assignment 5: sketching, low-fi prototyping & pilot usability testing

Lifelong Learning 2:30–4:20 PM
Team 2: Seamus, Fred, Jailia, Ashton

our team

Seamus

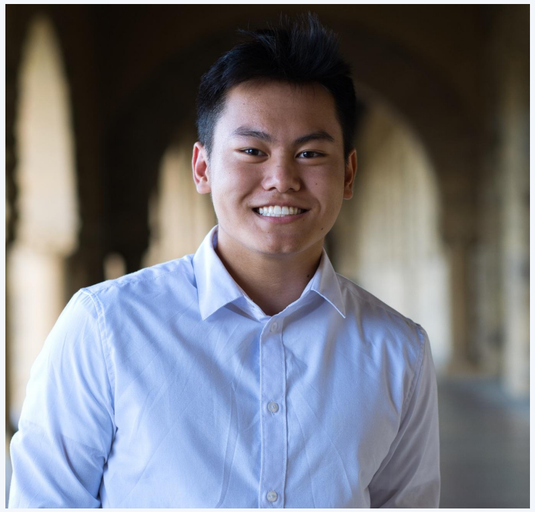
Public Policy

Fred

Economics

Jailia

Computer Science



Ashton

Computer Science

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01.

project overview

problem + solution

problem

Lengthy office hours wait times create inefficiencies for instructors and unproductive waiting for students.

solution

A collaborative office hours tool streamlining instructor scheduling and peer-to-peer learning by grouping students and enabling collaboration either in person or through the app with clear group connections and voice/chat features.

project overview

project title	one-liner	value proposition
sameQ	“Questions shared, knowledge paired.”	Unlock the potential of collaborative learning and and efficient office hours with sameQ. Empowering educators to offer flexible office hours and enabling students to seamlessly book individual or group slots while facilitating connections with peers, sameQ helps to foster a vibrant learning community and enhanced academic success.

02.

sketching explorations

realization #1

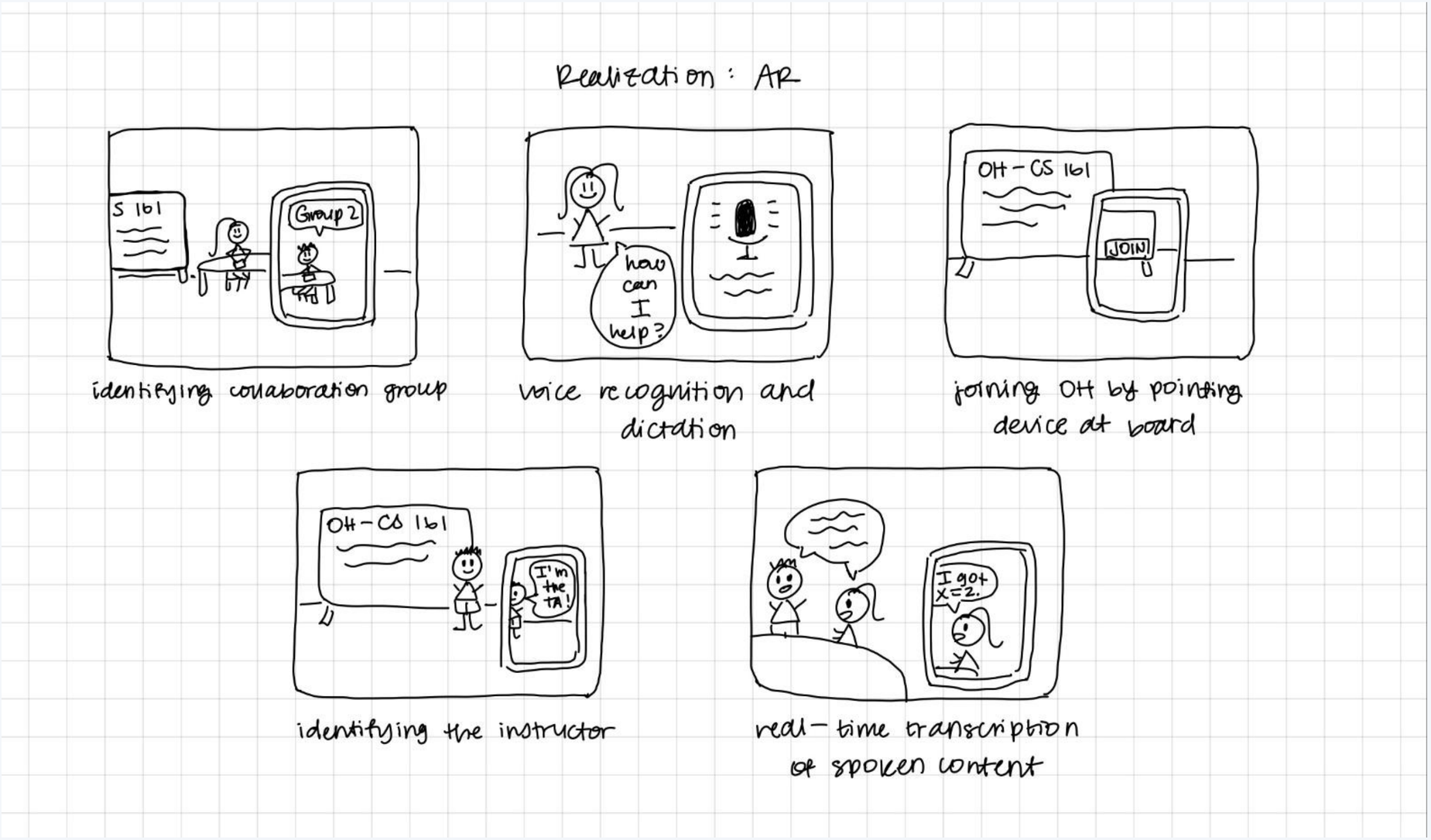


Figure 1: Concept sketches for an AR application

realization #2

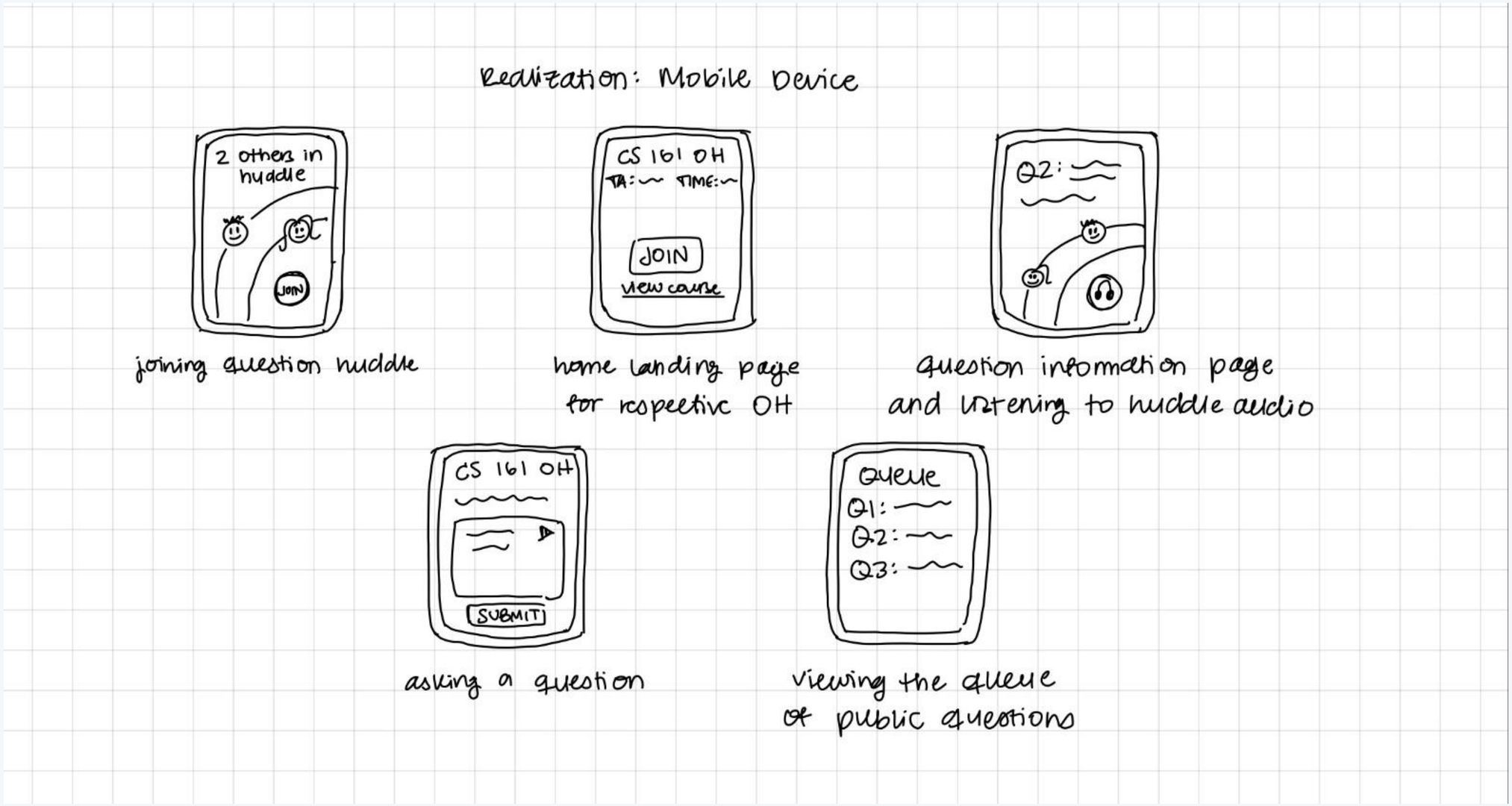


Figure 2: Concept sketches for an mobile device application

realization #3

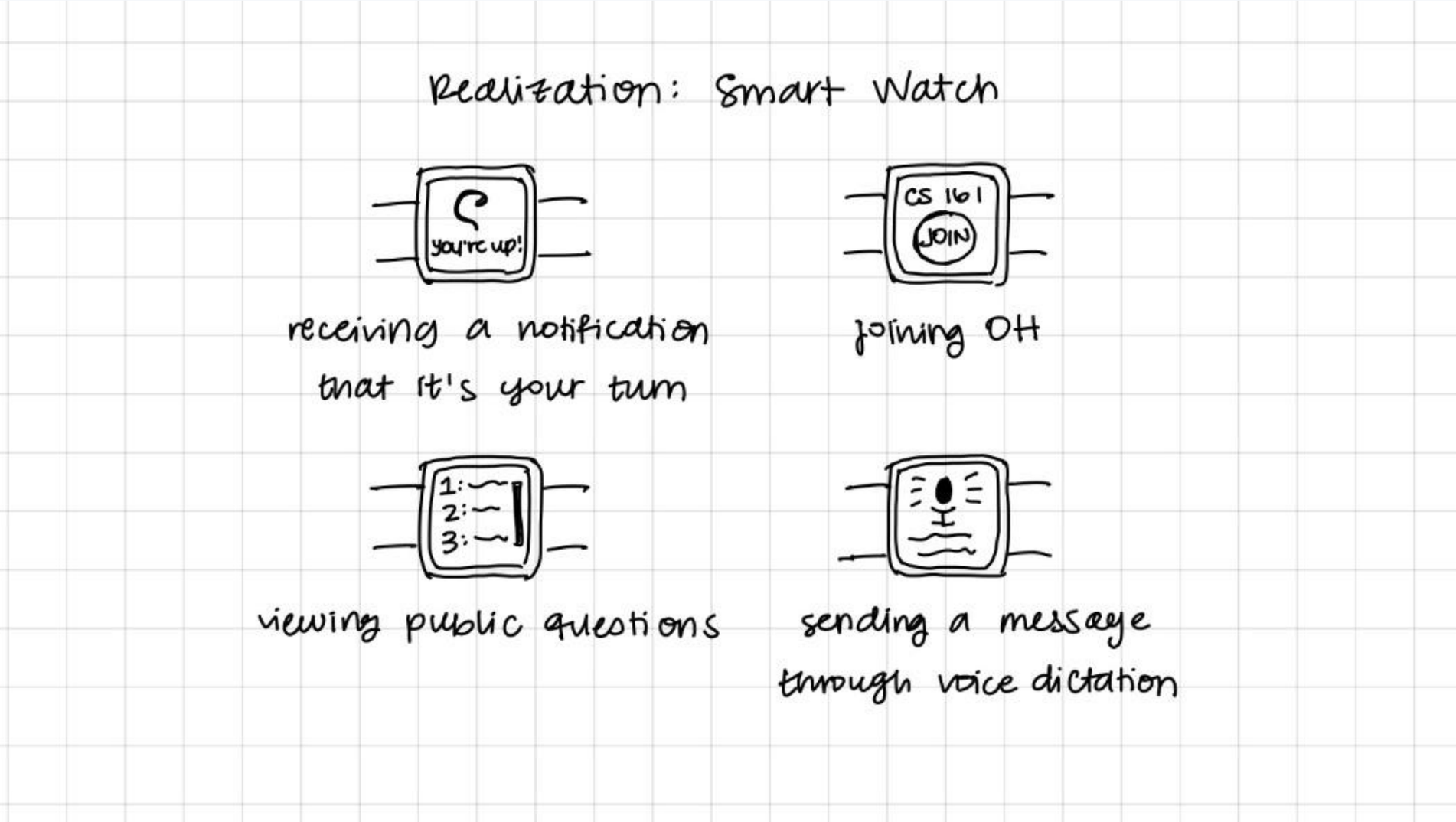


Figure 3: Concept sketches for a wearable

moving forward with AR and mobile

Wearable application could be an extension of mobile application.

03.

interface & rationale

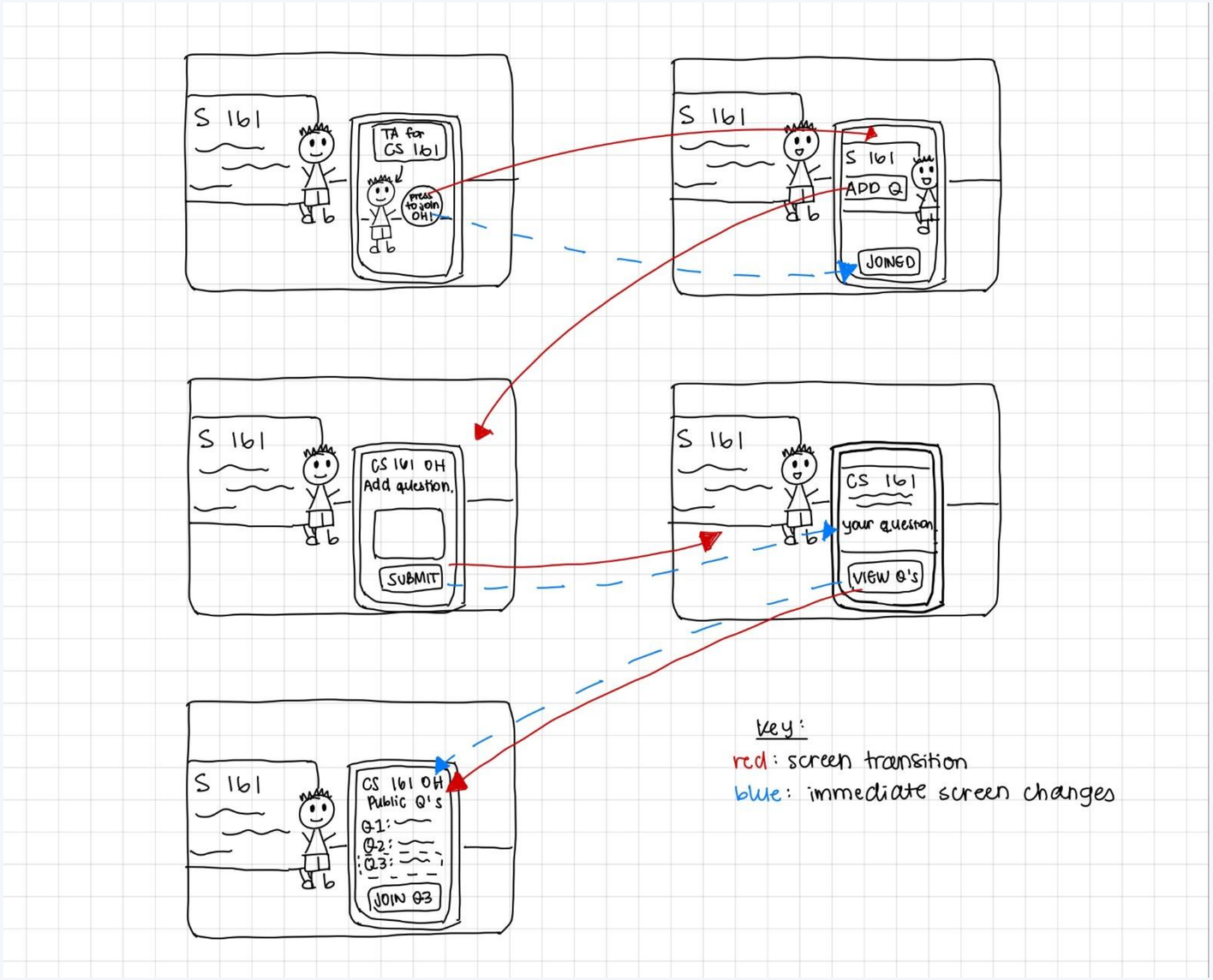


Figure 4: AR app screen transitions (joining session, asking a question, viewing public questions)

realization #1

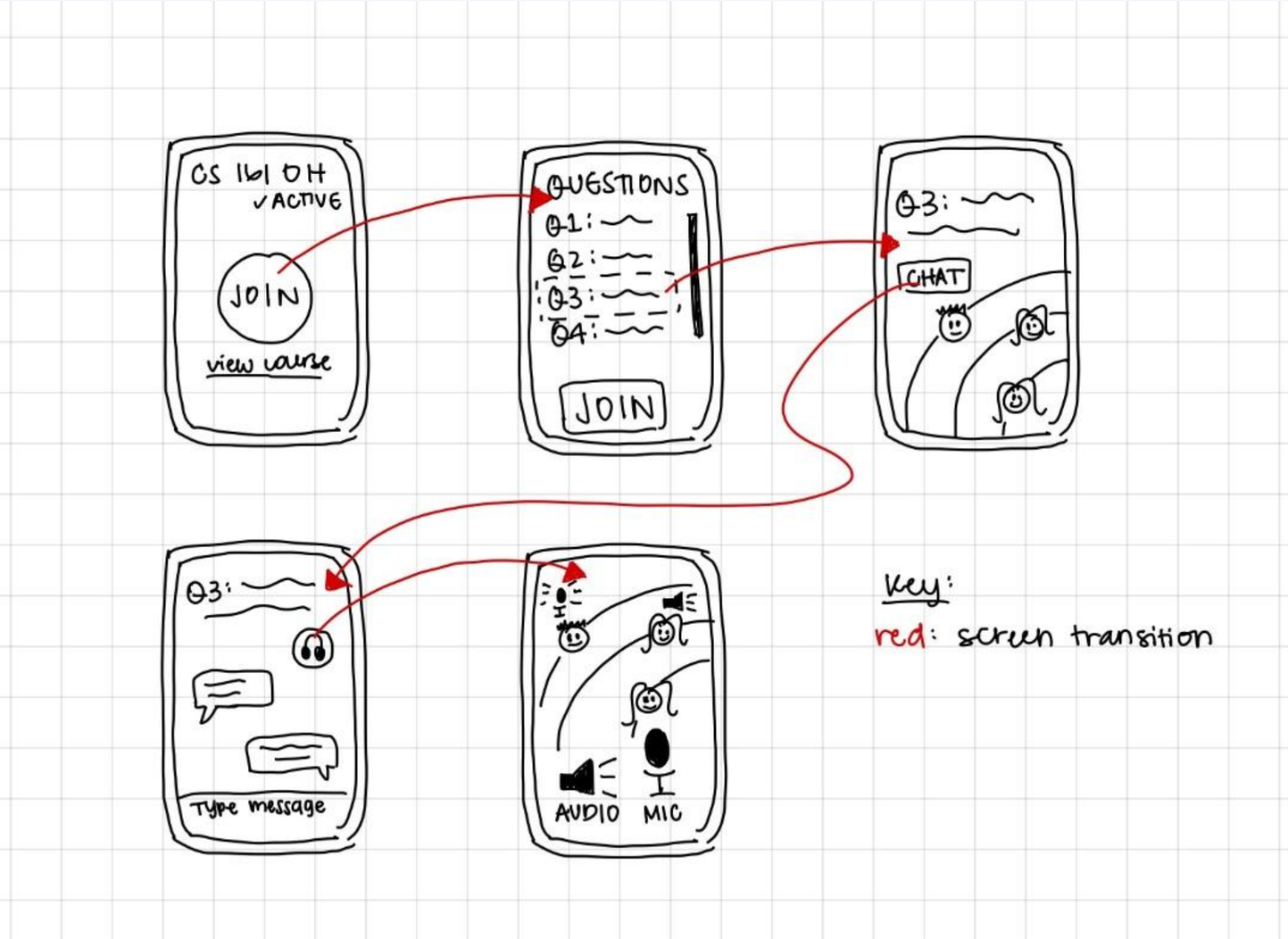


Figure 5: Mobile app screen transitions (joining session, chatting, joining huddle chat)

choosing an interface

AR

Pros

- Immersive collaboration
- Visual learning
- Hands-free learning

Cons

- Device compatibility
- Learning curve
- Privacy concerns

Mobile

Pros

- Accessibility
- User familiarity
- Remote learning

Cons

- Screen size constraints
- Distractions
- Applicability

choosing a mobile interface - rationale

1

Accessibility and user base

- Almost everyone has a smartphone
- Simpler to implement new features

2

User familiarity

- Familiar with mobile app interfaces
- Well-established user experience
- Learning curve

3

Learning environment

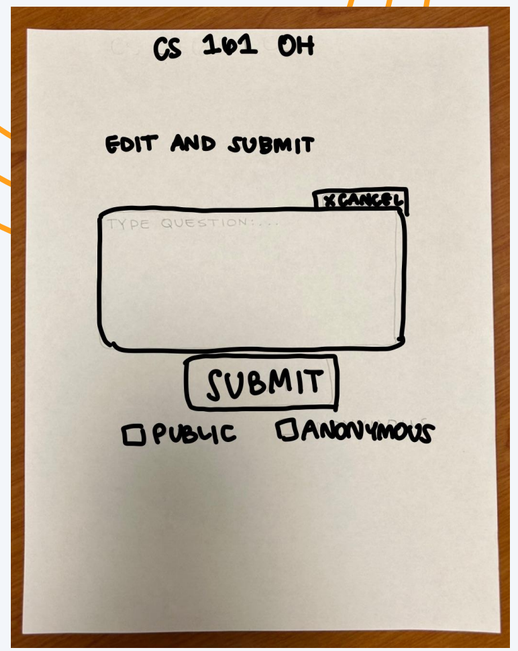
- Various locations
- Comfort and convenience
- Changing circumstances

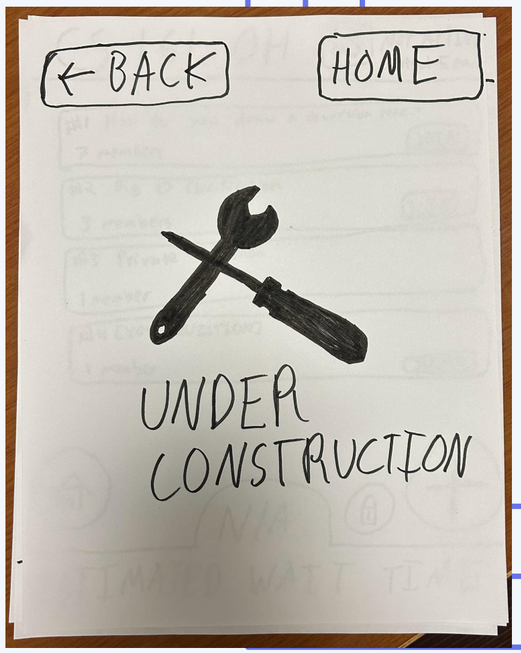
04.

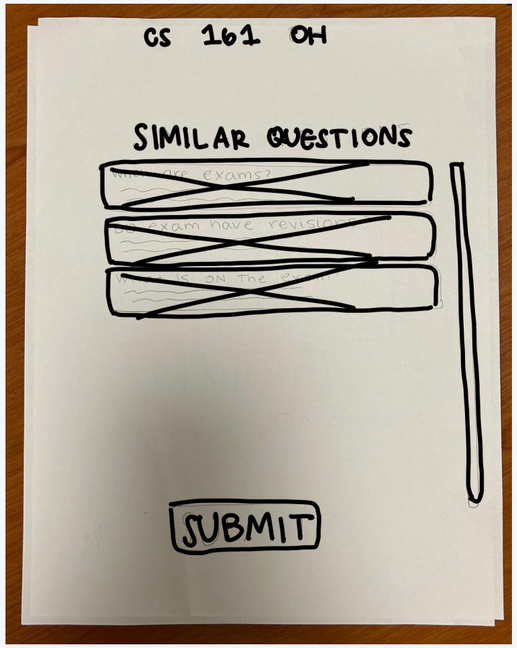
low-fi prototype: construction

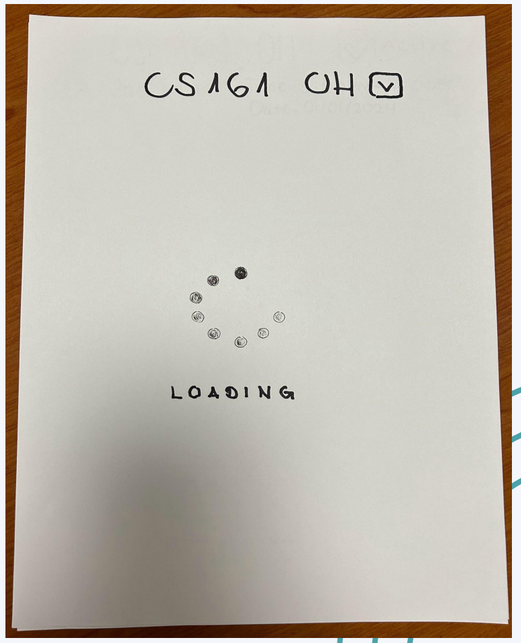
construction

- Explored UI during studio
- Defined scope and objective
- Revisited UI using sketches and new ideas
- Defined and incorporated task flows
- Paper ⇒ Marvel









05.

low-fi prototype: task flows

tasks

simple

Join an existing question.

moderate

Join the huddle for your question.

complex

Send a picture to a question’s huddle.

simple

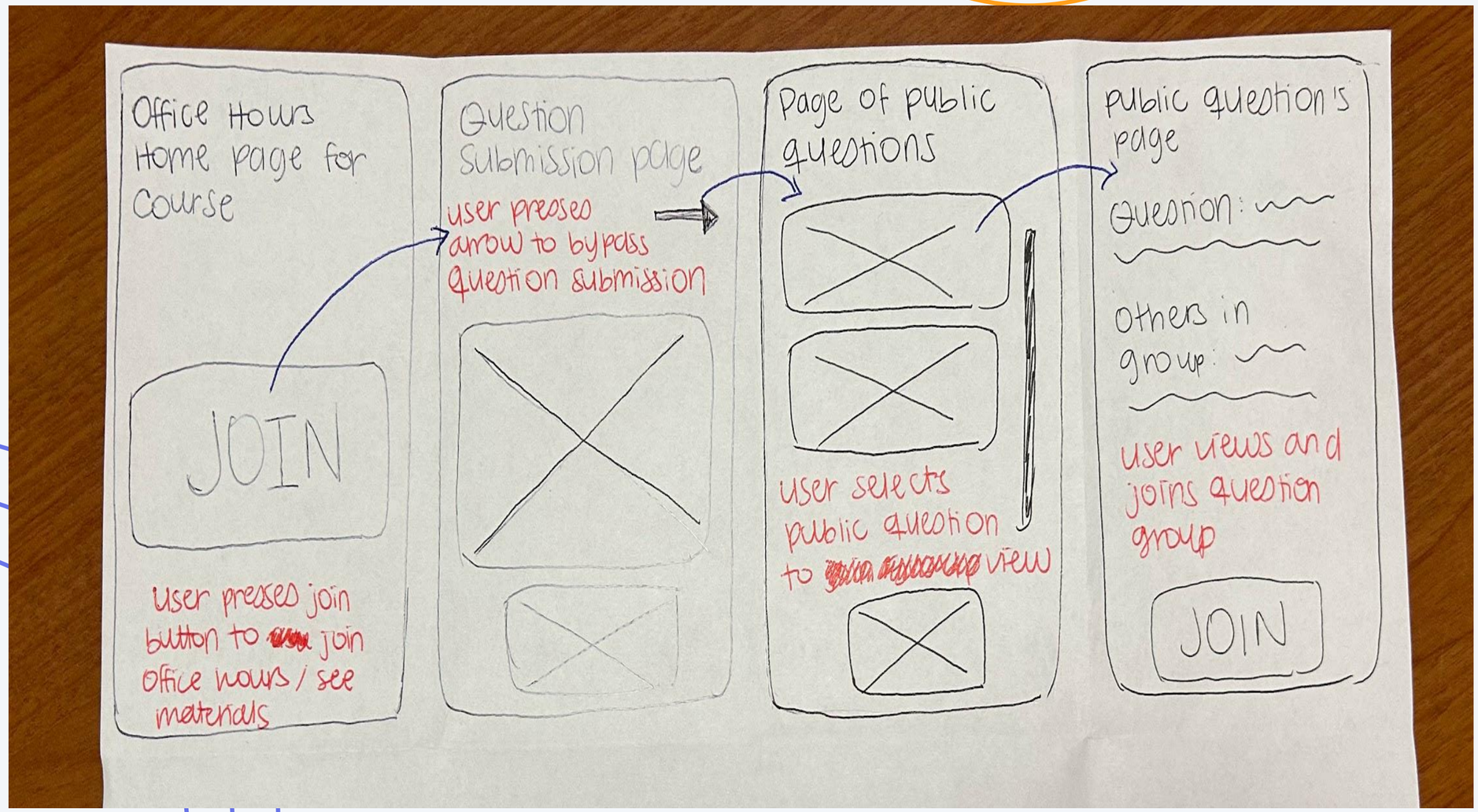


Figure 6: Simple task of joining a public question.

moderate

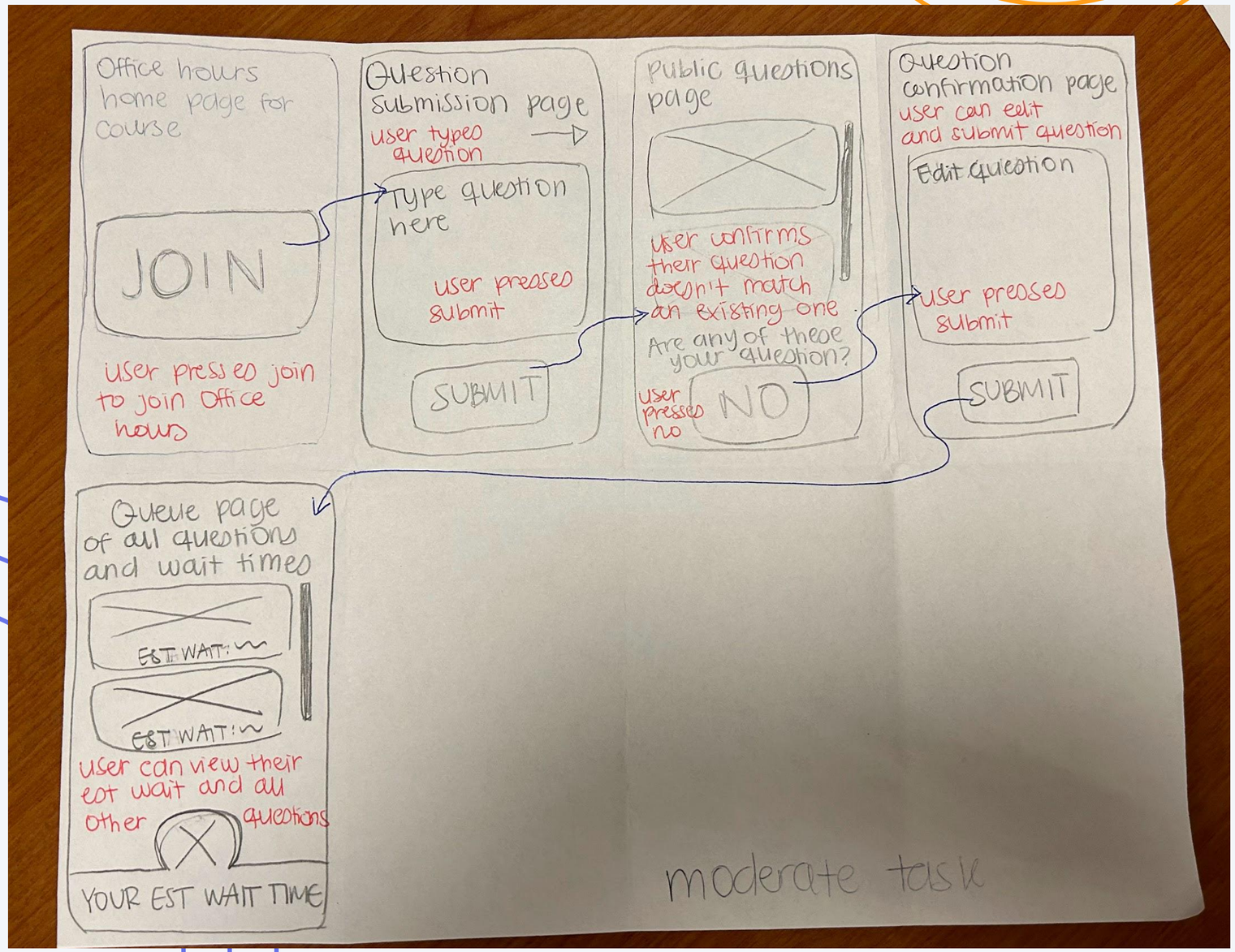


Figure 7: Moderate task of asking your own question and joining the huddle

complex

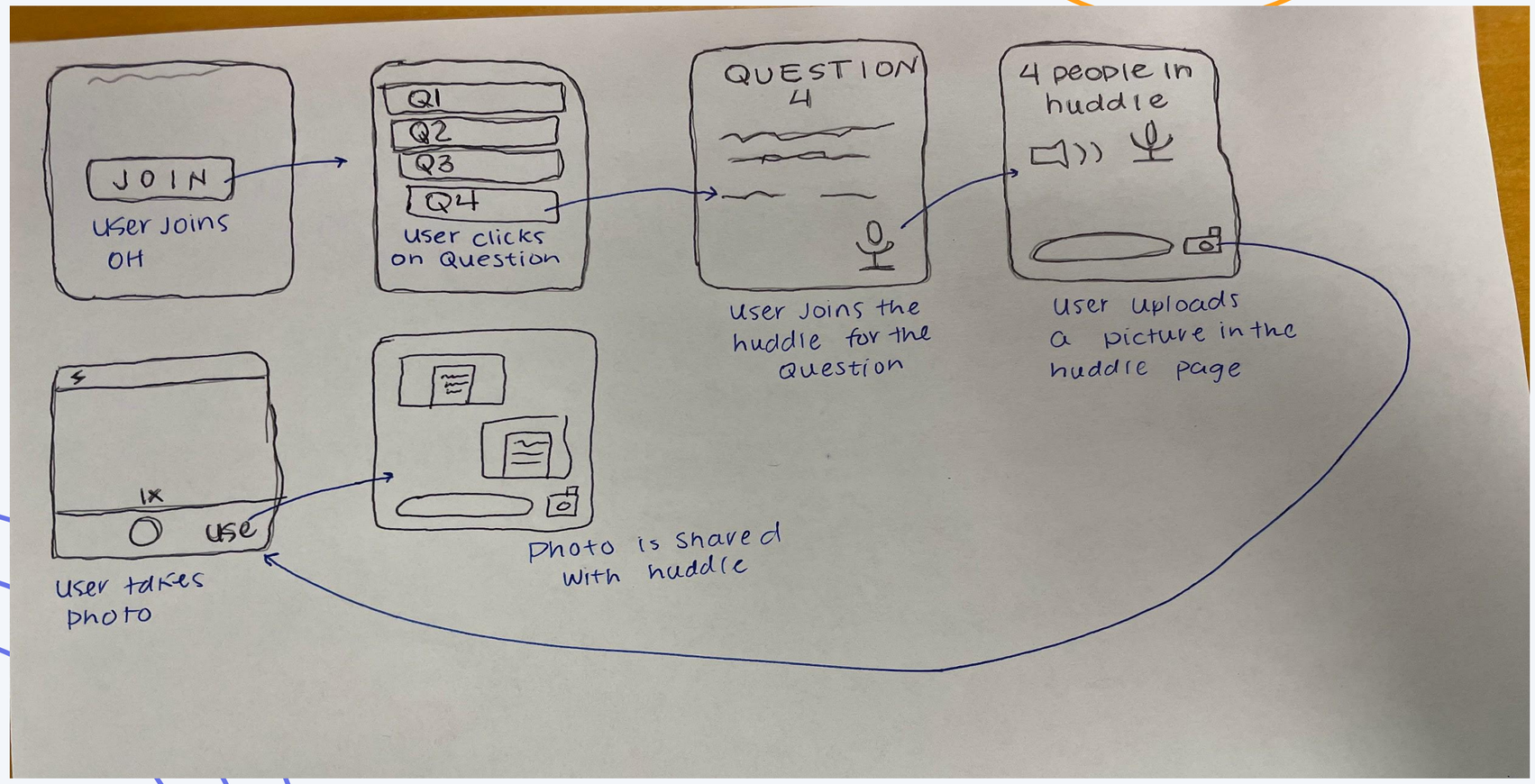


Figure 8: Complex task of joining a huddle and sending a photo

06.

testing: methodology

participants

C

- 18 year old HS senior
- Public school and community college in MN
- Mutual friend

E

- 18 year old HS senior
- Public school in GA
- Mutual friend

J

- Stanford undergrad
- Student in dorm

F

- University of Washington undergrad
- Large general chemistry course
- Friend of a sibling

methodology

environment & apparatus

- 3 on Zoom
  - Two devices/participant
  - Quiet areas
- 1 in person
  - Dorm common area

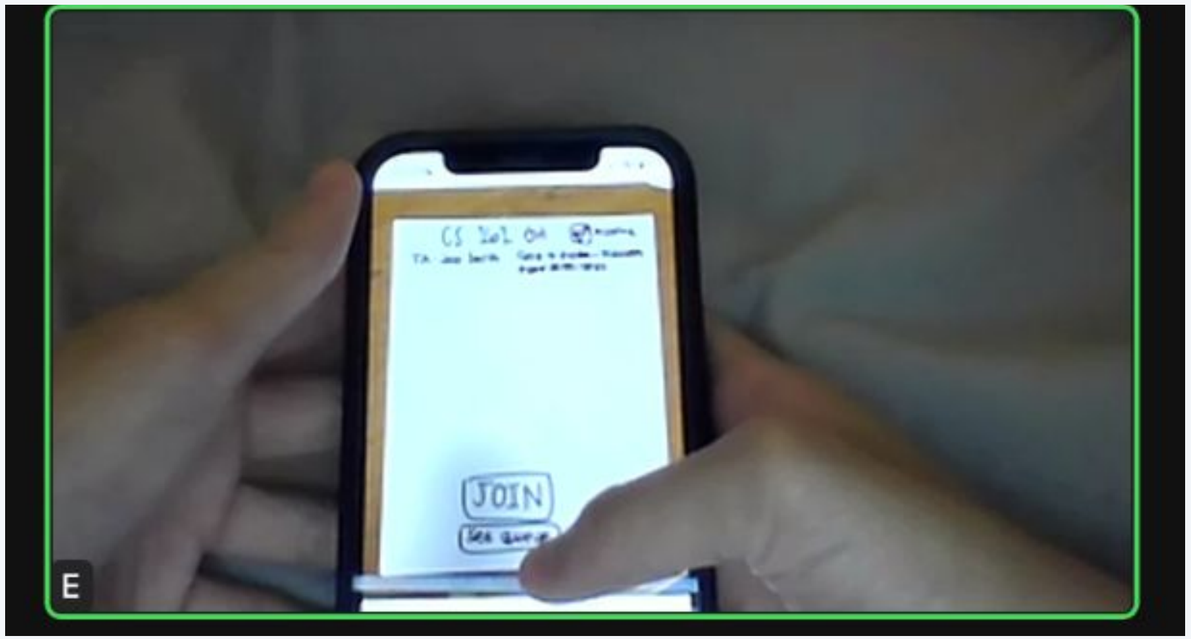
procedure

- Overview of project and app
- Explained testing – two rounds
- Emphasized feedback and critique
- Helped guide participants if necessary

goals & measurements

- Efficiency
  - Time spent per task per round
- Learnability
  - Number of errors per task per round

methodology cont.



Figures 9 & 10: Testing C and E through Zoom

methodology cont.

Figure 11: Testing J in-person

07.

testing: results

prototype images

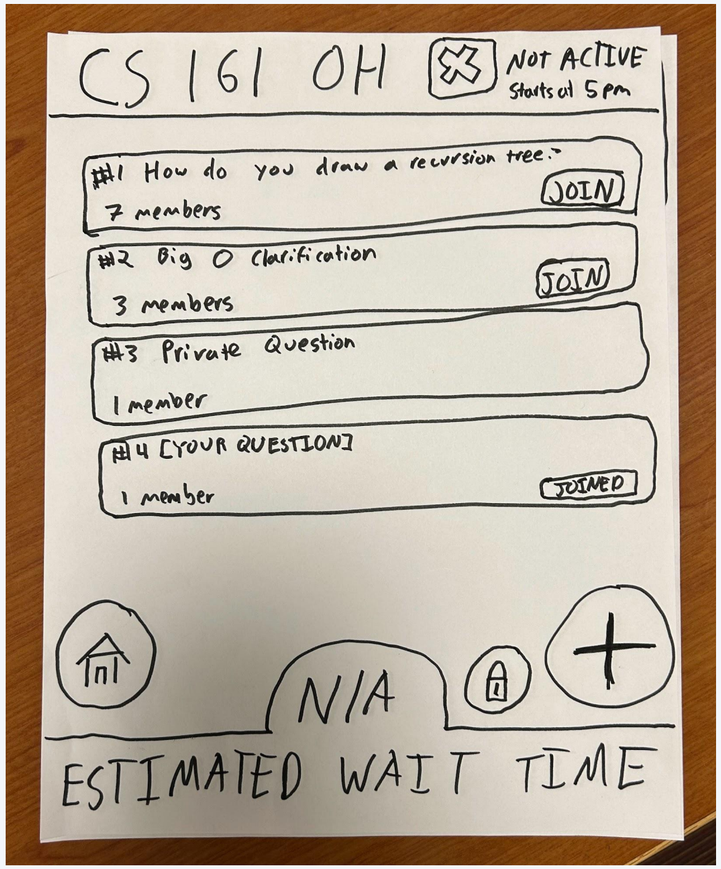


Figure 12: Public questions page

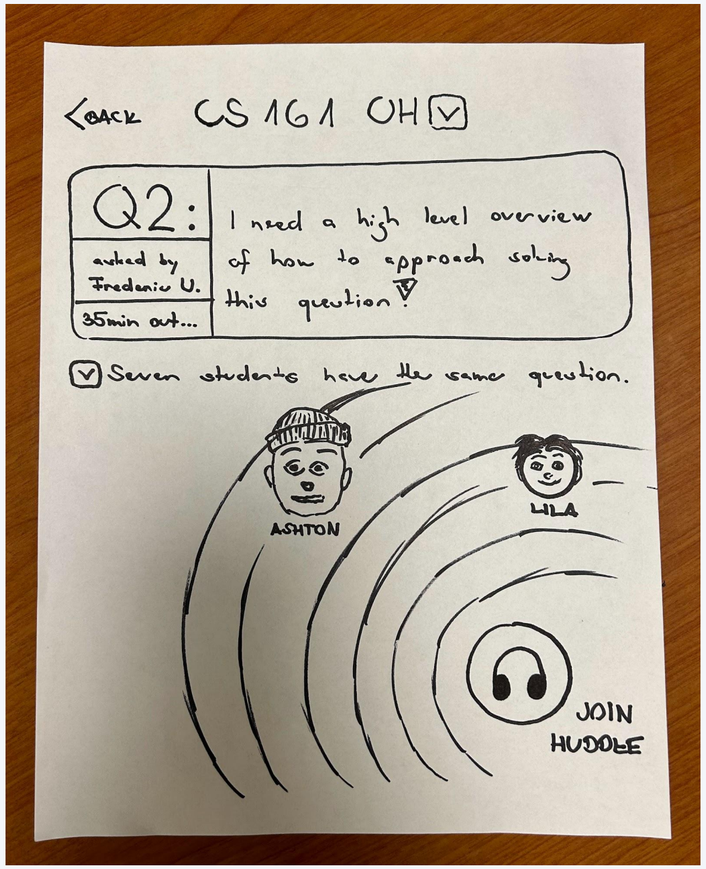


Figure 13: Question specific page

Figure 14: Camera when sending image to chat

data

process data

- Task 1: 18 s, 6 s
- Task 2: 51 s, 15.5 s
- Task 3: 28 s, 13 s
- Confusion with camera
- Finding your own question versus other questions

bottom-line data

- Positive feedback
- High task success rates
- Low error rates

other observations

- participants hesitated on screens with more UI
- participants navigated prototype more seamlessly than expected
- low-fi prototype usability was inconsistent

achieving usability goals

efficiency

- **hypothesis:** users should be able to complete tasks more quickly during second round → true

- task completion times **decreased**
- **takeaway:** positive user experience when task can be completed in fewer clicks

learnability

- **hypothesis:** users would be able to navigate the app without guidance → true

- error rates **decreased** (minimal to none)
- **takeaway:** app is intuitive and there is no steep learning curve

08.

discussion

implications

- **user retention**
  - students more likely to attend office hours
- **increased productivity**
  - decreased task completion times for boosts student productivity
- **enhanced data insights**
  - reliable and consistent data flow
  - analytics and insights into student behavior and pain points

testing limitations

- **real-world context**
  - how students may behave in various locations
- **emotional responses**
  - subjective feelings not expressed
- **accessibility and inclusivity**
  - no diverse abilities or assistive technologies

moving forward

- **make asking a question more direct**
  - E, C, J all shared they want an option to directly submit
- **simplify how question information is displayed**
  - F, E, C, J all stated they were overwhelmed by UI
  - J shared that huddle page had too many elements

09.

appendix

a) Pros/Cons

Mobile Device

Pros

- Accessibility: Mobile apps can run on a wide range of devices, so they are more accessible on multiple devices (phone, tablet) and across platforms (iOS, Android, etc.) to a broader audience
- User familiarity: Many people are already familiar with using mobile apps, so they are more likely to adopt a new app and the learning curve is less steep
- Remote learning: Students are able to collaborate and learn remotely, offering flexibility and encouraging greater use of the app

Cons

- Screen size constraints: Mobile apps are run on smaller screen sizes, thus less content can be displayed and certain interactive features may be more difficult
- Distractions: Mobile apps can serve as a distraction, so it could affect the focus and quality of collaboration between students
- Less applicable to certain fields: Subject areas (chemistry, field work, etc.) that require a lot of physical interaction or manipulation are difficult to replicate due to the lack of physical interaction capabilities

Augmented Reality (AR)

Pros

- Immersive collaboration: Students can feel like they are actually together in-person, thus creating a more interactive and immersive learning experience
- Visual learning: AR can enhance visual learning through overlays, diagrams, popups, etc.
- Hands-free learning: AR enables hands-free learning (ie glasses) which allows students to interact and engage with content and peers more easily

Cons

- Device compatibility: AR apps require specific and more advanced hardware, thus access is limited (especially if technologies are being provided by schools)
- Learning curve: Most people have little to no experience with AR, so it can be a barrier to adoption
- Privacy concerns: Camera and location tracking raises privacy concerns especially in educational settings with minors

b) Lo-Fi Prototype

https://marvelapp.com/prototype/309b631g/screen/93024673

c) Script

Introduction:
Welcome to our app prototype testing! We want to make it clear that in this session, we are testing our application, not you. There are no right or wrong actions, and your valuable input will contribute to our study's success. Your participation and feedback are essential in helping us refine and enhance the user experience of our app.

Task 1:
First we would like for you to try and join an existing question.

Task 2:
Next we would like for you to create a question on your own and then join that questions huddle.

Task 3:
Finally, we would like for you to join a question’s huddle and submit a picture in the huddle chat

d) Notes/Logs

Interview Notes:

https://docs.google.com/document/d/19BOObUJv5r42L0ziPciaK9pQeV29YZsEsxbAEWwdq6o/edit

https://docs.google.com/document/d/1YmlZG2yM8AEYaeloUmE4HPidIkwLxs0RuHlF7BGau_M/edit

https://docs.google.com/document/d/16qhJbO6kCRR30evu3MihAOiIpQpq8Iz9uq9XJrjr060/edit#heading=h.f3mnuwyfgbud