

Ideation Summary and Scope of Prototype Development

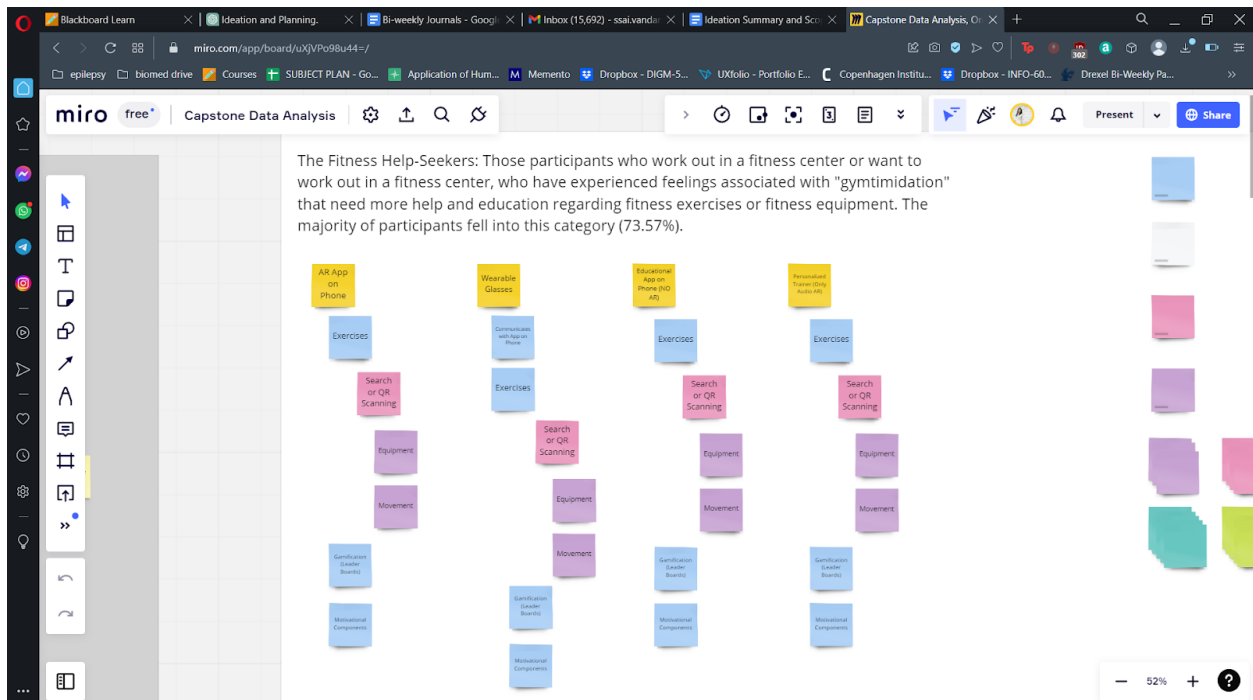
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Ideation Summary

Our team decided to ideate individually at first. We began by reflecting upon our identified target user segment, The Fitness Help-Seekers. These were participants in our survey who work out in a fitness center or want to work out in a fitness center, who have experienced feelings associated with "gymtimidation" that need more help and education regarding fitness exercises or fitness equipment. We then reconvened and discussed our ideas and narrowed them down to four ideas that could be implemented individually or as a combination. We used our existing Miro board and created sticky notes to envision these solutions and what they would require and decided to sketch these out.



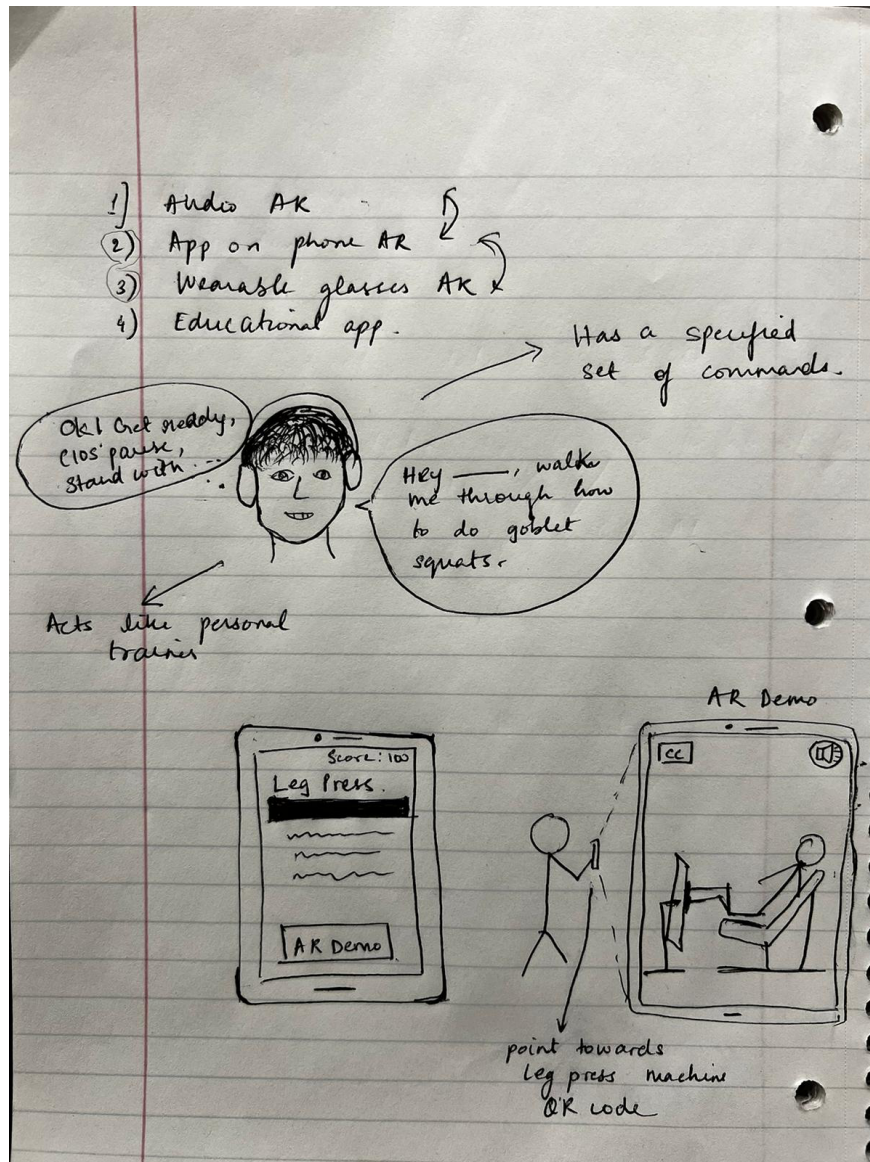
We then met for a few hours, where we further developed some of the ideas of the Miro board and thought about how an app might work. We discussed and wrote down some loose ideas for implementation and features. Finally, we sketched some ideas for prototypes and determined the scope of prototype development.

- User tracking
 - Log progress
 - gamification
 - Personal growth
 - Motivation
- Educational Component - Equipment & Exercises
 - Audio / Visual AR
 - Information

App Work flow

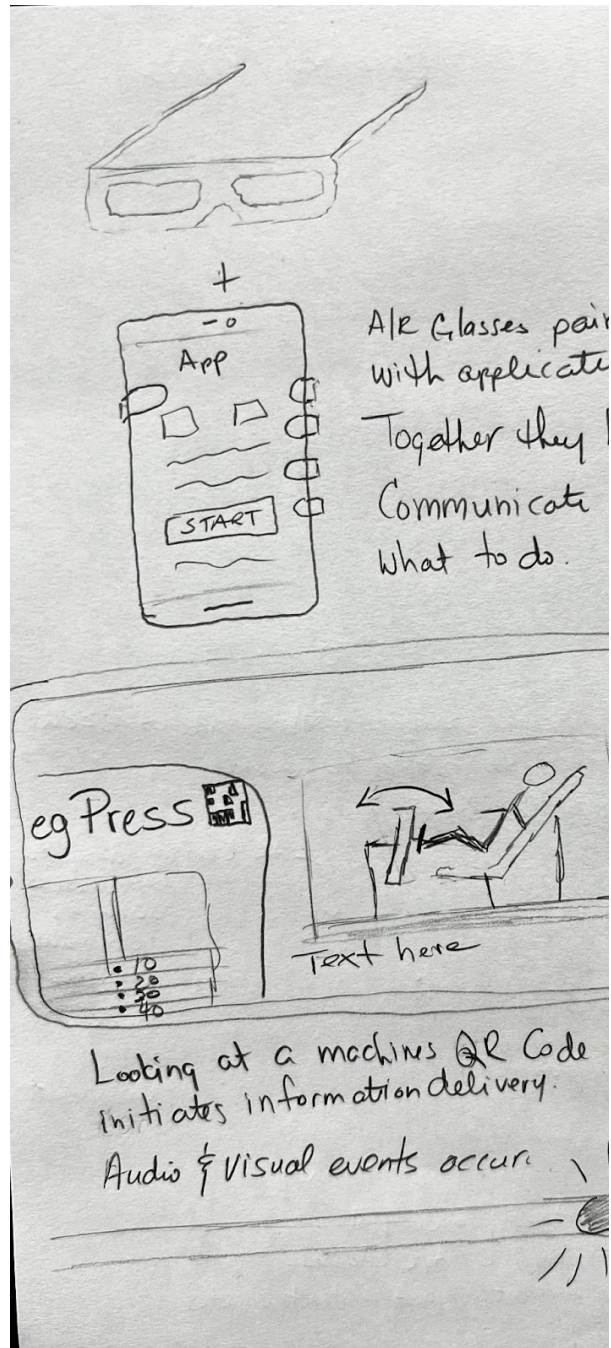
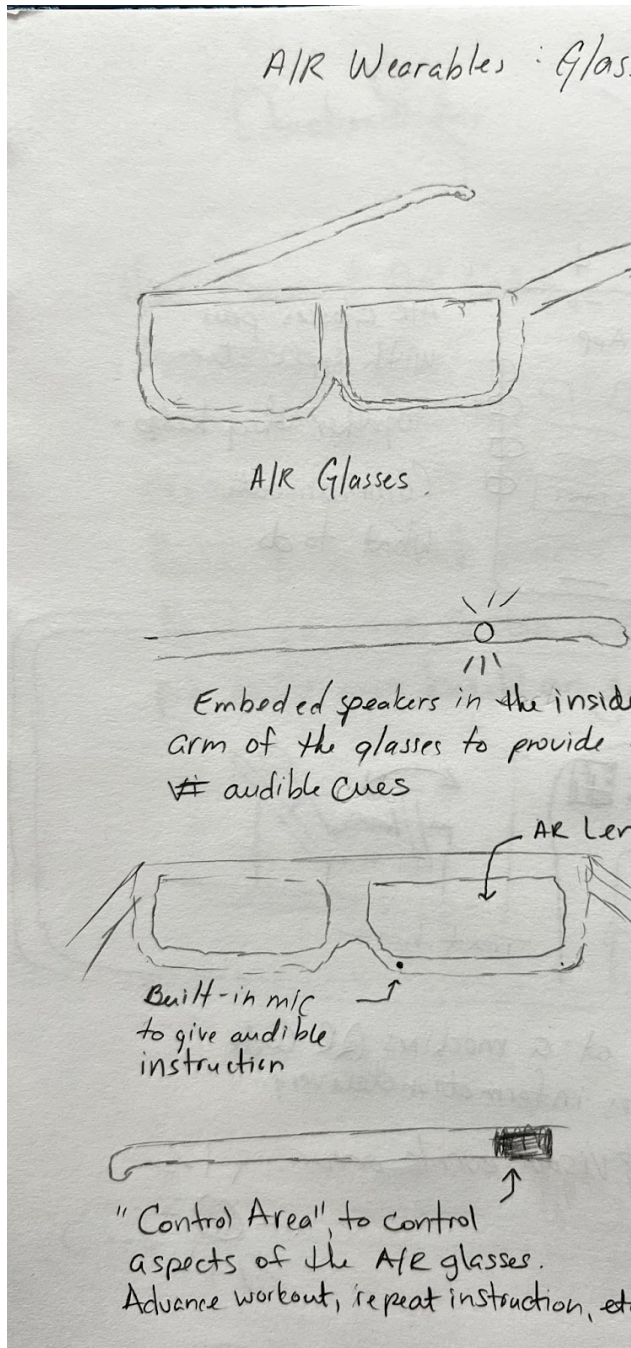
- Welcome
 - Sign up / login
- Settings
 - Link AR
 - Set default weights (lb/kg)
 - name / contact info / profile stuff
 - Gym selection (Geo)
- " + Set Goals "
- Home Screen
 - Exercises
 - Equipment
 - Workouts (Start)
 - Score
 - Customize
 - pre-built based on "goal"
 - Community
 - Leader boards

Motivation as
notifications &
while working out



1. Personalized Trainer (Audio AR only) - This would be a voice-controlled audio personal trainer that would instruct users on performing exercises and using gym equipment. The trainer would also provide motivational support, such as using language to keep going or telling the user they're doing well.

2. AR Demo via Mobile Device (Audio and Visual) - When users are unsure how to perform exercises or use specific equipment, they can scan a QR code on the machine and click "AR Demo." The user can then aim the camera at the machine or equipment, and an AR animation of the exercise will be displayed, showing both visual movements and audio cues to explain what is happening, how the machines or equipment should be used, and how exercises should be performed. For the audibly impaired, text/closed captions will also be visible.



3. Wearable Demos (Audio and Visual) - Users can pair a set of AR glasses with the above app, providing a complete audio and visual experience without holding a device.

The AR glasses come with a Heads Up Display in the lenses, including a built-in speaker, microphone, and gesture controls for more advanced app control. Like the phone application, text/closed captions will also be visible in the glasses for the audibly impaired.

Educational App.

- Uses Camera & QR Codes
- App based only
- Basic, only provides info on exercises & how to use equipment.
- Ability to log & track progress
- Ability to create custom workouts or pre-built ones based on goals.

4. Educational App - This is a stripped-down version of the application described in 1 and 2 above. It only uses the camera to scan QR codes. The Educational App only provides information in the form of instructional audio cues and basic animations. It's not a complete "AR" experience.

Scope of Prototype Development

Prototype Description:

For our prototype, we are focusing on creating an app encompassing the Personalized Trainer and the AR Demo, as described above. We hope to include a wearable prototype (in the form of AR glasses) to test both forms of the app and determine if users prefer using one over the other. However, our primary focus will be on the training and education aspect of helping users feel at ease and to reduce "gymtimidation," so if time constraints become an issue, wearables might be abandoned for the sake of this initial project. Future iterations may include wearables.

Advanced feature sets may also be considered. These might include things such as exercise plans (pre-generated plans based on goals), customized exercise plans (where users can create their own), tracking (where users track the progress of exercises, weights of machines, etc.), and gamification (in the form of scores and leaderboards).

Specific Development Technologies:

We will prototype the app's function, flow, and visual elements using Figma, as full application creation is beyond this project's scope. We will build AR demos and deploy them to mobile for conceptual testing. AR Demo (visual and audio) will be created using Unity and Vuforia. This will include AR animations and audible cues. If time allows for development with wearables, the app will also be deployed for devices in that domain.

Prototype Development Timeline:

The project timeline for Capstone II includes 25 days for prototype development and 15 days for prototype testing, including conducting interviews. Finally, we allocated five days to finalize the prototype design and conclude our analysis. We feel that this Scope of Prototype Development aligns with the previously distributed timeline for Capstone II, and we do not think a timeline revision is necessary.

Capstone II - Prototyping and Testing			
☐ Milestone 2b: Prototype	25d	04/03/23	05/05/23
Get QR Codes for Vuforia	1d	04/03/23	04/03/23
Create Vuforia Database for integration with Unity	2d	04/04/23	04/05/23
Create sounds and visual elements for Vuforia and Unity integration.	12d	04/06/23	04/21/23
Generate Application and associated wireframes	10d	04/24/23	05/05/23
☐ Milestone 3: Testing	15d	05/08/23	05/26/23
Perform in-person testing in gyms, conduct post-use in-person interviews.	7d	05/08/23	05/16/23
Code interview data to determine any prototype design changes	5d	05/17/23	05/23/23
Retest, re-interview as necessary	3d	05/24/23	05/26/23
Milestone 4: Finalize Design	5d	05/29/23	06/02/23
Final Reflections and Presentation for Capstone II	5d	06/05/23	06/09/23