

HelpAR Function

Augmenting Paper Project

Group: Law and Order

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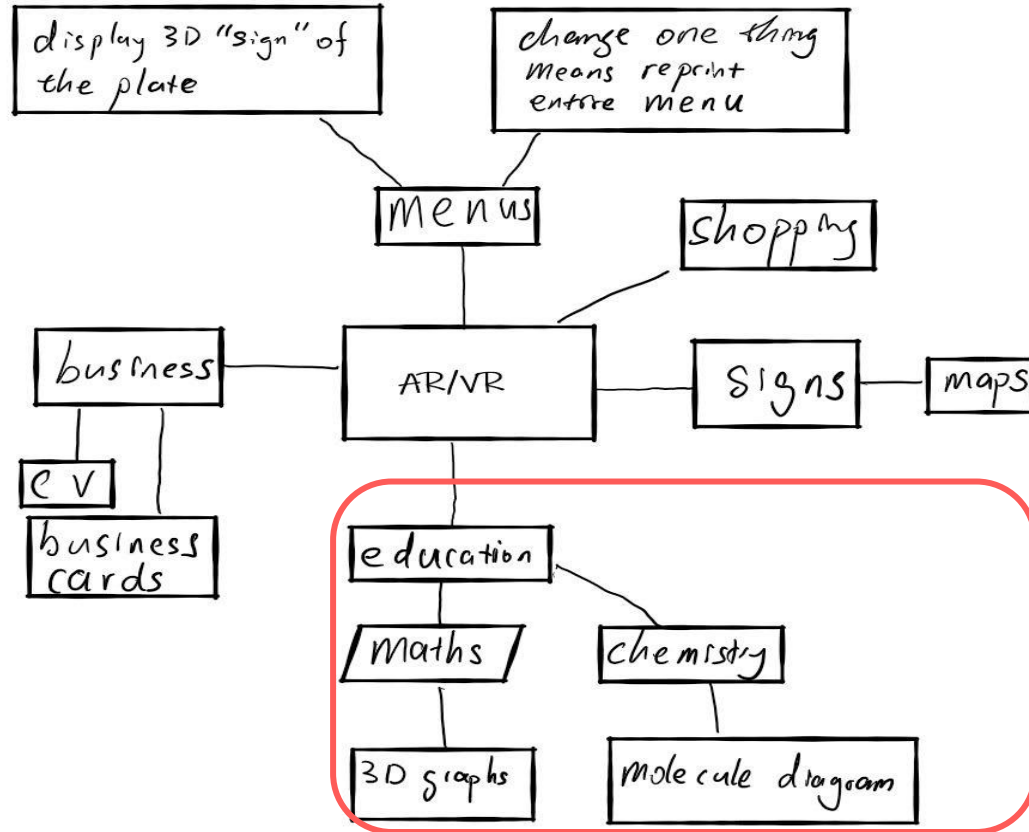
Outline

1. Brainstorming
2. User Interviews
3. Problems in Existing Paper Product
4. POV
5. Storyboard and Speed Dating
6. Prototype Demonstration
7. User Feedback
8. Reflection

Brainstorming



Brainstorming

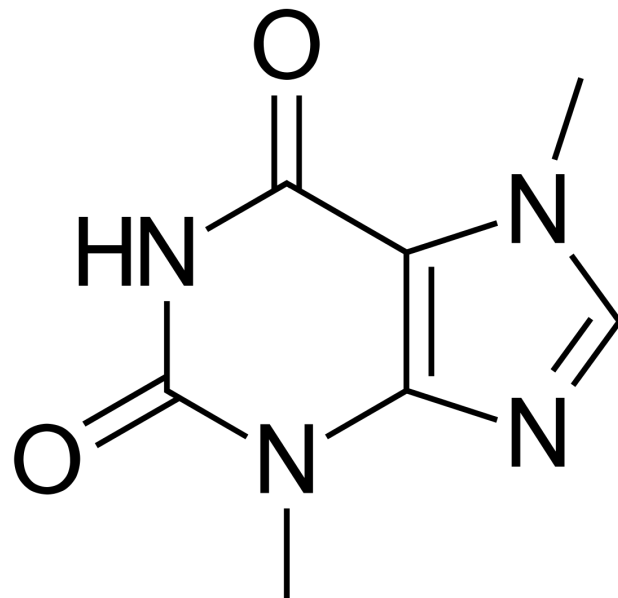




User Interviews



Theobromine





User Interview Results

Common Issues

- 2D representations are hard to visualize
- Limited perspectives in textbooks cause **confusion**
- Textbook pictures are boring and **non-interactive**

User Needs

- Clear 3D representations
- Fun, interactive experience



Problems in Existing Paper Products

01

Representing 3D models on a 2D plane **limits perspective** and can cause confusion

02

Students having trouble visualizing in 3D from images on paper **lack full comprehension** of the course materials





HelpAR Function: Dimension Analysis

Spatiality

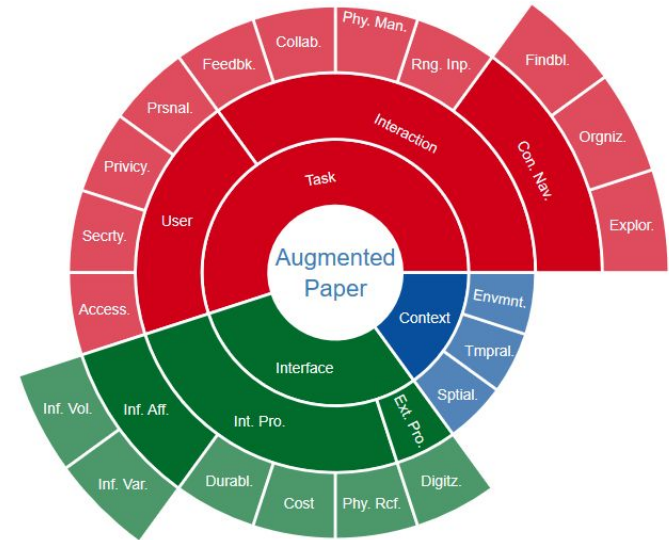
- The quality of being associated with 3D space

Physical Reconfigurability

- The ability to be shaped into different physical forms (view 3D model in different angles)

Accessibility

- The ability to accommodate different users with a wide variety of characteristics, backgrounds, physical or mental abilities, or needs



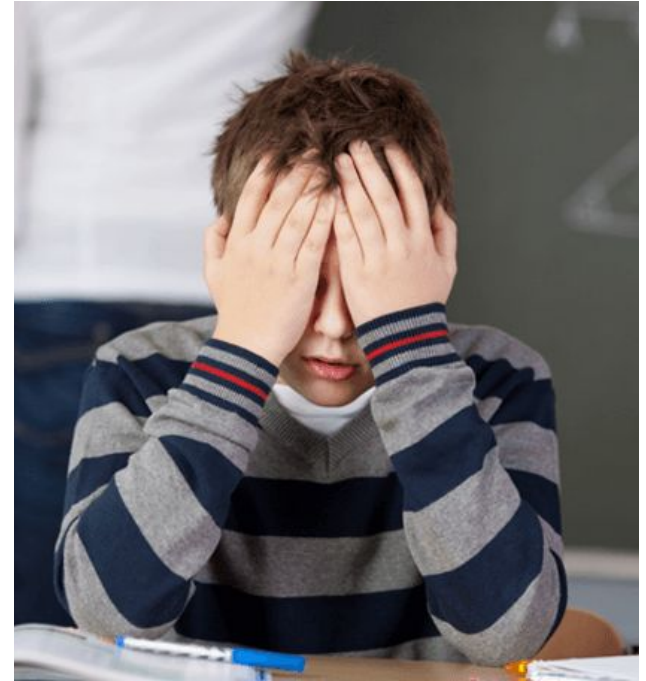
POV

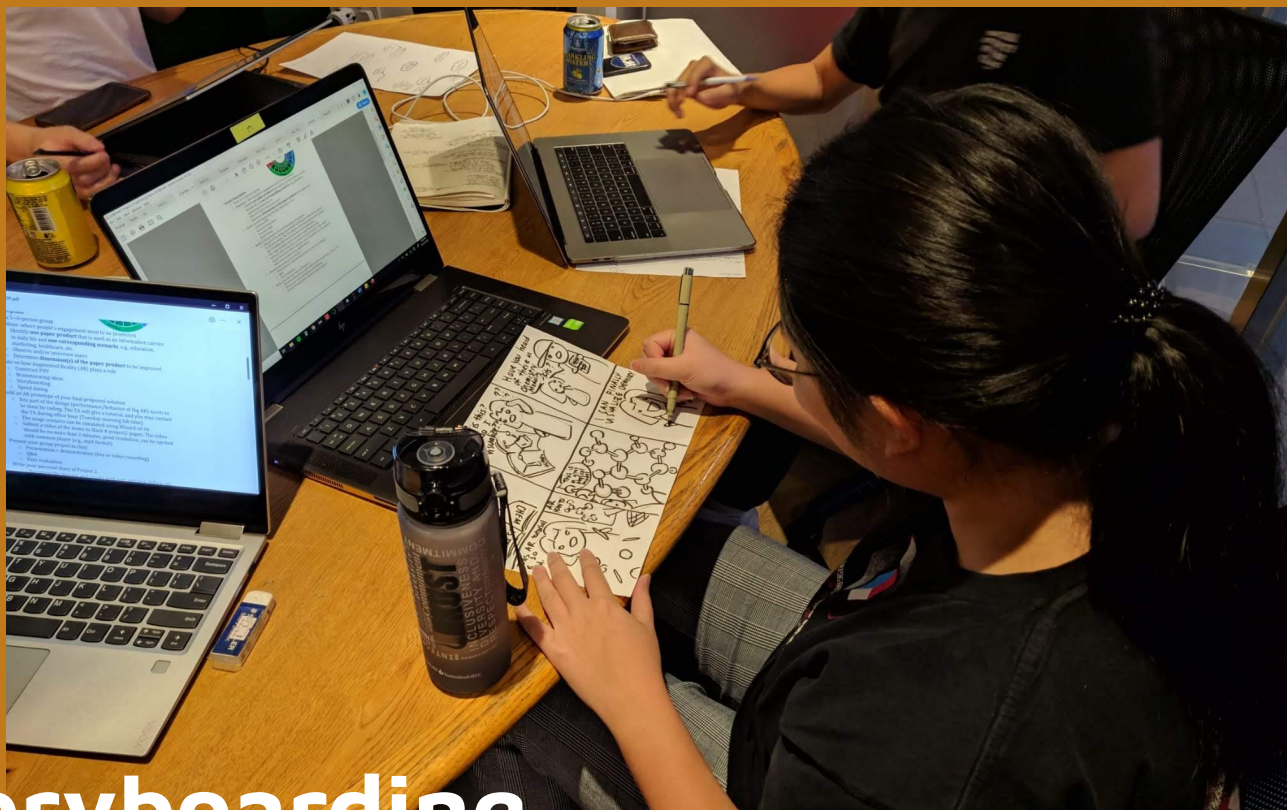
Bio: Spatially-challenged Student

Goal: Wants to excel in math / science courses

Frustrations: Has difficulty visualizing 3D graphs and models represented on textbooks

Needs: An interactive tool that helps him easily visualize graphs and models so he can deepen his comprehension and succeed in class





Storyboarding

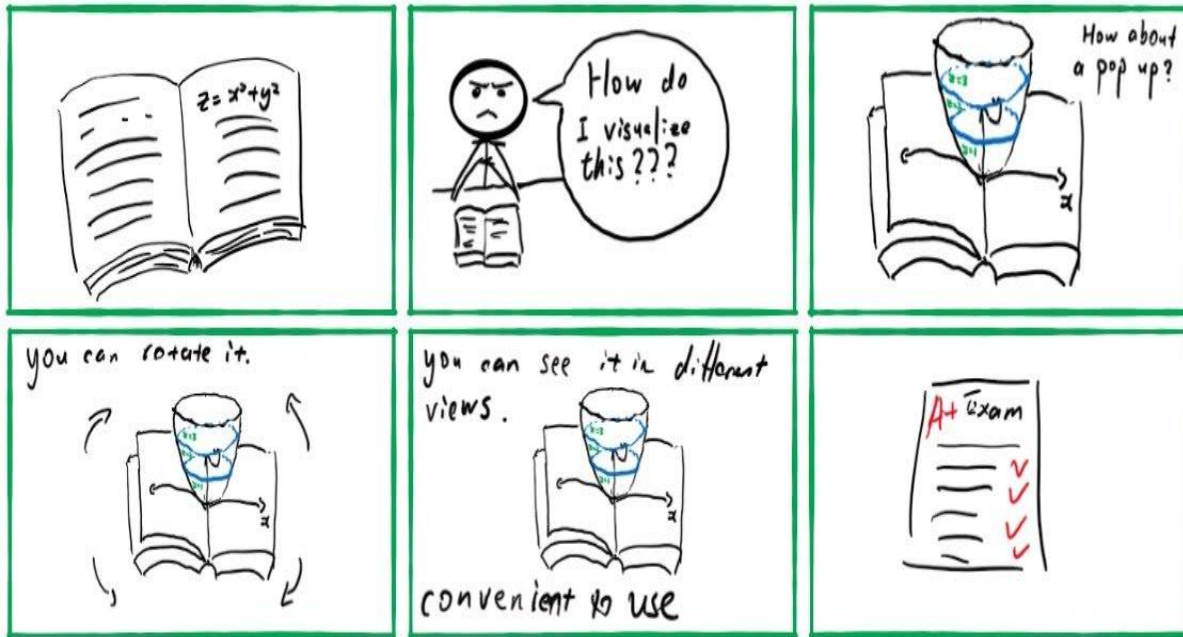
Storyboarding + Speed Dating



User Comments

- Making the model each time is too time-consuming
- Not flexible to change

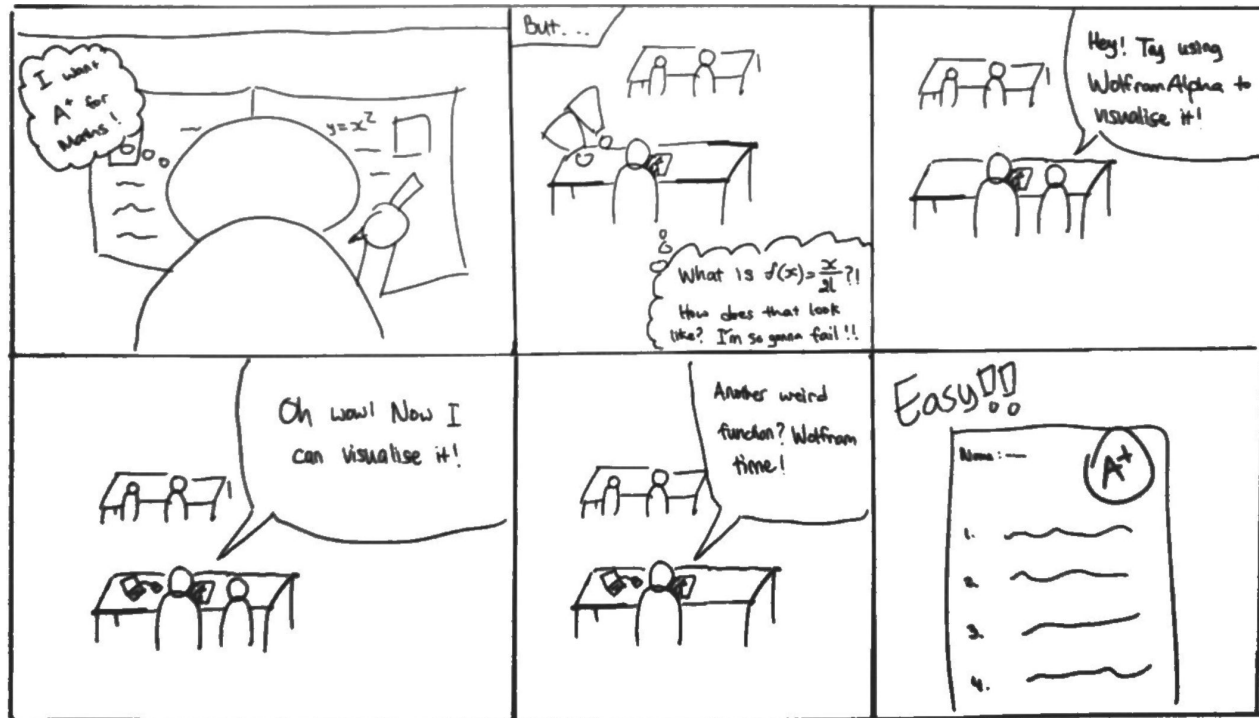
Storyboarding + Speed Dating



User Comments

- Unable to show inside spaces of 3D models
- Hard to produce, not very feasible, costly

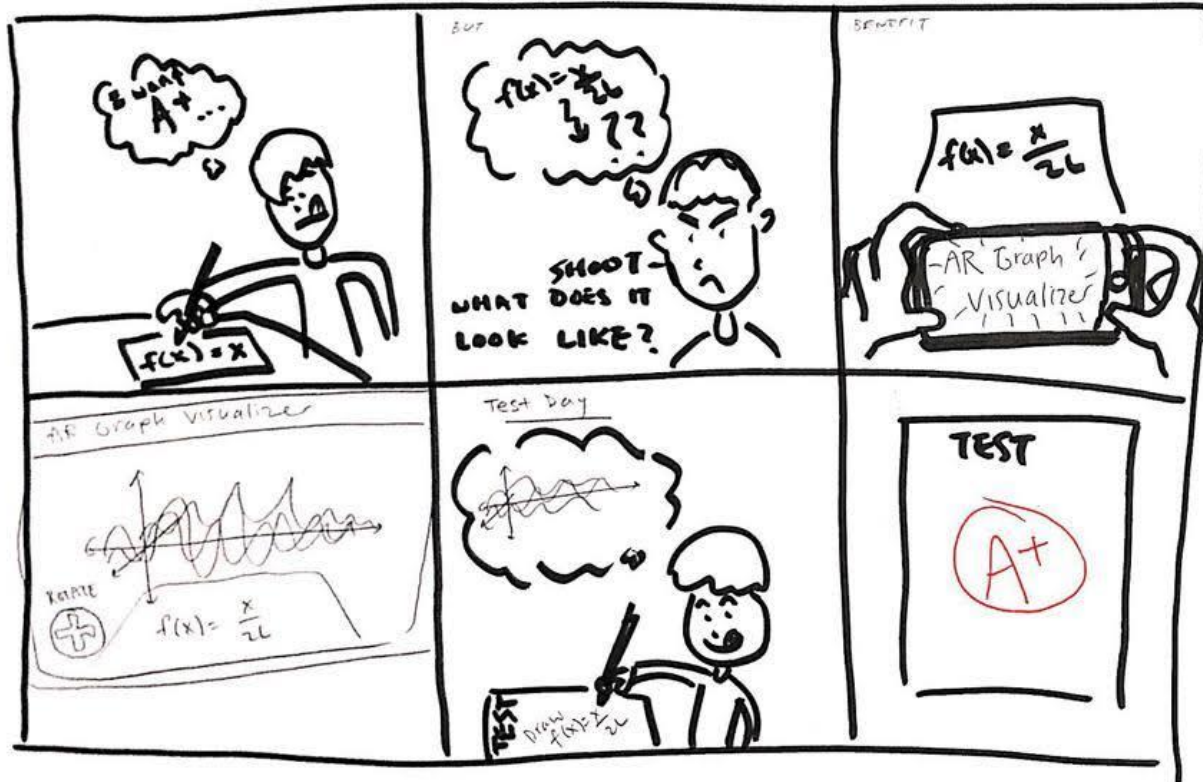
Storyboarding + Speed Dating



User Comments

- Still limited by 2D screen
- Complicated steps to visualize 3D functions

Storyboarding + Speed Dating

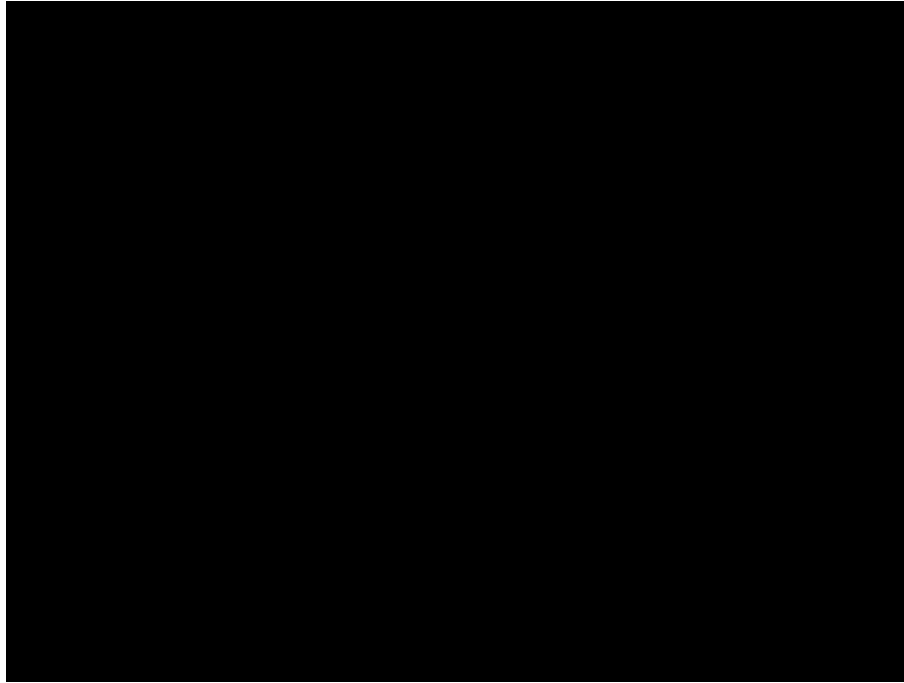


User Comments

- Gives full perspective
- Lighting may be a problem
- Fun and interactive



Prototype Demonstration (Video)





User Feedback



Student A, 19 years old (Finance major)

“This can even be used in educational marketing as an interactive advertisement. It’s a very helpful tool for both scientists and non-scientists.”



Student B, 20 years old (Electrical Engineering major)

“The app is very useful! However, it would be more useful if the 3D image did not cover the text.”



Reflection



01

#Testing

A larger sample population would allow us to better determine this app's user requirements



02

#Indolence

Some students can become too reliant on the app and not make any effort to visualize 3D images themselves



03

#AR-Limitation

Small screen sizes make the visualization task difficult