Read. They were receptive and helped us clarify details, refine our concept, and provided an archive of art.



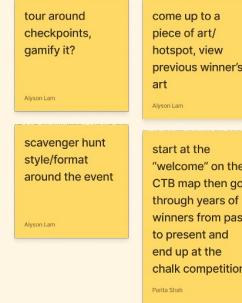
Must Haves and Nice to Haves

It took a bit more brainstorming and ideation to nail down what exactly we wanted our application to be.

Potential Unity/Framework Features



Minimum Viable Product

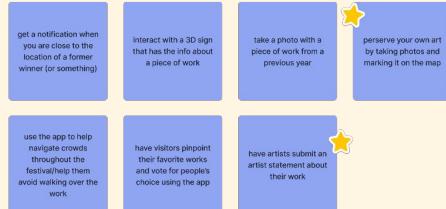


questions we still need to answer

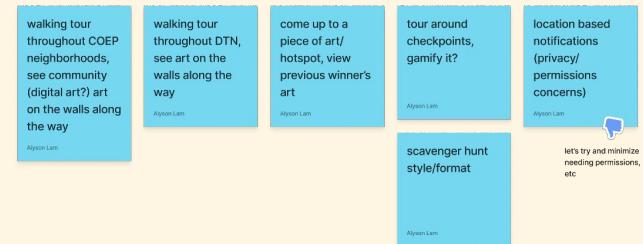
- what's the specific interaction of detecting the plane/ showing art?
 - is the image already there?
 - do we want them to tap something? tap the plane?
 - what is our incentive to see the art?
 - scavenger hunt
 - do we want an interactive 3D sign?
 - what info does this show?
 - should you be able to scroll through previous art?
 - where are things located?
 - all over the city?
 - within the arts district/bounds of the event
- For Alyson
- look at the Unity UI assets
 - do these exist?
 - TextMeshPro

- Figuring out UI workflow
- how do we want to translate Figma UI to Unity's native tools?

Additional Brainstorming



Potential App Features



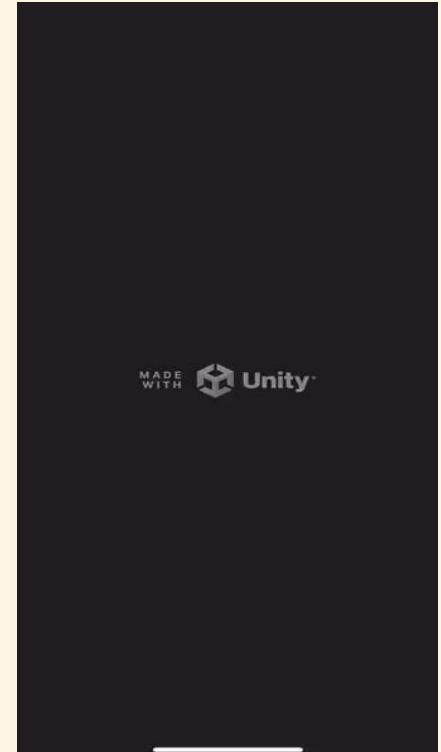
DEVELOPMENT

Methods to project the artwork

[Image Detection](#)



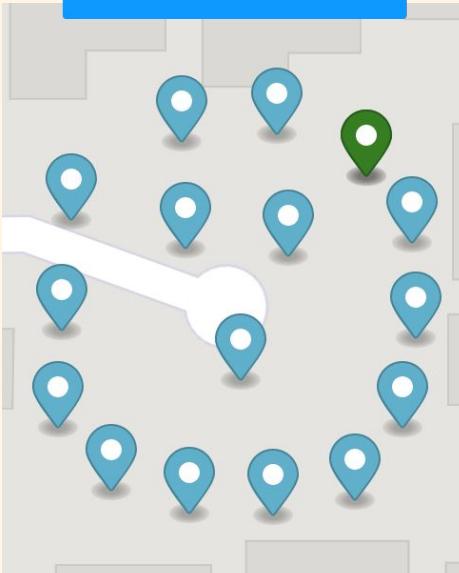
[Plane Detection](#)



DEVELOPMENT

Placing Hotspots using coordinates

Pick a location for the
hotspot



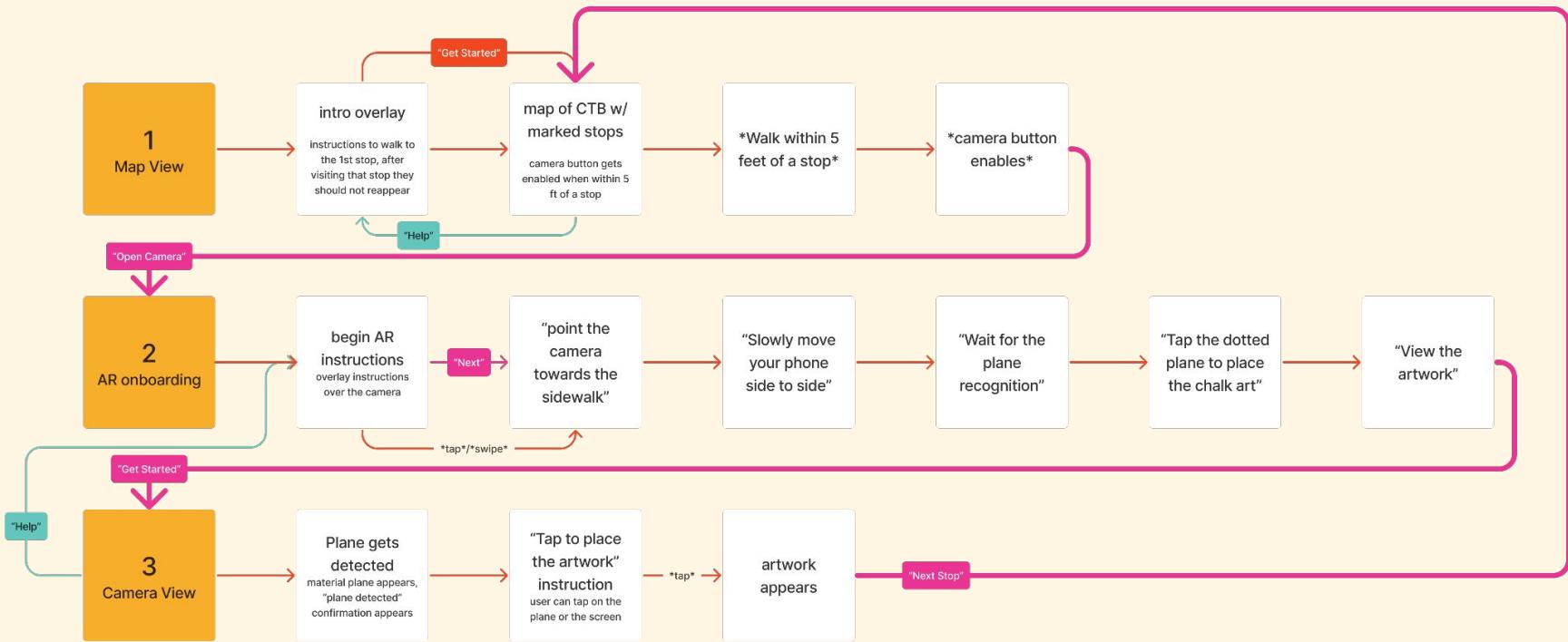
Convert the Coordinates
into an XML File

Trigger event by entering
the hotspot



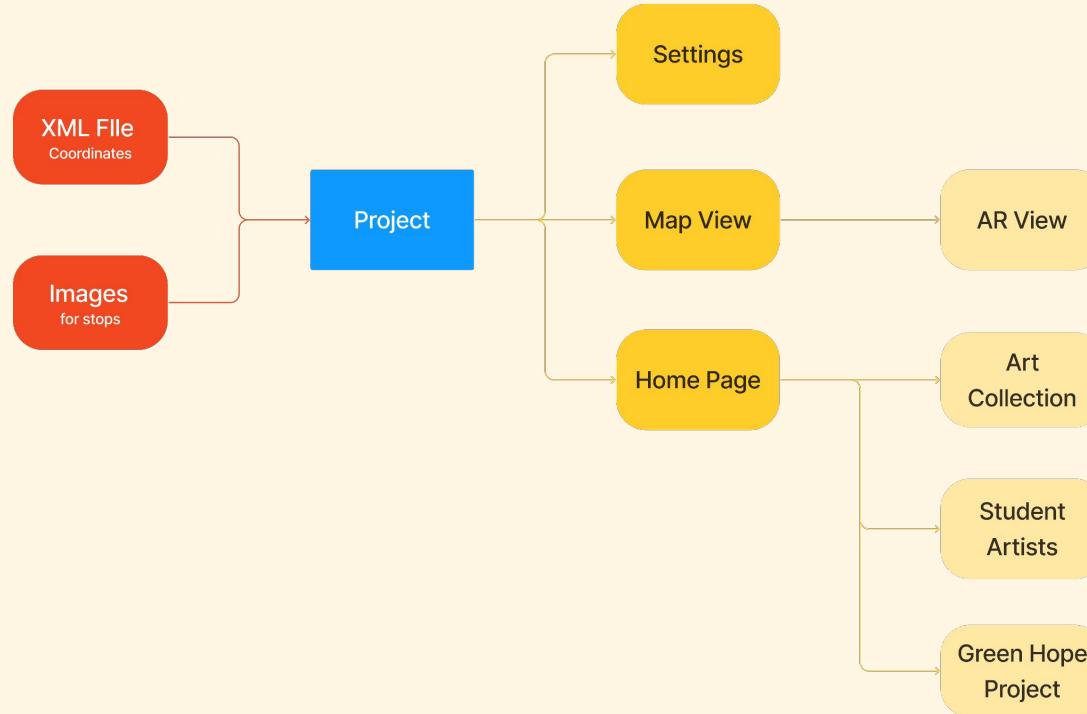
DESIGN

Planning how a user will use the AR

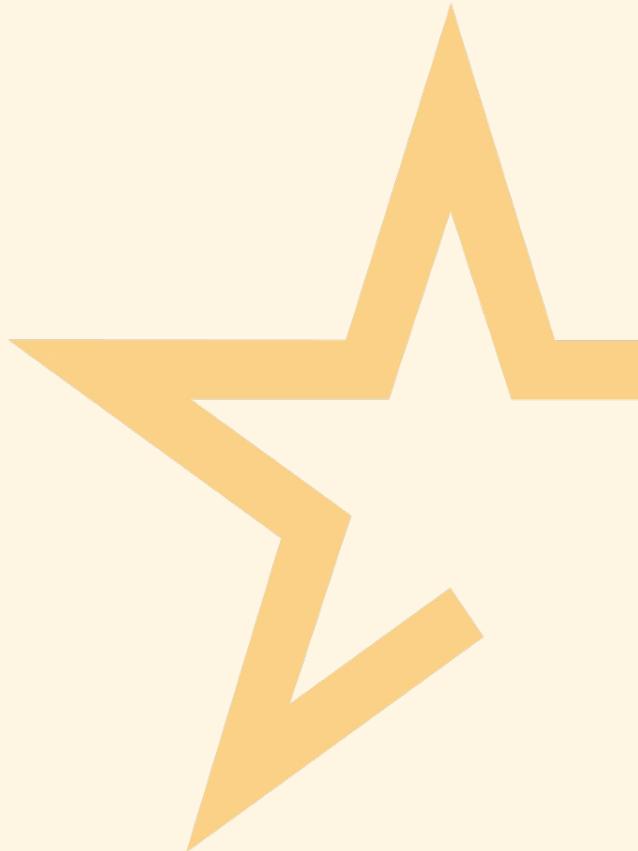


DEVELOPMENT

Making the Framework Reusable



Moving on to final design & development



DESIGN

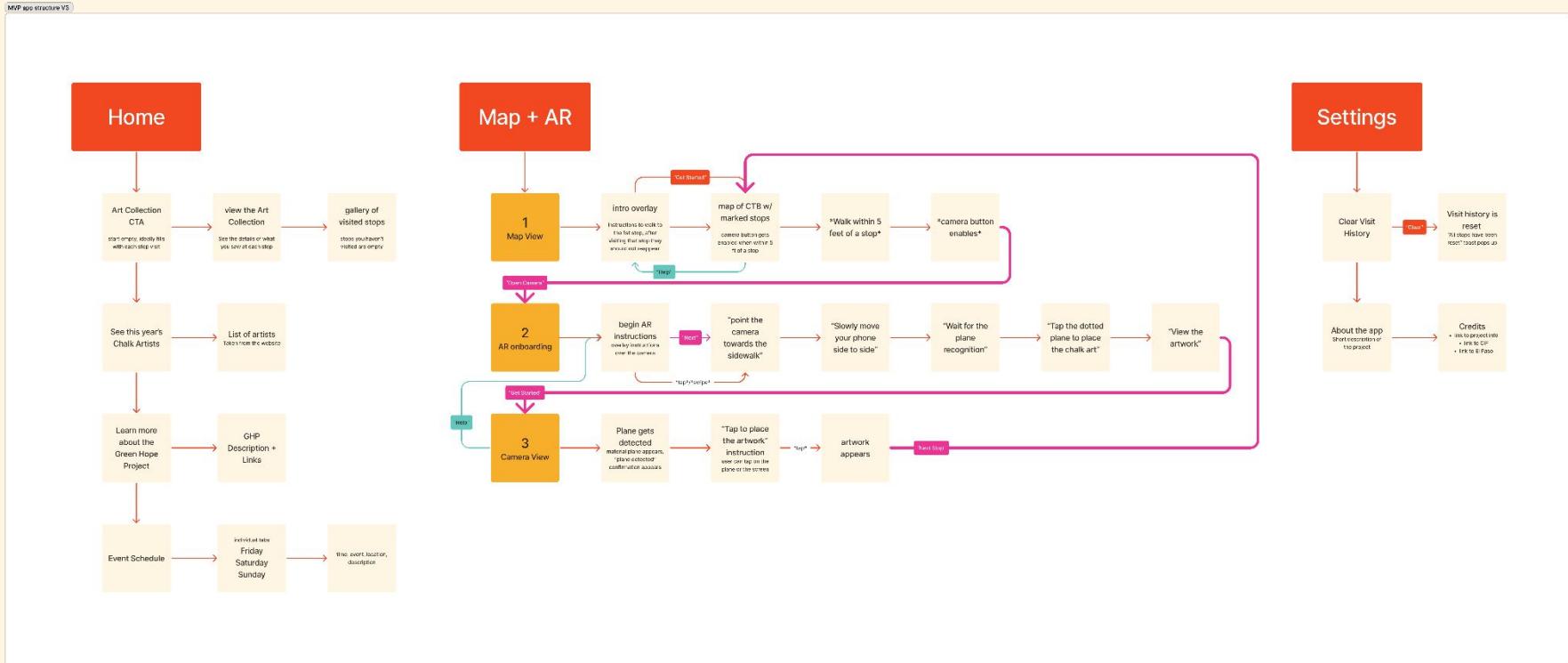
View the Figma files here

[Chalk the Block Jam Board](#)

[Chalk the Block + AR](#)

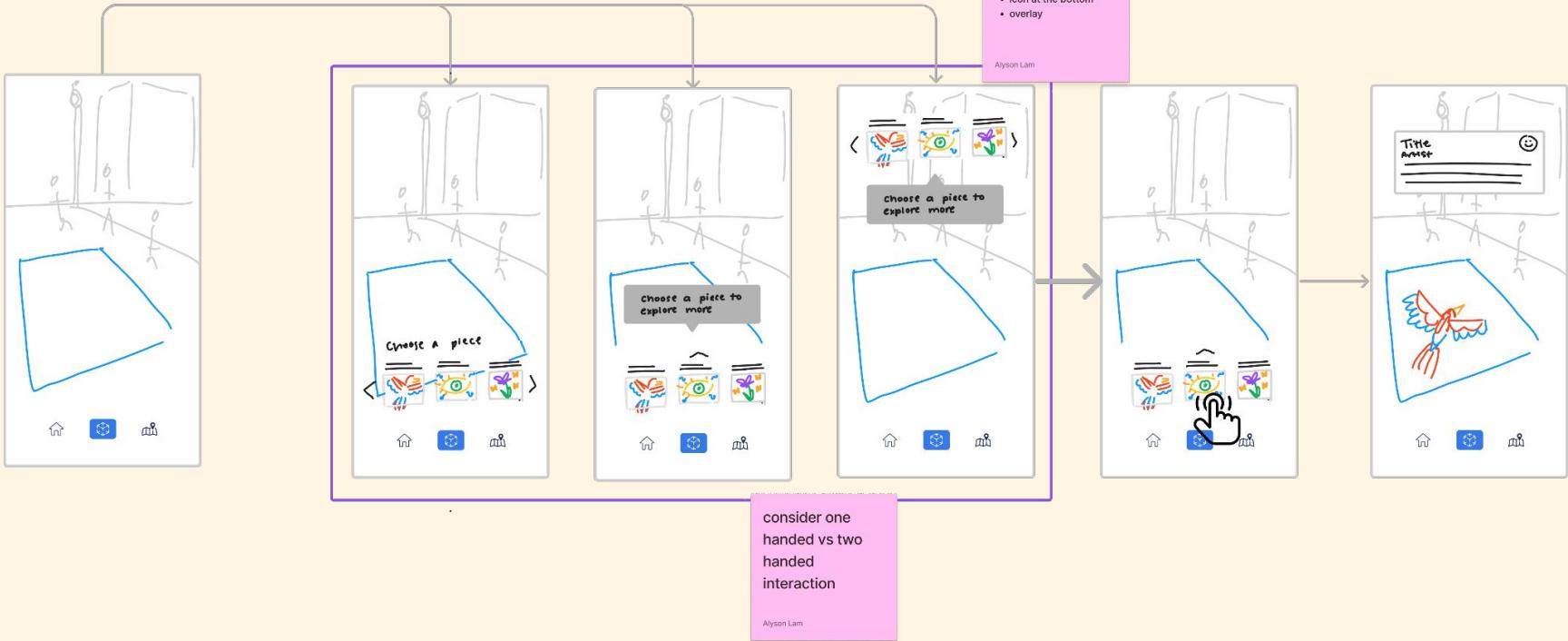
DESIGN

Final structure of the app



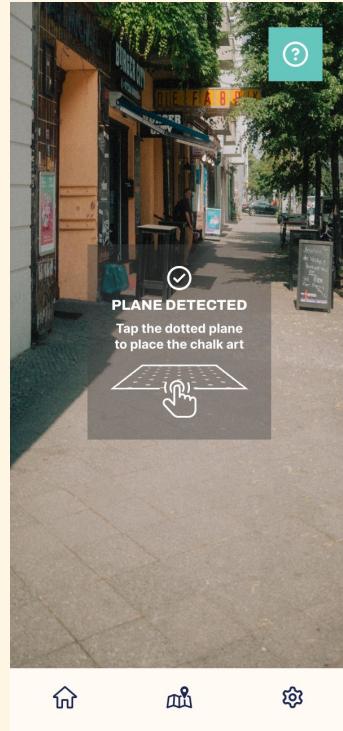
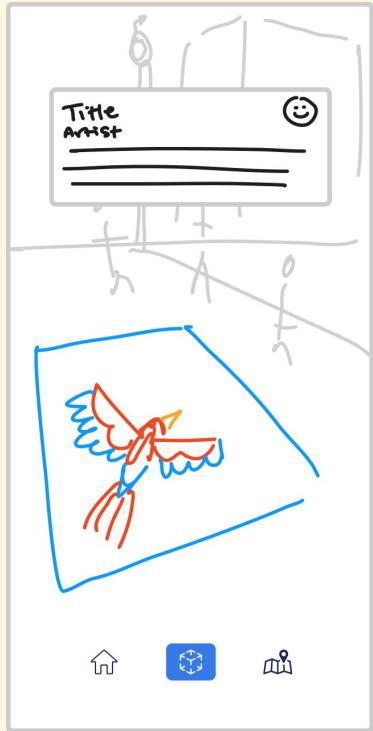
DESIGN

Working with Lo-fi's



DESIGN

Refining the look and feel



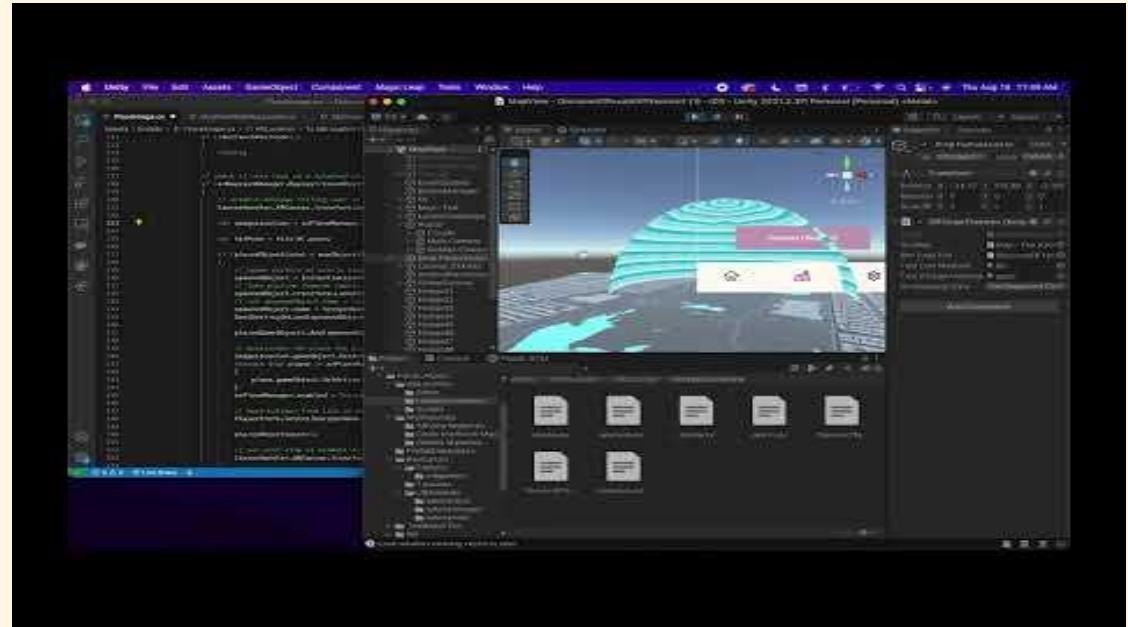
DEVELOPMENT

Bringing together UI and function

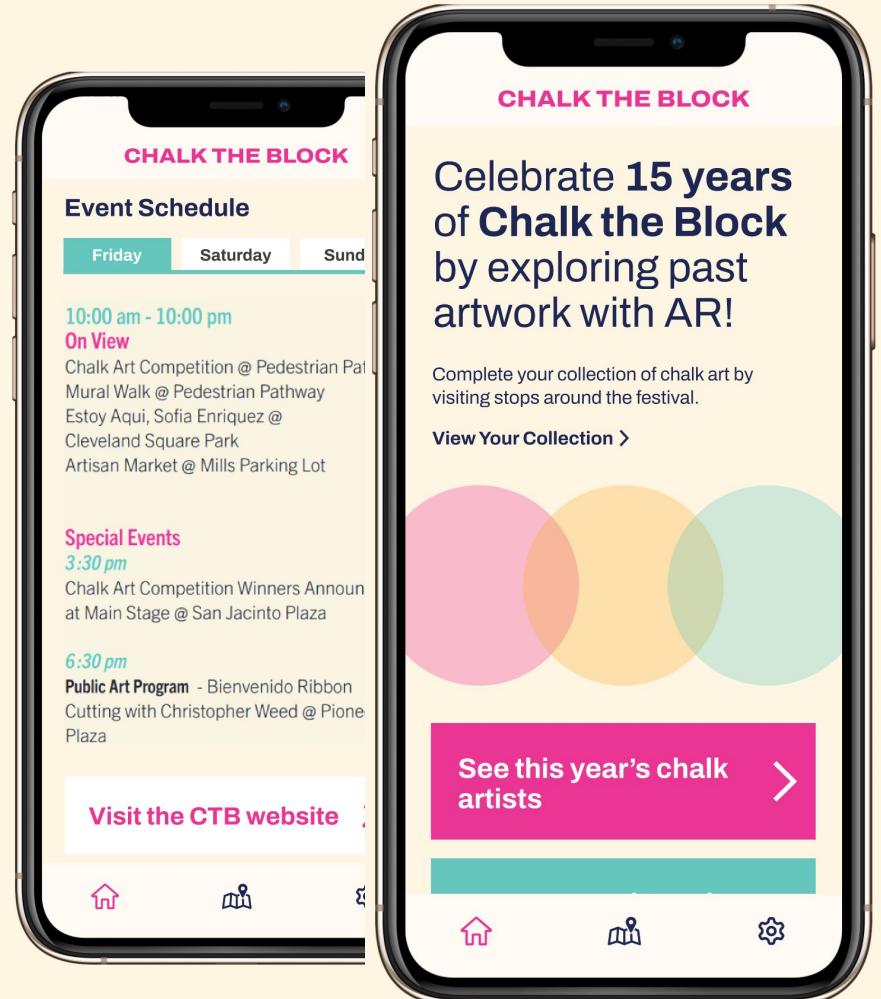
Let's take a quick look at how the UI was integrated with the backend in Unity.

[Developing the backend](#)

(Github project link to be added soon)



The final result



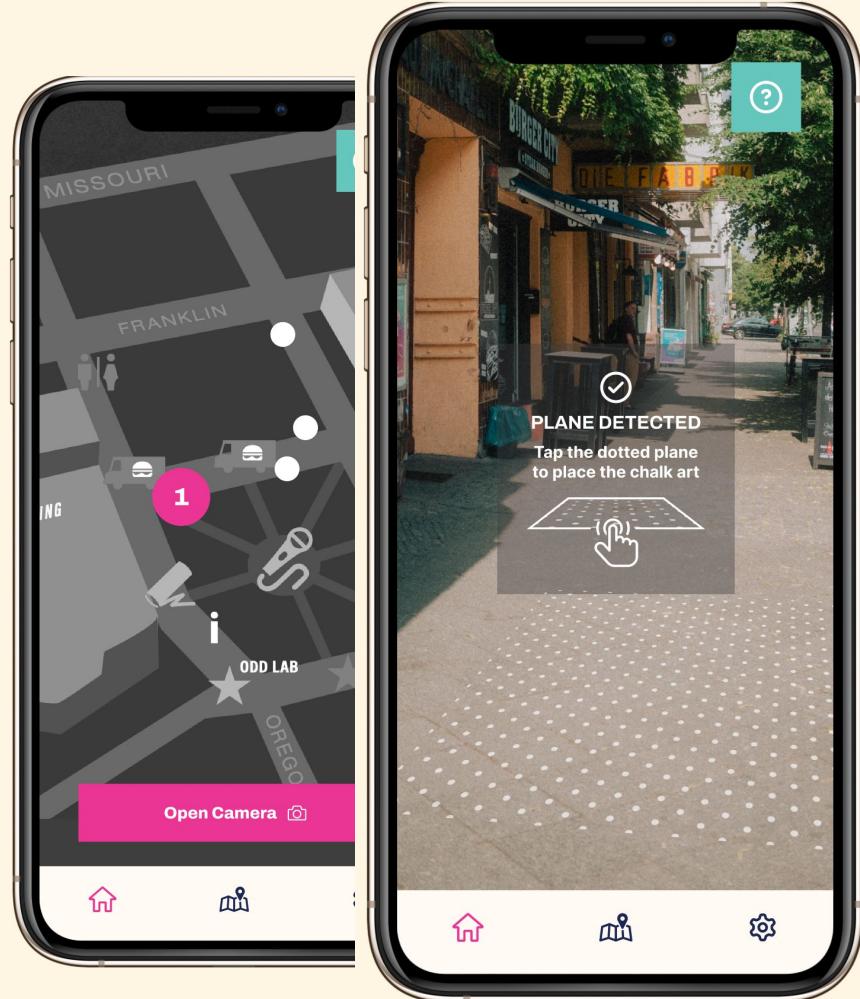


[Discover El Paso Promo](#)

DESIGN

Interactive Prototype

Chalk the Block in AR



Key Takeaways

- Identifying quality use cases
- Designing and developing with a human-centered approach
- Refining and iterating upon an idea
- Challenges and rewards of working with emerging technologies
- Long-term planning



Next Steps

- What does this look like in the future:
- Modular Structure
- Easily swap out, in different datasets
- Expanding use cases beyond Chalk the Block
 - Augmented Art Exhibits
 - Visualizing location-based city services



Thank you for coming!

Questions?



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