Audio Reality

Studio: Assistive Technologies and Accessibility

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Value Prop. + Problem/Solution Overview

Value Proposition

Harnessing augmented reality to create equal educational spaces.

Problem/Solution Overview

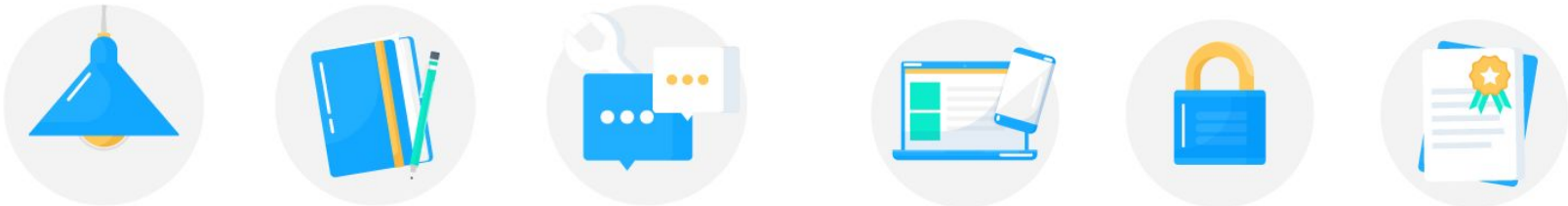
Students who are deaf experience difficulties in lecture. Due to how captions are set up, they must focus on understanding the lecturer's speech instead of learning the material like their peers. Having multiple speakers also confuses students. Our solution provides captioning in students' line-of-sight and shows them who is speaking. We provide captioning and directional visual cues through augmented reality in a head-worn display.

Tasks

Task #1 (simple): Understand lecture content

- Deaf and hard-of-hearing folk have a difficult time learning in class because they need to focus on understanding the literal English being spoken first

- We want to enable students to understand lecture content



Task #2 (moderate): Identify+find the speaker

- It’s cool hearing what’s said, but who said it?

- Speaker identification was a large challenge identified in Assignment #1.

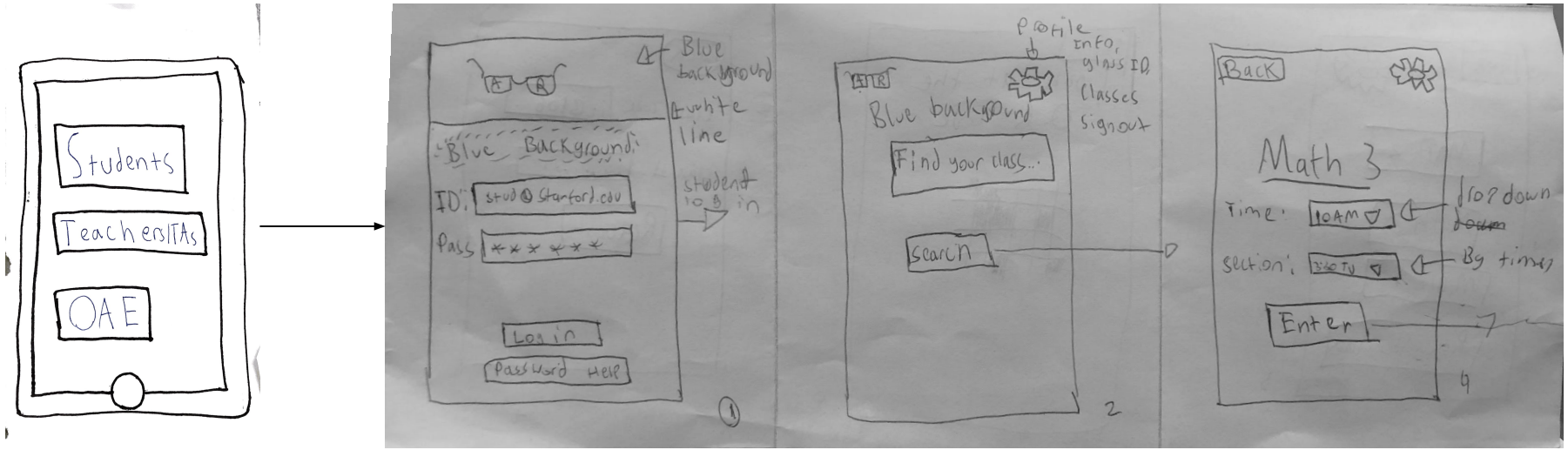
Task #3 (complex): Ensure captioning is available

- We want to ensure that the Office of Accessible Education (OAE) can manage students and their devices to ensure that captioning is available in every class

- Our final task ensures that captioning is available for students and classes that need it

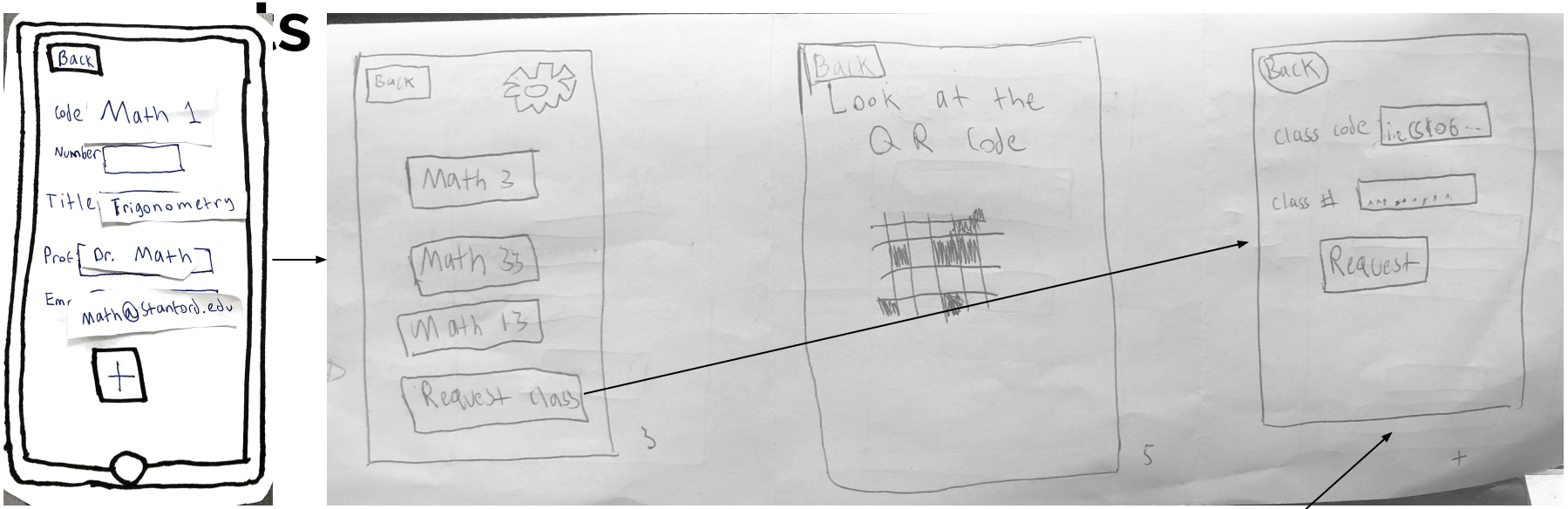
Revised Interface Design

Major Design Change #1: Streamlined login



- Lo-Fi testers expressed doubt as to whether three login buttons were
- We streamlined the UI such that the app automatically detects whether a user is a student or administrator (Teacher or OAE)

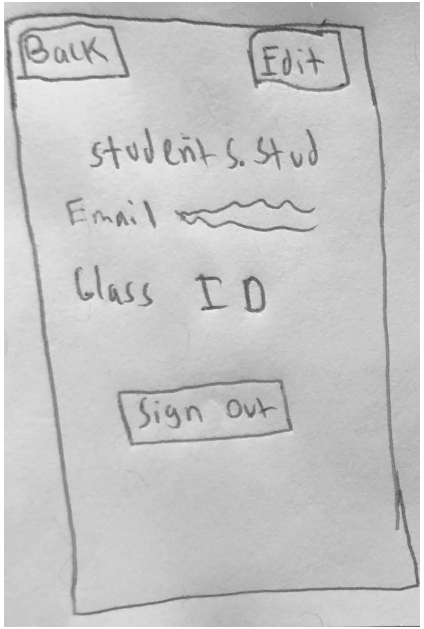
Major Design Change #2: Streamlined



- Our OAE Lo-Fi user said that all the fields (Title, Professor, etc.) were not needed to look up a class.
- We streamlined the process of requesting a new class.

Major Design Change #3: Admin Control

- We realized that we were missing functionality, namely the ability for admins to add students to a class.
- In this new sketch, admins can add a student by their email and associate them with a class they are registered for



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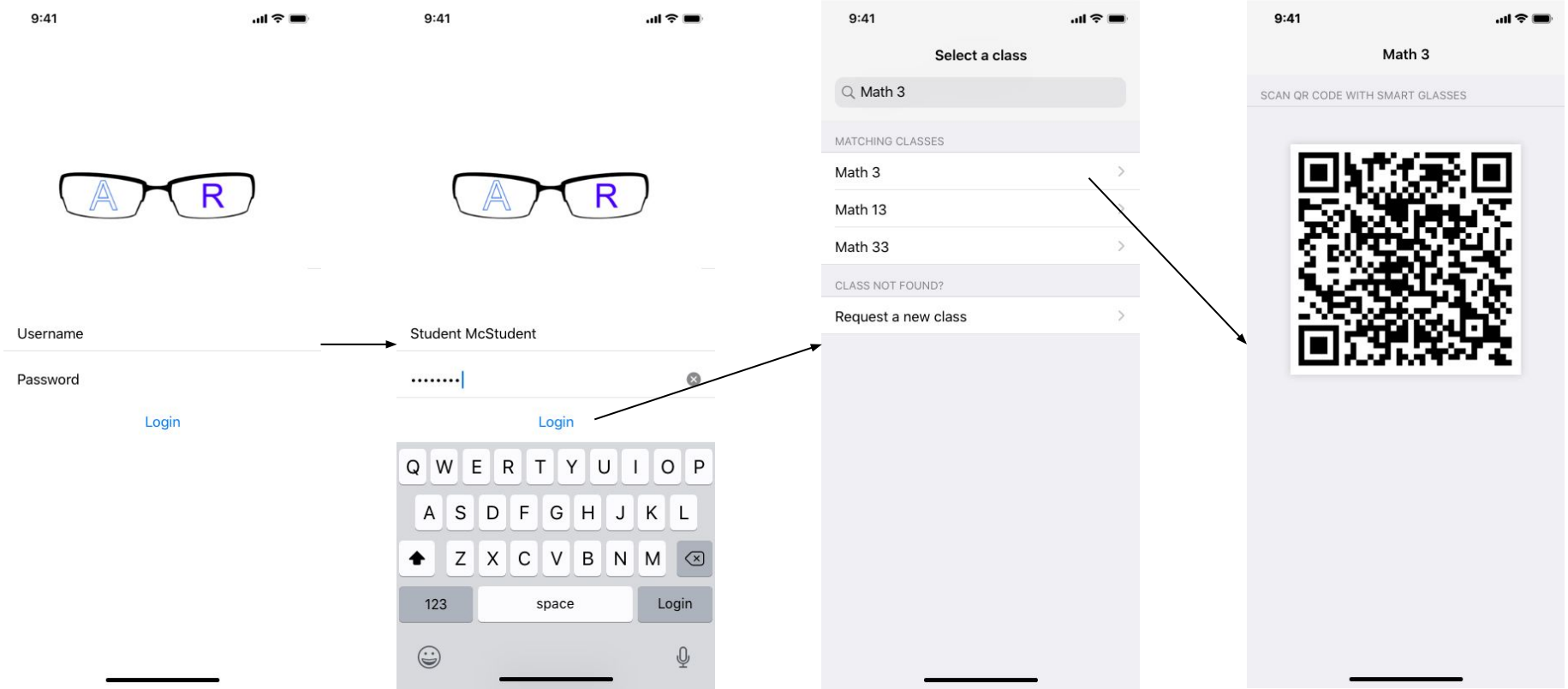
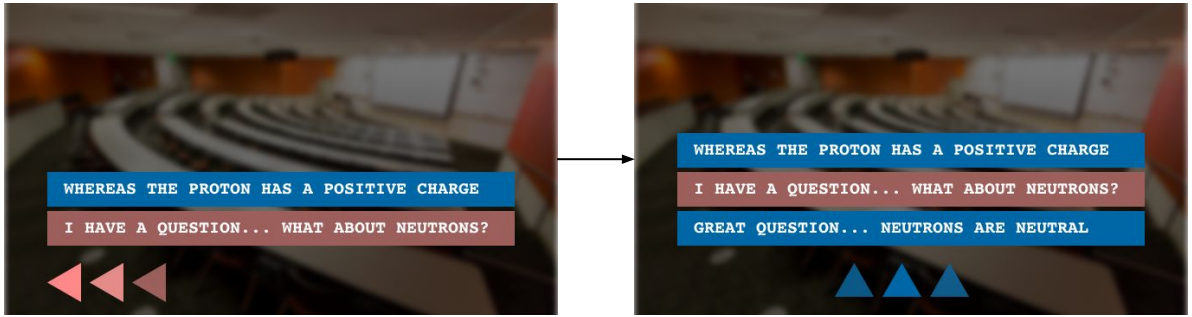
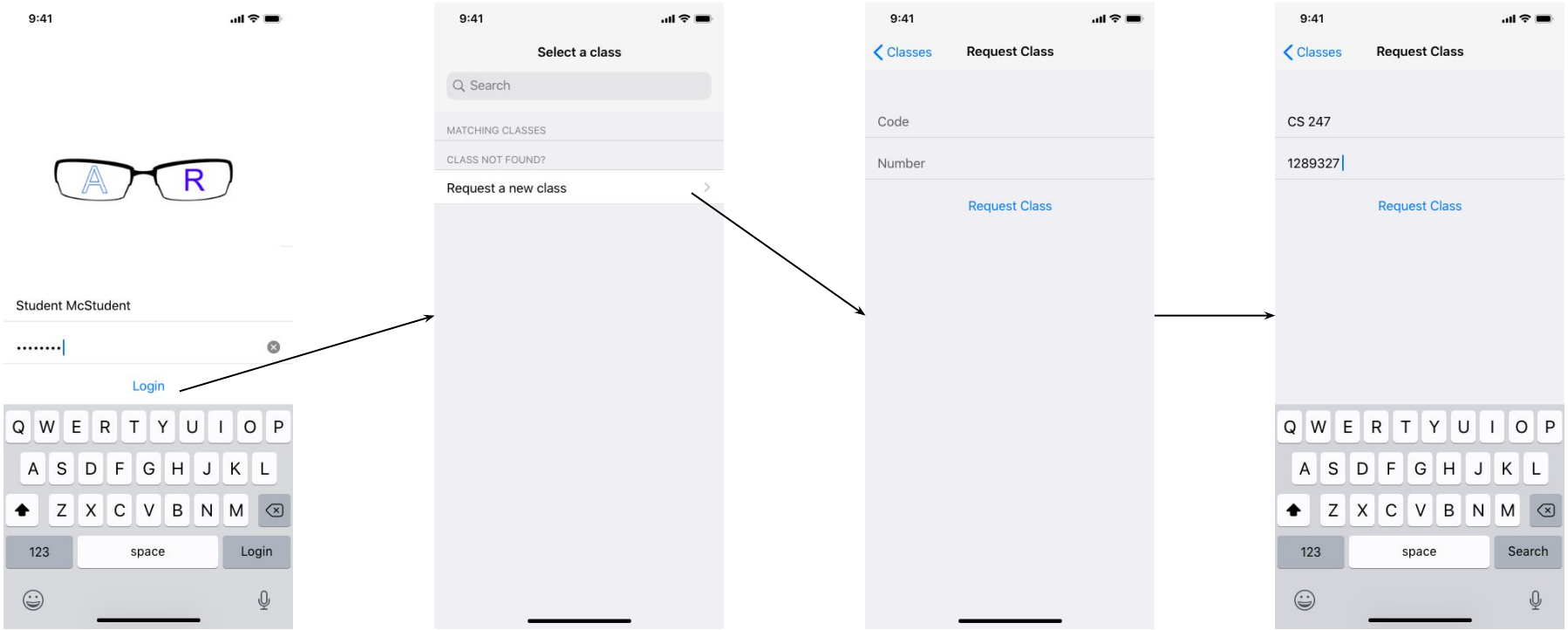


Task #1 (simple): Understand lecture content

Task #2 (moderate): Identify and find the speaker



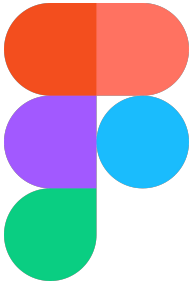
Task #3: Make sure captioning is available



Prototype Overview

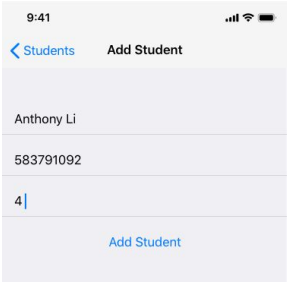
Design / Prototype tools

- Tools used:
  - Figma.com
  - Adobe XD
- Helpful:
  - Rich set of UI components from Apple
  - Able to “program” the interactions
  - Drag-and-drop, visual UI for designing
- Not helpful:
  - Hard to anything beyond basic design
  - Advanced design required extra time

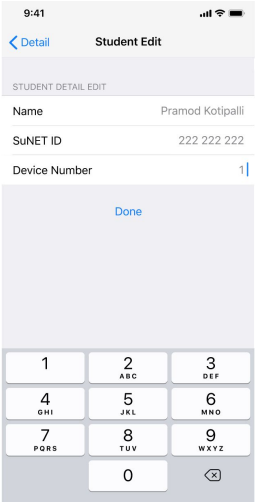


Limitations / Tradeoffs of current prototype

- Limitations:
  - The user cannot interact with the google glass (zooming in, scrolling up and down)
  - The user cannot fill out forms themselves



- Trade-Offs
  - Figma has an intuitive and powerful system for UI design BUT adding action is difficult and time consuming

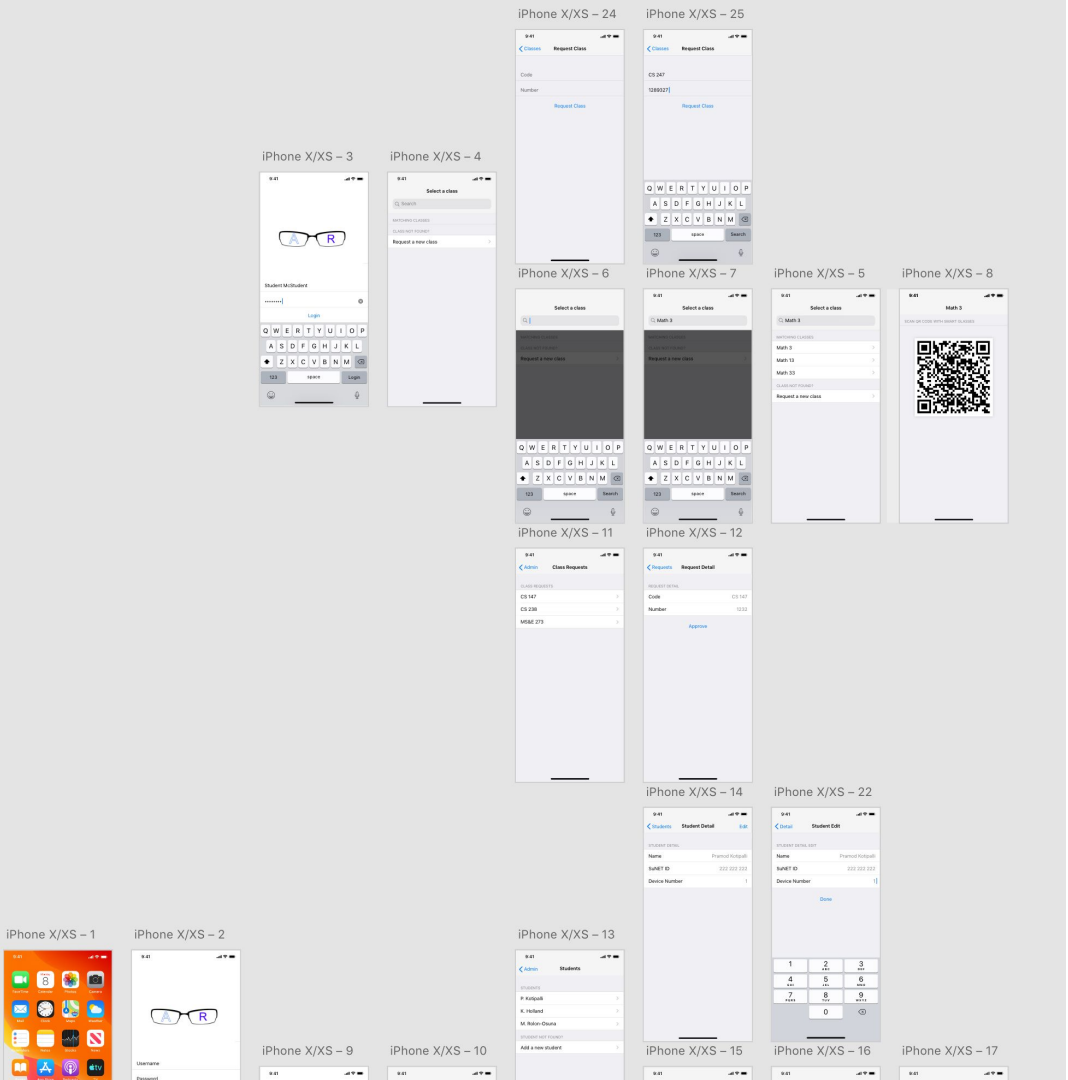


Wizard of Oz & Hard-coded features

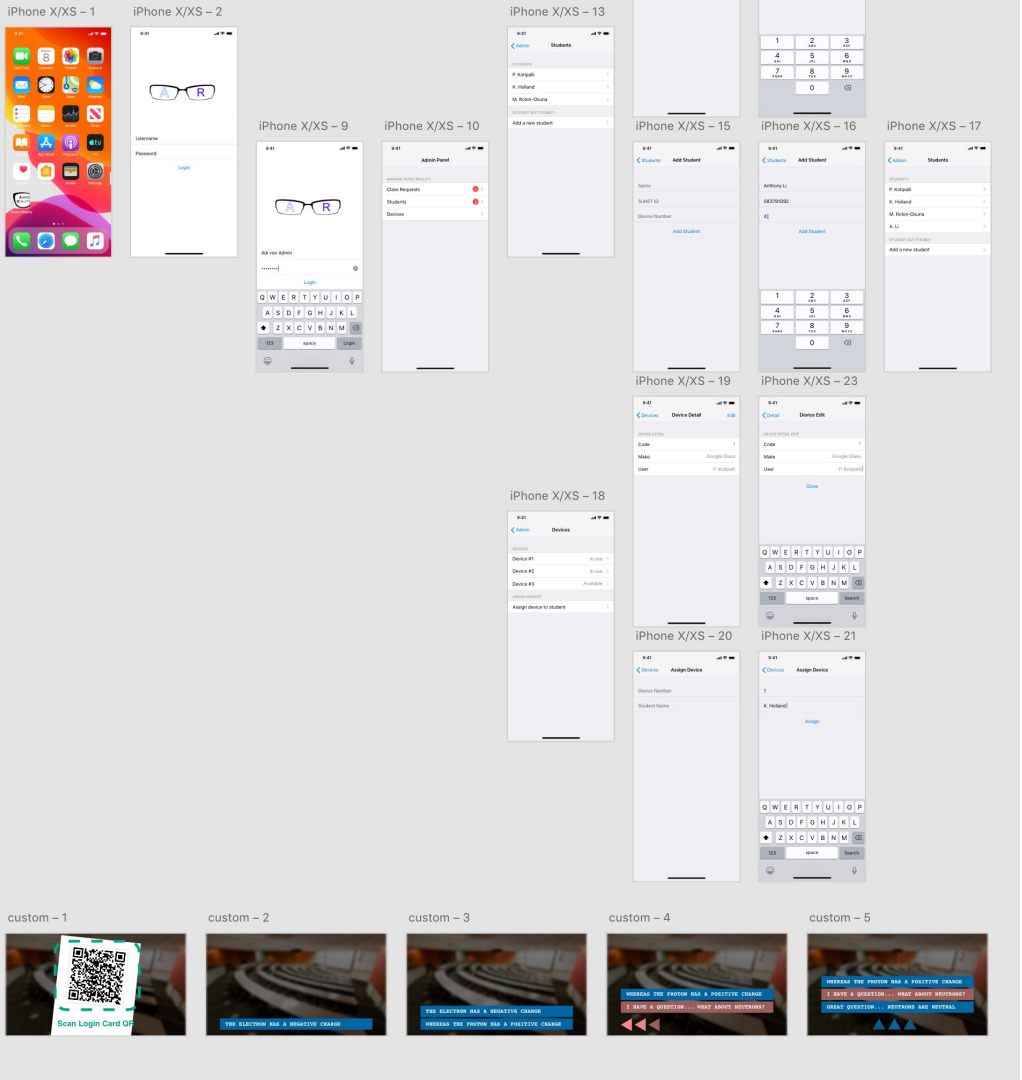
- Wizard-of-Oz
  - Transcribing and transmitting the text for the AR classes
  - Identifying the speaker direction

- Hard-coded:
  - Input text for forms
  - Profiles for students, classes, and device information
  - Lecture text and speech direction
  - QR code

Appendix



This is our entire set of task flows for our application. (1/2)



This is our entire set of task flows for our application. (2/2)