

Studaudio

Team: Blain, Yasser, Nolawi, & Yarency

Sketching, Low-fi Prototyping & Pilot
Usability Testing

Introduction

ConnectEd

Novelty

Bigger Pain Points

Small User Base

Studaudio

*Allowing Users to School
On-The-Go with Audio*

Studaudio Overview

The Problem

Pain points:

- Struggles with time management
- External stress from work and school
- Lack of connection with other students

Our Solution

- Allow students to complete class requirements on-the-go (commuting, taking care of family, etc)
 - Convert assignments in **text to audio** and **vice versa**
 - Treat readings like podcasts
 - Complete assignments verbally
- Increases accessibility to note taking and note sharing between students
- Reduce stress of time management

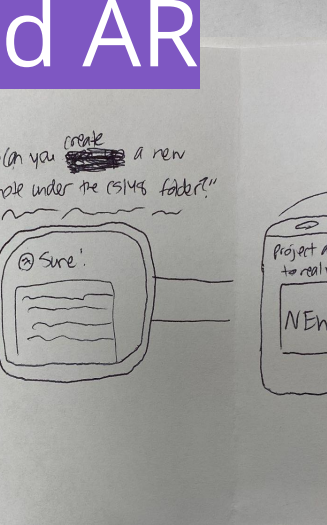
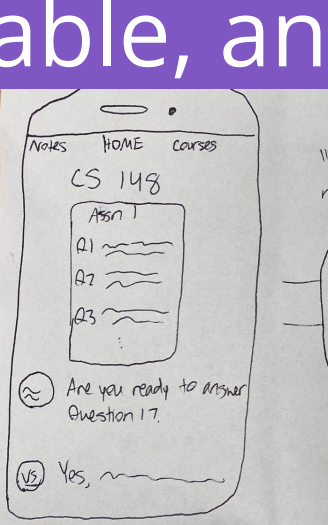
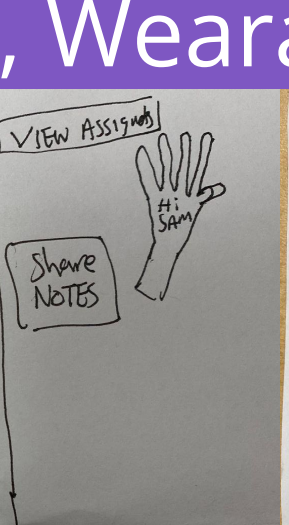
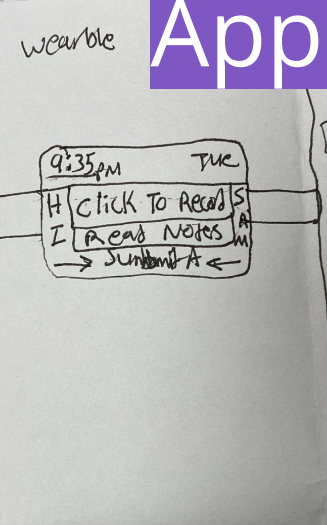
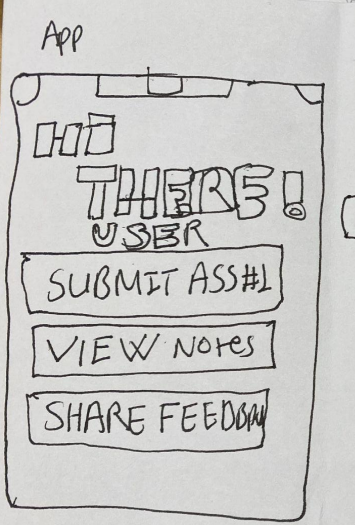
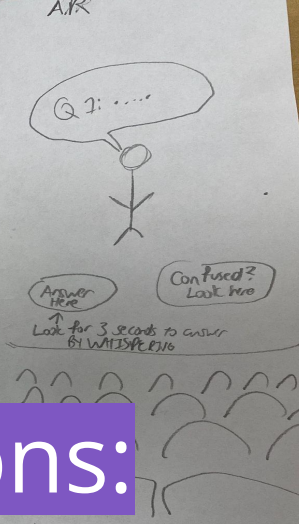
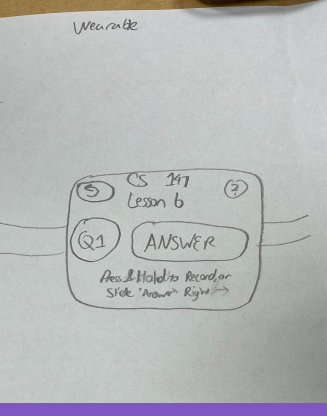
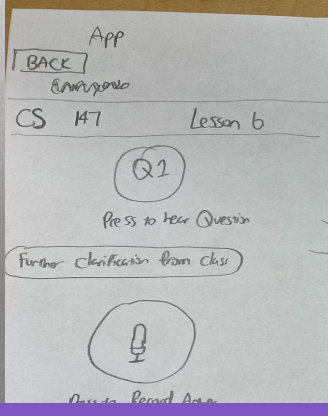
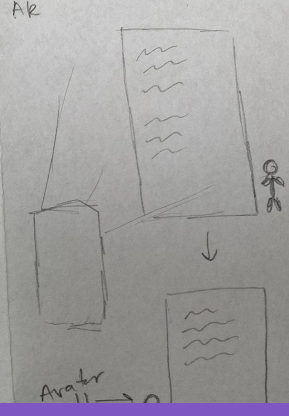
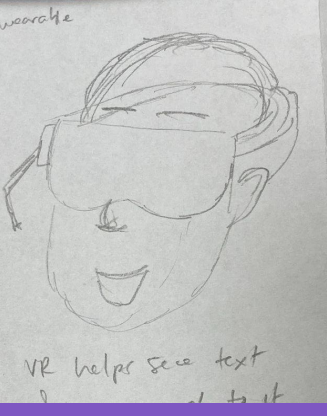
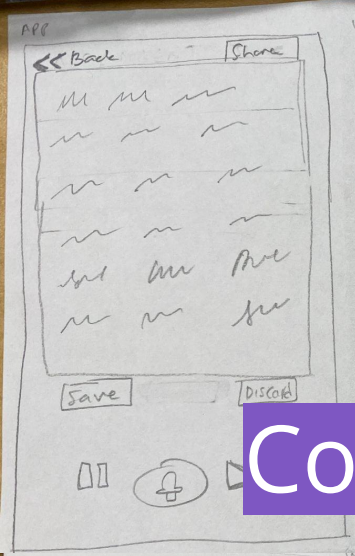
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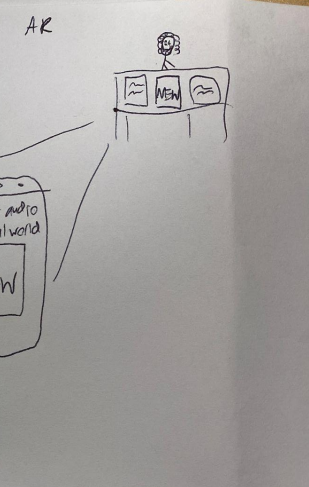
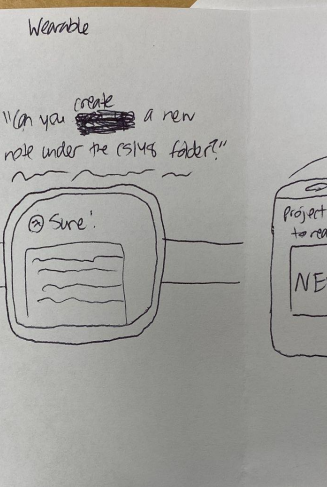
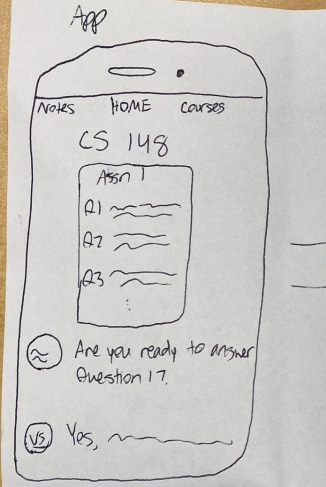
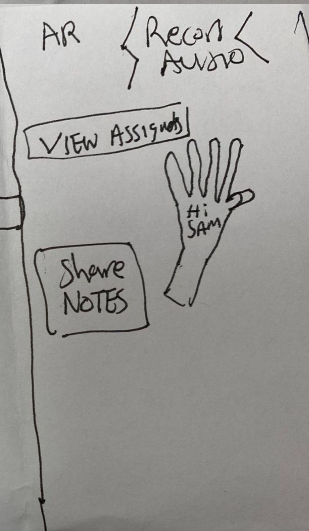
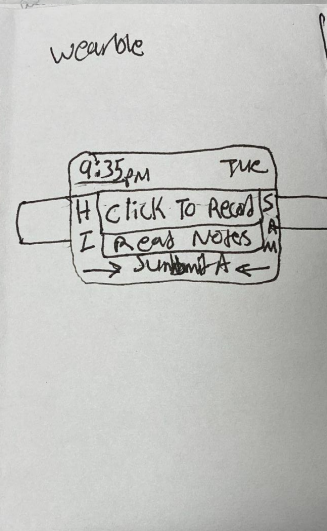
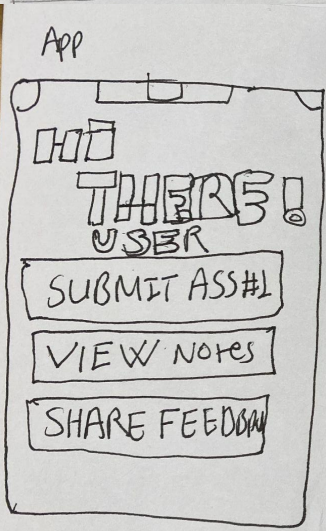
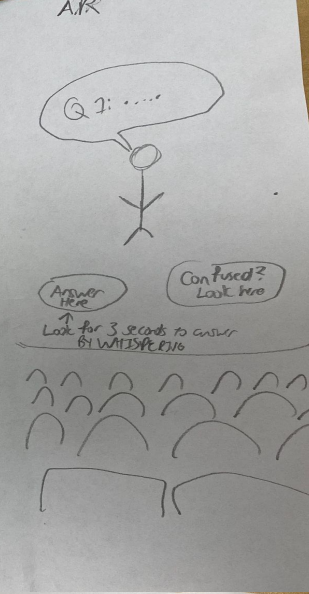
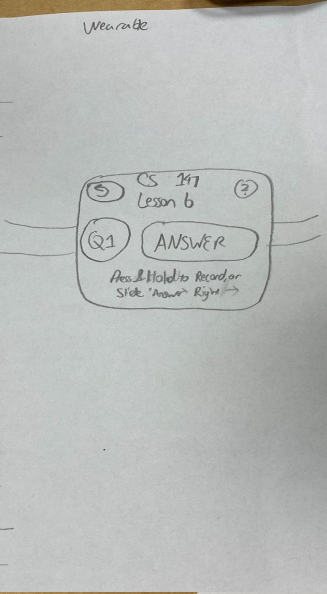
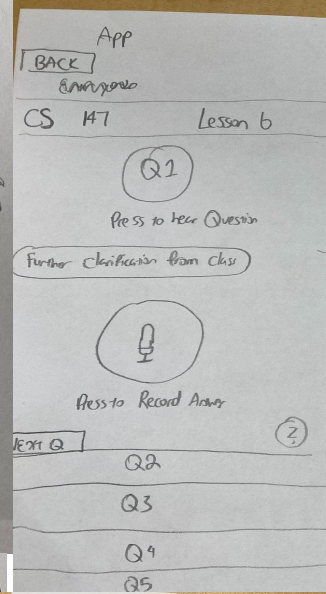
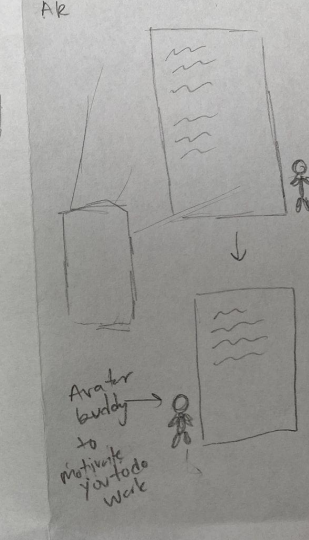
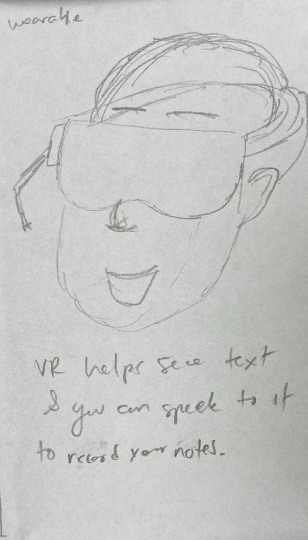
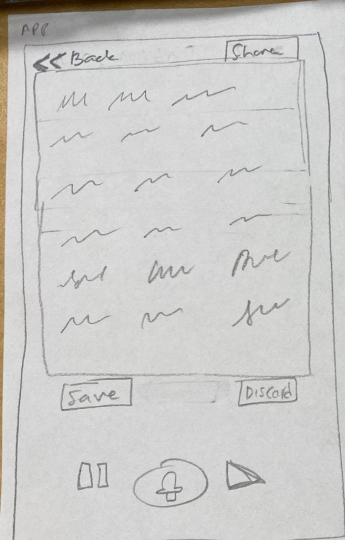
- Sketching Explorations
 - Selected Interface & Rationale
 - Low-fi Prototype Construction & Flows
 - Testing Methodology
 - Results & Discussion
-

Sketching Explorations

Concept Sketches for 3 Relizations:

App, Wearable, and AR





Welcome, [INSERT USER NAME]!

What class would you like to work on?

Submit Assignments

View Notes

Listen to Readings

Lectures

Show Feedback



CS 147 CS 157

MATH 51 CHEM 121

< Assignments Assignment 2

Q1

Listen to Question

Clarification?

Ask teaching team something



Hold to Record Answer
Slide Right to Keep Recording

Q2

DONE

Q3

Q4

JAMAL

EDIT PROFILE

My Notes

SELECT CLASS

QUICK RECORD

HELP!

SHARE FEEDBACK

CLASSES CS 169

CS 169 NOTES

L1. TITLE 1

L2. ASS2

L3. Reflection

L4. Final

App Realizations

CLASSES

CS 169

English LOL Notes

ARABLANG L Notes

BACK TO MAIN

QUICK ACTIONS

CS 169

BACK TO CLASSES

Welcome, [INSERT USER NAME]!

What class would you like to work on?

CS 147	CS 157
MATH 51	CHEM 121

Submit Assignments

View Notes

Listen to Readings

→ Lectures

Show Feedback

< CS 157 Assignments

Due Soon

Assignment 1: Monday, September 31st

< Assignments Assignment 1

Q1

Listen to Question

Clarification?

Ask teaching team something



Hold to Record Answer
Slide Right to Keep Recording

Submitted

Assignment 0: Hear Grade

DONE

- Q2
- Q3
- Q4

JAMAL

EDIT PROFILE

My Notes

SELECT CLASS

QUICK RECORD

HELP!

SHARE FEEDBACK

CLASSES CS 169

CS 169 Notes

L1. TITLE 1

L2. ASS2

L3. Reflection

L4. Final

CLASSES

CS 169	Notes
CS 147	Notes
English 101	Notes
ARABLANG 1	Notes

BACK TO MAIN

QUICK ACTIONS

CS 169

BACK TO CLASSES

Hi THERE!

What would you like to do today crunchofpaper

VIEW NOTES

VIEW ASSIGNMENTS

RECORD NOTES

LANGUAGE



BACK

Blah Blah Blah
Blah
Blah



RECORD ▷

STOP

AR

Welcome to StudAudio!

Select course

Notes

Feedback/Connect

AR

Create Note

CS147

CS146

CS145



All courses/Folders

AR Realizations

<< Back

Save

Share
EDIT

Discard

RECORD ▷



STOP

AR

Note 5

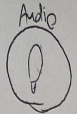
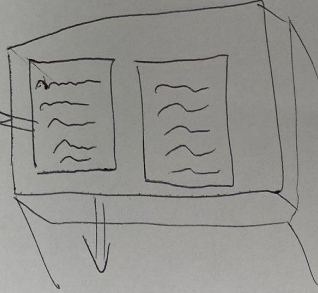
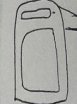
Note 4

Note 3

Note 2

Handwritten note

Phone Scan



Hi THERE!

What would you like to do today [name of person]

VIEW NOTES

VIEW ASSIGNMENTS

RECORD NOTES

LANGUAGE



BACK

Blah Blah Blah
Blah

RECORD ▷

STOP

<< Back

Save

Share

EDIT

Discard

RECORD ▷ ✓

STOP

AR

Welcome to StudAudio!

Select course

Notes

Feedback/Connect

AR

Create Note

CS147 CS146 Gdf

All courses/Folders

AR

CS 148 Note 5

Note 4

Note 3

Note 2

Note 1

Handwritten note

AR

Phone SCAN

Audio

Selected Interface and Rationale

Selected Interface and Rationale: AR Realization

PROS	CONS
<ul style="list-style-type: none">• Live transcription of notes as person is speaking• Interactive, ability to manually edit transcribed notes	<ul style="list-style-type: none">• AR app defeats purpose of use during commute / time management goal• May not be compatible with older phones

Selected Interface and Rationale: App Realization

PROS	CONS
<ul style="list-style-type: none">• Fits the purpose of being able to be used while in commute• Ability to record without having hold down the button	<ul style="list-style-type: none">• Could potentially be hard to navigate without full attention based on design• Doesn't let you manually edit notes after recorded (but we may add this as a feature)



App Realization As A Solution

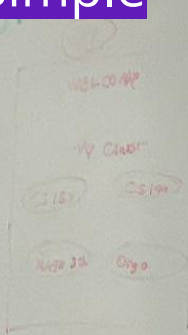
Though AR is very interactive and allows for cool features like bringing virtual notes to life, it is **expensive, inaccessible**, has a **difficult learning curve**, and is **difficult to use while commuting**

On the other hand, an app is much more **accessible**, allows for **easy integration** with other platforms, **small learning curve**, and fits our goal with features **usable whilst driving**

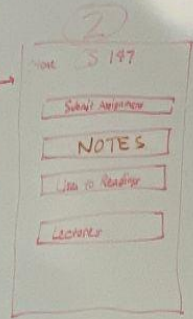


Low-fi Prototype Construction: Brainstorming

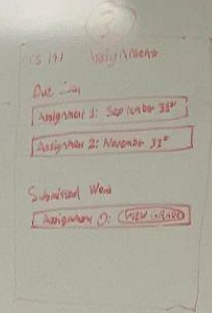
Simple



App Home Page

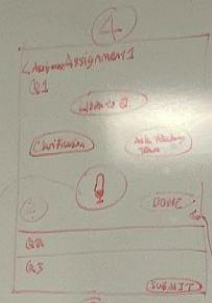


Class Home Page



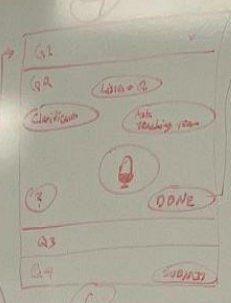
Assignment Home Page

Assignment 1 Q1

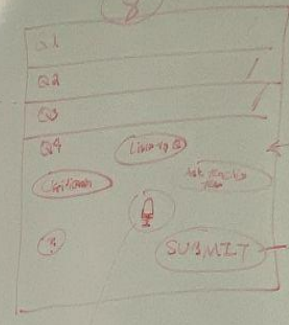


Currently Recording

Assignment 1 Q2

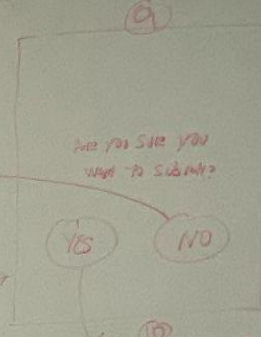


Assignment 1 Q4

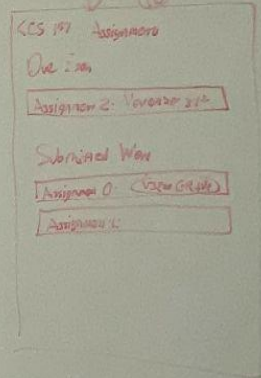


Finished Recording

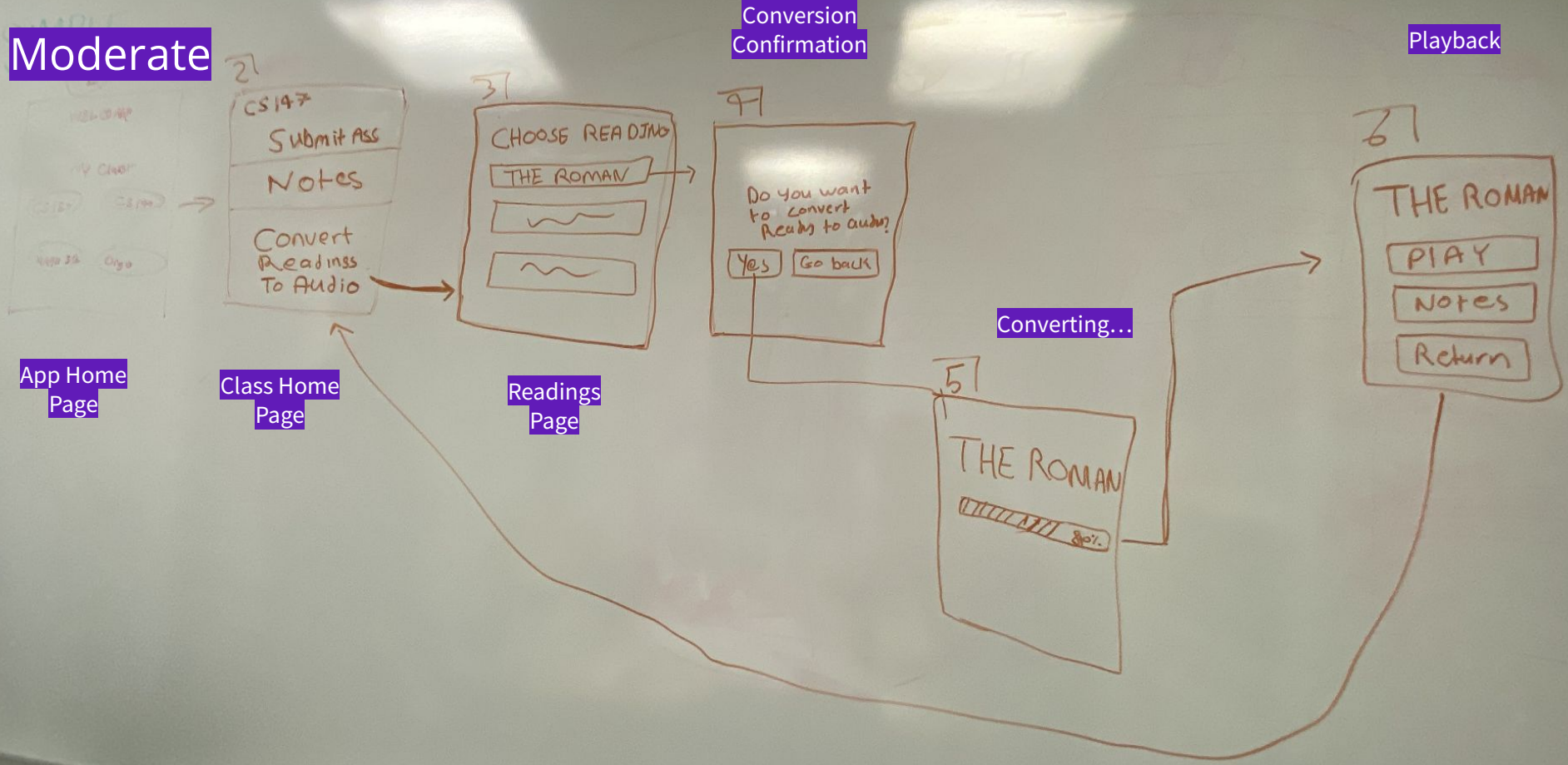
Submission Confirmation



Assignment Home Page Post-submission



Moderate



App Home Page

Class Home Page

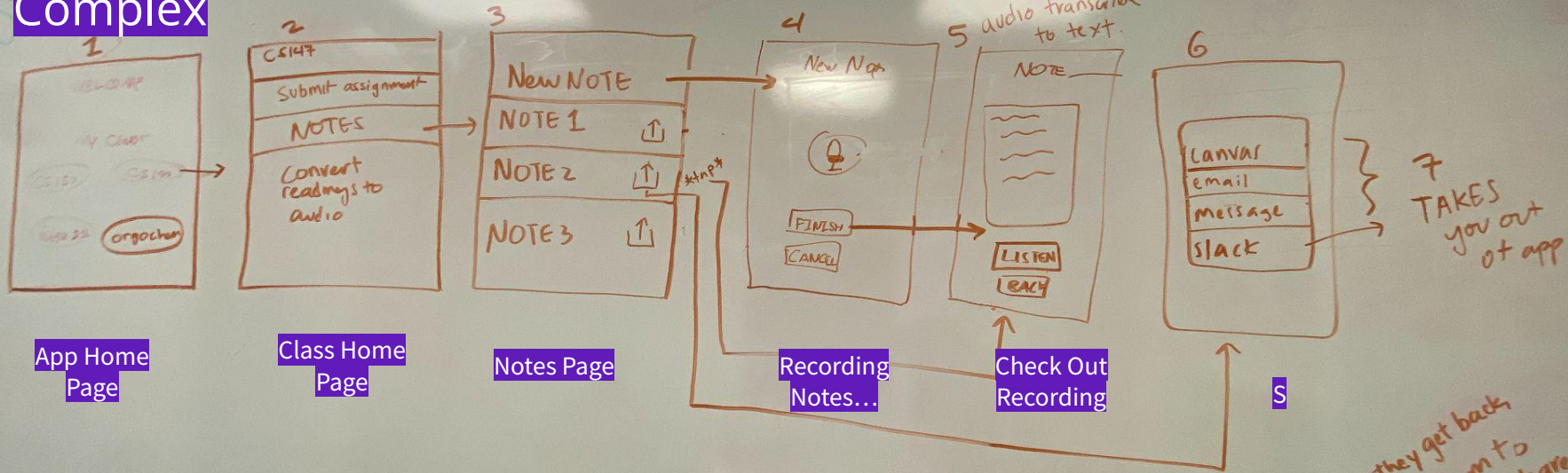
Readings Page

Conversion Confirmation

Converting...

Playback

Complex



Once they get back
it takes them to
Note they shared

Constructing low-fi prototype on paper



Main Key Features & Interactions

- Upload readings and convert readings to mp3 files
- Audio playback speed
- Note sharing feature
 - Shares includes recorded audio and transcribed text
 - Shareable by email, message, Canvas, and Slack
- Record responses to question assignments
 - Having audio transcribed to text



Low-fi Prototype: Task Flows

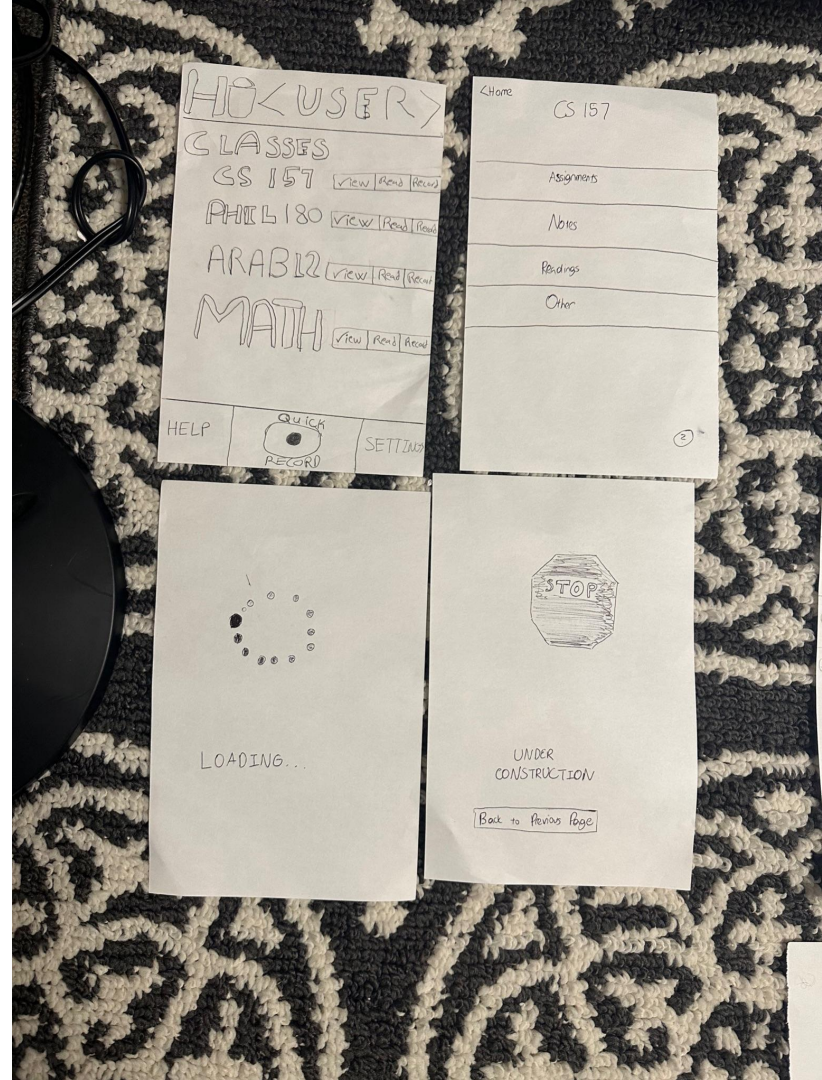
Basic Screens

Top Row - Home screens

- Every test started with these two screens

Bottom Row - App Experience Simulation Screens

- Trying to mimic the experience of an app even as we were to run into difficulties



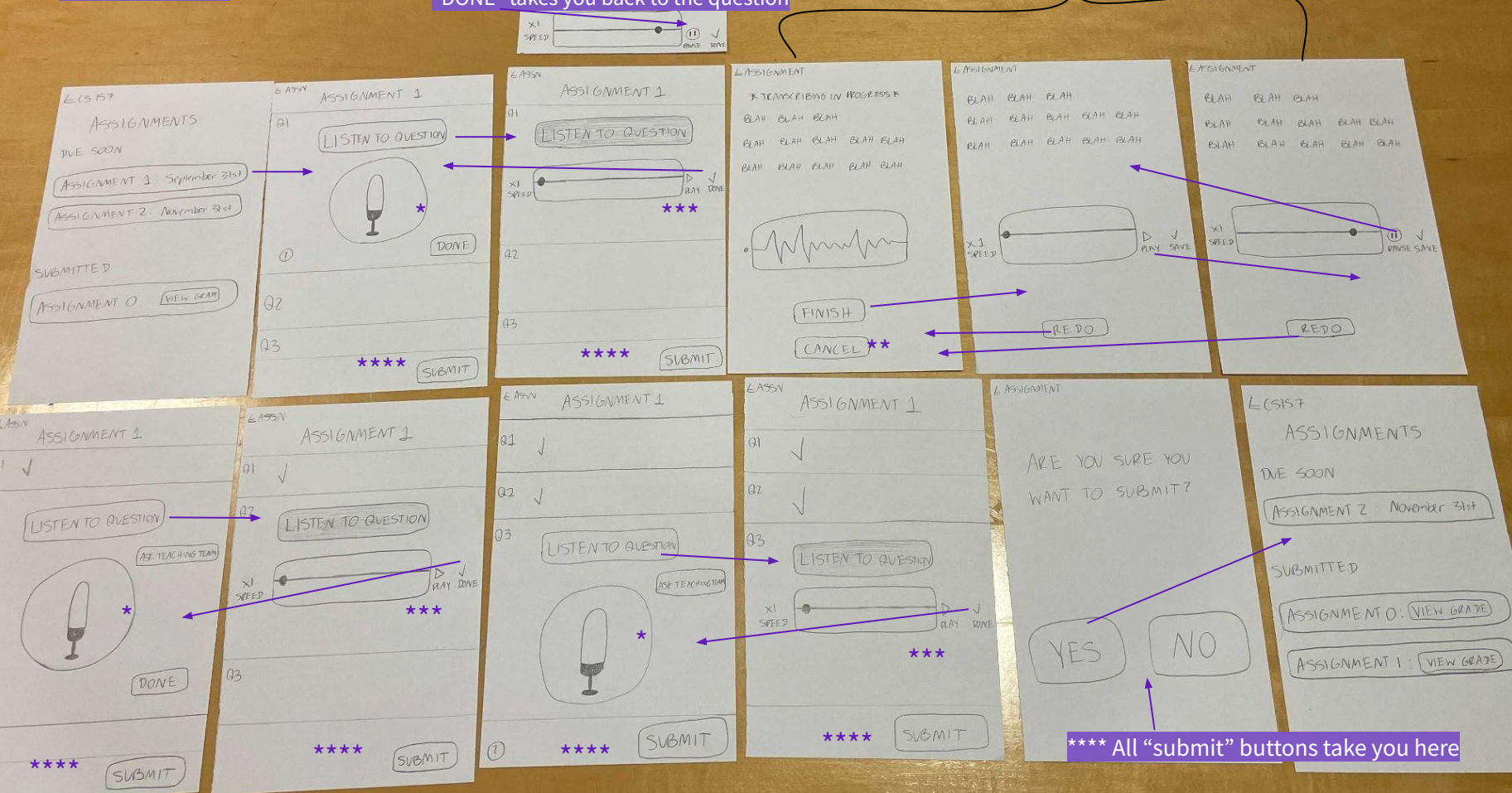
SIMPLE TASK

Submitting an Assignment

** Cancel takes the user back to the original question

*** This is the play button transition.
"Pause" takes you to the play screen and
"DONE" takes you back to the question

* Used the same set of slides to record and listen back to recording for each question



**** All "submit" buttons take you here

MODERATE TASK

Converting a File to a Audio
Format

Home CS 157

- Assignments
- Notes
- Readings
- Other

Readings

Listen to Readings

Converted Readings

- Blah-blah-blah.mps [Play] [Share]
- David.mp3 [Play] [Share]

Convert Readings to Audio

<CS 157

Choose Reading

- THE_ROMAN.docx
- The_Greek.pdf
- Plato.docx
- Babble.txt
- The_Works.txt

Do you want to convert THE_ROMAN.docx to audio?

YES | Go Back

THE_ROMAN.docx

0%

Cancel Conversion *

THE_ROMAN.docx

50%

Cancel Conversion *

THE_ROMAN.docx

100% Done ✓

NEXT

THE_ROMAN.docx has been converted to audio!

Playback

Repeat

<Converted Readings

THE_ROMAN.docx [RENAME]

BLAH BLAH BLAH

BLAH BLAH BLABITY BLAH

BLAH-BLAH BLAH!!!

x1 speed

<Converted Readings

THE_ROMAN [RENAME]

BLAH BLAH BLAH

BLAH BLABITY BLAH

BLAH BLAH BLAH

x1 speed

<Readings Converted Readings

- THE_ROMAN.mps [Play] [Share]
- Blah-blah-blah.mps [Play] [Share]
- David.mp3 [Play] [Share]

* "Cancel Conversion" takes you to the "Choose Reading" page

COMPLEX TASK

Creating and Sharing Audio Notes from a Class


NEW NOTE ↵

NOTE 1 ↵

NOTE 2 ↵

NOTE 3 ↵

TAP TO RECORD



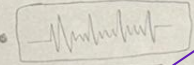
CANCEL

TRANSCRIBING AUDIO

BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH



FINISH

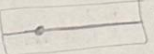
CANCEL

BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH

x1 speed



Play SAVE

REDO

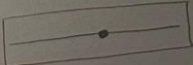
< * NOTE [RENAME] ↵

BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH

x1 speed



Paused

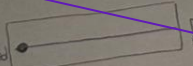
< * NOTE [RENAME] ↵

BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH

BLAH BLAH BLAH BLAH BLAH

x1 speed



Play

< NEW NOTE

NOTE 1 ↵

NOTE 2 ↵

NOTE 3 ↵

NOTE 4 ↵

<

CANVAS

EMAIL

MESSAGE

SLACK

OTHER

AIRDROP

SAVE TO PHONE

Testing Methodology

Participants



Jacob
Business administration
student
20 minute commute



Layla
Vet tech major
1 hour commute



Lauren
Environmental science
& Ecology major
30 minute commute

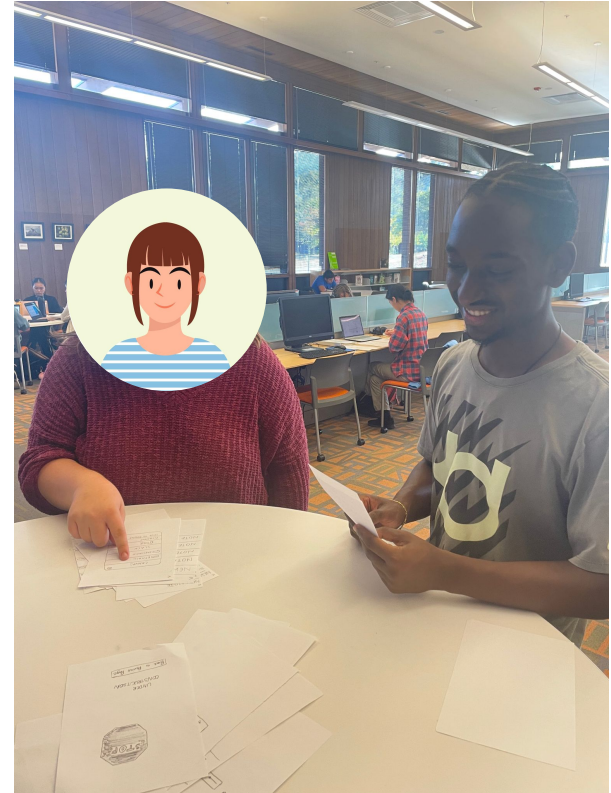
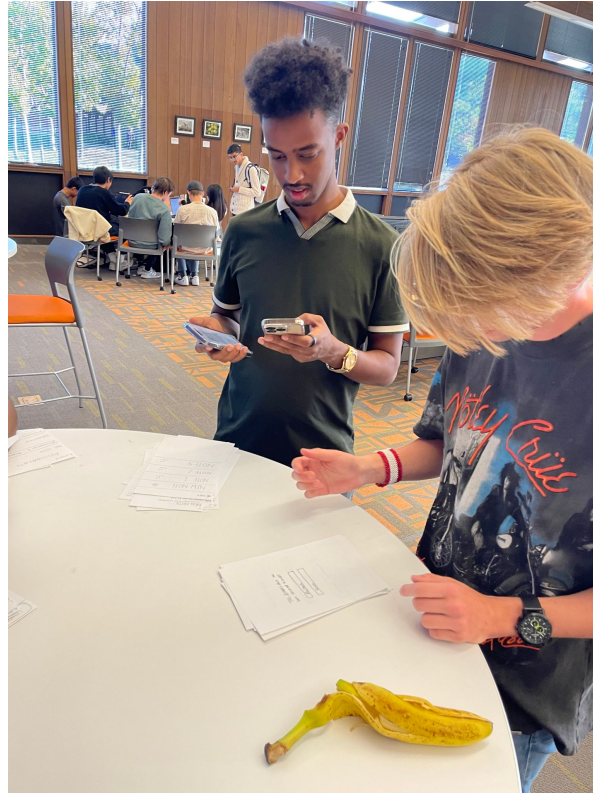
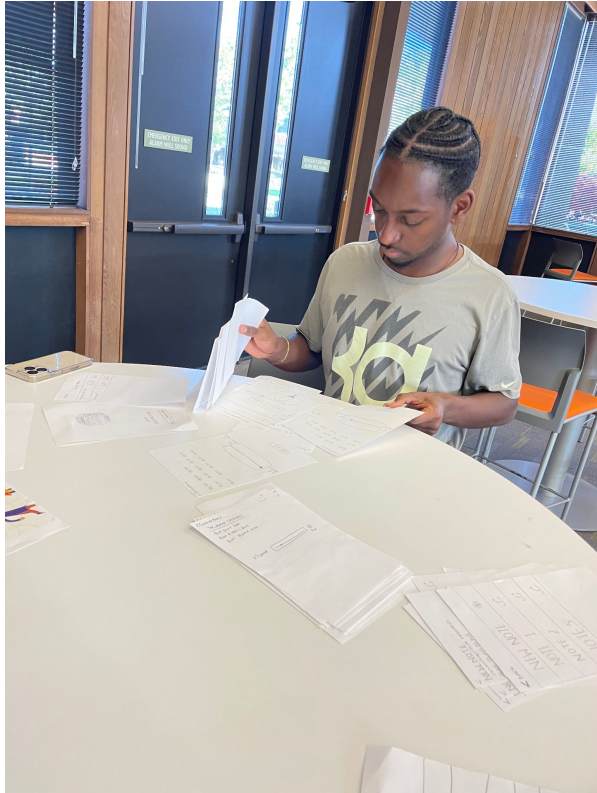


John
Political science
major
30 minute commute

Environment & Apparatus



Foothill College Library



Team Member Roles



Blain Engeda

notetaker



Nolawi Ayelework

computer



Yarency Avelar

notetaker



Yasser Jamal

facilitator

Testing Methodology

- Think-Aloud Testing:
 - Encourage users to verbalize their thoughts and actions as they interact with the low-fidelity prototype. This helps you understand their decision-making processes and uncover usability issues
- Qualitative Feedback:
 - Gather qualitative feedback from users about their overall impressions, expectations, and any pain points they encounter while interacting with the low-fi prototype. Open-ended questions can provide valuable insights.



Testing Procedure

- Ask if willing to join, briefly **preface project** and class, ask for **consent** to participate and record
- Briefly outline experiment and prototype, emphasize **speaking out loud** and say it is not a test
- Ask participants to **perform each task** and then return to the home screen
 - **Simple:** Please submit Assignment 1 in CS 157
 - **Moderate:** Convert the reading titled “The Roman” in CS157 into an audio file and listen to it
 - **Complex:** Create a new note and attempt to share it
- After all 3 tasks are completed, ask participants for **feedback** on what they liked and didn’t like, and anything else they want to know, thank them for participation and time

Usability Goals

- *Consistency*
 - Reduce cognitive load with consistency in design and interaction patterns to help users predict how the product works
- *Learnability*
 - Intuitive design, clear instructions, and minimal learning curve contribute to high learnability
- *Efficiency*
 - Faster task completion and fewer steps or clicks are indicators of higher efficiency
- *Value*
 - How useful it would be to have an app like this in the market



Key Measurements

- **Task Completion Time:** This measurement evaluates the time it takes for users to complete a task
 - Faster task completion times often indicate higher efficiency
- **Error Rate:** The error rate quantifies the number of errors users make while performing tasks
 - Distinguishing minor vs major errors
- **Task Success and Failure:** this measurement categorizes users' task outcomes as successful, partially successful, or failed
 - Partial success may involve users completing the task but encountering difficulties along the way.
- **Task Completion Path:** Analyzing the path users take to complete a task can reveal where they encounter challenges or confusion.
 - This information can help improve task flow and navigation
- **Time on Task:** Time on task measures the amount of time users spend on a specific task
 - Prolonged task durations may indicate usability issues.

Testing Results

Process Data

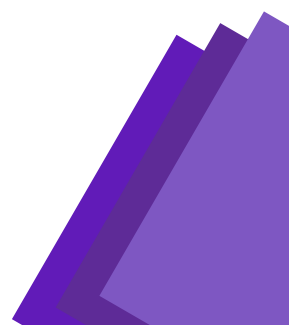
All 4 Participants:

- thought making and sharing note was really easy
- had some confusion about meanings of some buttons
- thought the process of completing task 1 was long



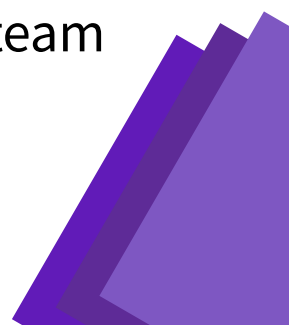
Process Data

2 Participants:

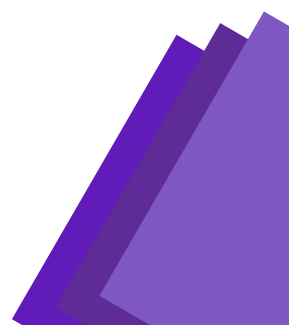
- were confused about how to find readings (whether to read or view)
 - pressed buttons back to back, not understanding they need to wait between presses
- 

Process Data

1 Participant:

- suggested share button should be placed in more visible location
 - wanted assignment questions to also be available in text, not just audio
 - suggested option to edit transcribed note
 - was unclear about difference between help and ask teaching team buttons
- 

Bottom-Line Data

- Average time spent per task
 - Simple Task: 4 minutes
 - Moderate Task: 2 minutes
 - Complex Task: 2 minutes
 - 2 “incorrect” clicks (button not leading to expected page)
 - 2 double-clicks (back-to-back presses without wait)
 - 1 mis-click (pressed wrong button accidentally)
- 

Met Usability Goals?

Positive	Negative
<ul style="list-style-type: none">• Easy understanding ✓• Minimal errors ✓• Intuitive use ✓• Smiles and head nods ✓	<ul style="list-style-type: none">• Confusion/Uncertainty ✓• Asking us many questions ~• Task takes a long time ~• Hesitancy about where buttons take you ✓

Kinda?

Discussion

Implications

- Usability
 - The app's ease of use, navigation, and overall user experience can significantly impact user adoption and satisfaction
- Accessibility
 - Ensuring the app is accessible to users with disabilities is not only a legal requirement in some regions but also crucial for inclusivity
- Enables Active Learning and Improves Soft skill
 - The practice of sharing your thoughts out loud is very important in helping users become a better communicators
 - Skill is transferable to any career in the market
 - Improves memorization skills which will help them perform better in their studies

Future Changes

- Distinguish buttons between “done” and “next” on simple task to avoid confusion
- Take into account suggestions to improve efficiency and accessibility
 - Edit New Notes when you accidentally make a mistake when speaking out loud
 - Make share button under recording for task 3, current top right position is difficult to see
- Add feature to rename notes
- Tweak our moderate task to make it less confusing

What Testing Couldn't Reveal

Long-Term Usage Patterns: **Evolving preferences**, and **habit formation** are not easily captured

Accessibility and Inclusivity Issues: May not fully address accessibility and inclusivity concerns

- Requires **specialized testing methods** with users who have specific disabilities or needs.

Technical Performance and Security: Does not address technical performance issues

- **server response times**, network connectivity, or **security vulnerabilities**

Appendix

Studaudio

Value Proposition

Studaudio is the ultimate companion for older adult students, **offering a seamless audio-to-text transcription** tool for enhanced productivity, anytime and anywhere.

With Studaudio, you can **effortlessly convert PDF text into audio**, ensuring that learning materials are accessible in multiple formats, tailored to your unique learning preferences. Studaudio **redefines the learning experience** by allowing you to **upload and share** your notes effortlessly, fostering a collaborative and supportive learning environment.

With Studaudio, you're not just studying; **you're learning, growing, and connecting** with peers in a way that goes beyond the ordinary.

Choose Studaudio to make your learning journey more accessible, collaborative, and fulfilling. Experience the future of learning today.

Critical Incidents Log

Severity Rating: 1 - 5 (Least to most severe/unable to complete task)

- “How to access quick recordings? What does it do?” **2**
- “*How do you submit it?*” but figured it out eventually **2**
- Suggestion to have assignment question be available in text as well **1**
- User on moderate task experienced confusion about the difference between ‘done’ button vs ‘next’ button after converting text to audio **3**
- Pressed done and submit back to back, didn’t realize you need to wait / they do different things **3**
- Users needed to be prompted to press correct button after incorrect click **4**
- Suggestion to move location of share button **1**
- Confusion about help vs ask teaching team button **2**
- Suggestion to be able to edit transcribed notes due to possibility of errors **1**

Selected Interface and Rationale: AR Realization

PROS	CONS
<ul style="list-style-type: none">• Live transcription of notes as person is speaking• Ability to switch between different pages/app components• Easy to read and listen to transcribed notes• Interactive, ability to manually edit transcribed notes	<ul style="list-style-type: none">• Most older adults may struggle with using the technology• AR app defeats purpose of use during commute / time management goal• User experience may be harder with AR / less developed / fleshed out in comparison to other apps• May not be compatible with older phones

Selected Interface and Rationale: App Realization

PROS	CONS
<ul style="list-style-type: none">• Ability to listen and read notes• UI is more intuitive ; simple design• Smaller learning curve for app vs AR• Ability to select courses you want to take notes specifically for• Ability to do a quick recording• Fits the purpose of being able to be used while in commute• Ability to record without having hold down the button	<ul style="list-style-type: none">• Too many buttons could make it crowded<ul style="list-style-type: none">◦ Too much clutter?• Could potentially be hard to navigate without full attention based on design• Doesn't let you manually edit notes after recorded (but we may add this as a feature)

Close-Up of Simple Low-fi Prototype Construction

