Portfolio

2020-2023

User Experience Design

Computer Science

Ethan Kang

an educational cooking mobile application backed by educational technology research

SkillfullSpoon

a clinical wearable display with a design focus on peripheral visual elements

enVision

an in-depth user analysis into further understanding effective design approaches to alleviating the growing unhoused population

Woodruff Park Case Study

Table of Contents.

project

SkillfulSpoon

An educational cooking mobile application to help young teenagers and young adults build self-sufficiency by teaching cooking skills, terminology, and recipes

project information

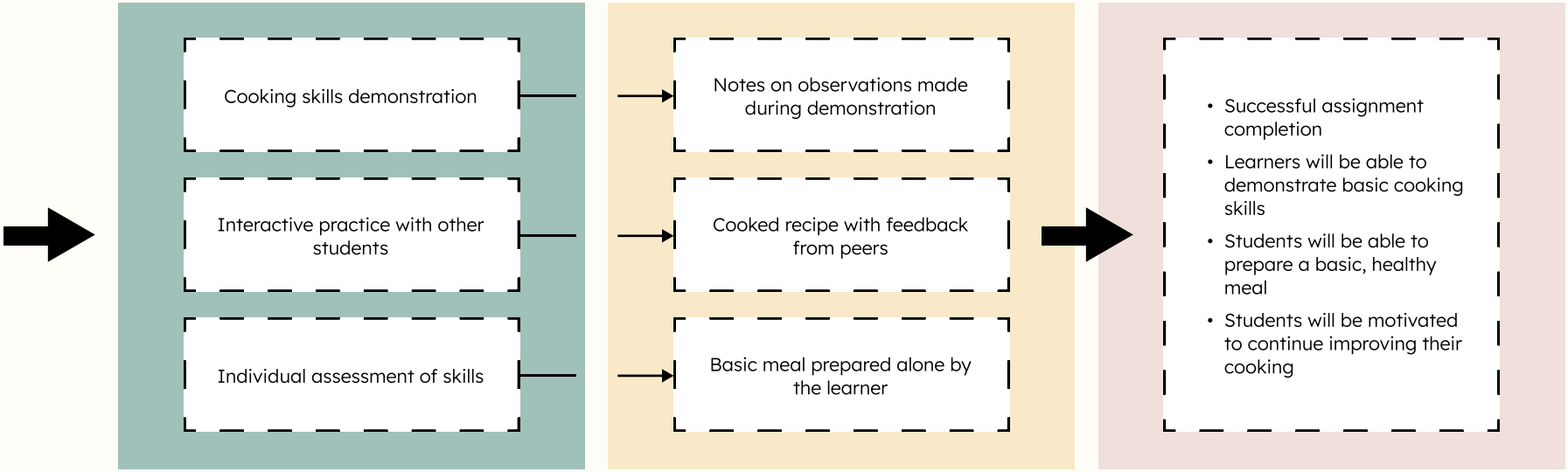
organization:	Georgia Institute of Technology CS 4660 Educational Technology
date:	January to May 2023
collaborators:	Nathan Miao, Matthew Mills
role:	user research, qualitative analysis, lead user interface designer

As an educational technology course, a thorough investigation was undertaken into the challenges surrounding cooking knowledge acquisition among teenagers. Tackling this problem space requires a fundamental understanding of the obstacles faced in cooking knowledge acquisition. Education frameworks such as the How People Learn (HPL) framework were used alongside user interviews to identify potential avenues of approach.

Target Audience

- 9th - 12th grade teenagers
- Little to no experience with cooking
- Capable of using internet-enabled devices

theory of change

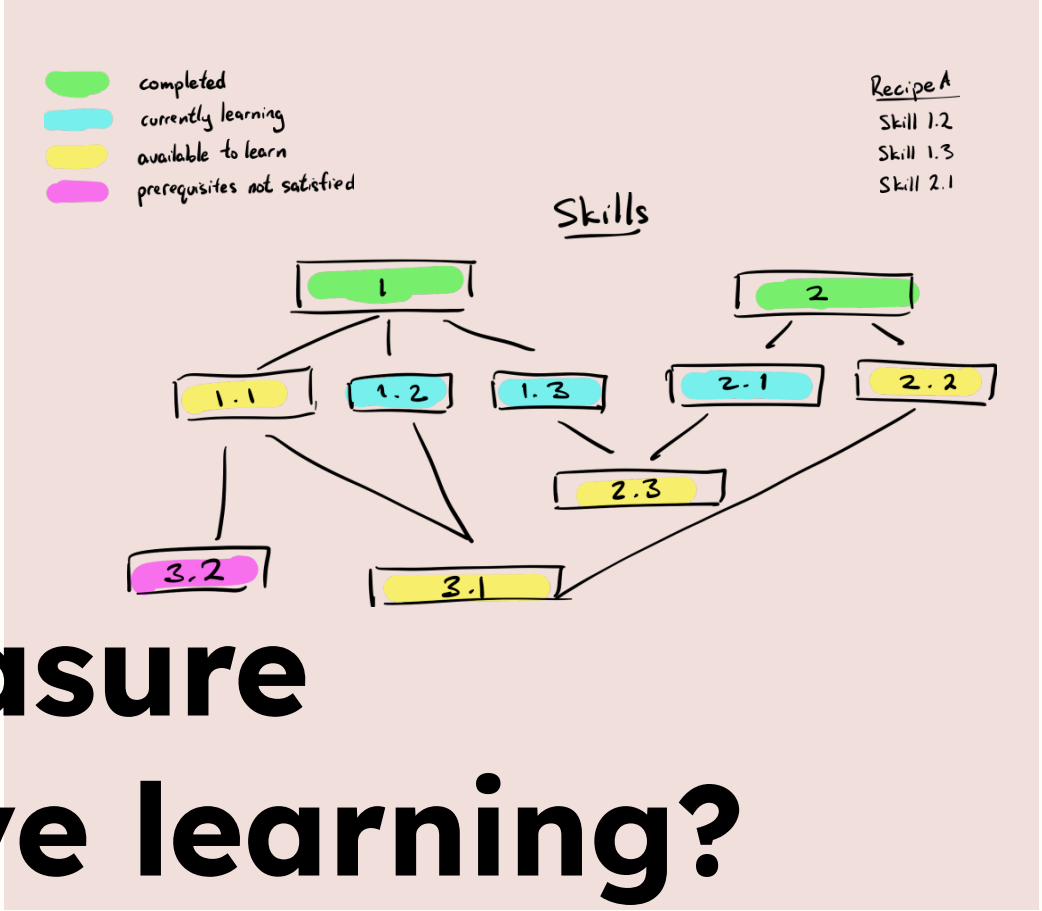


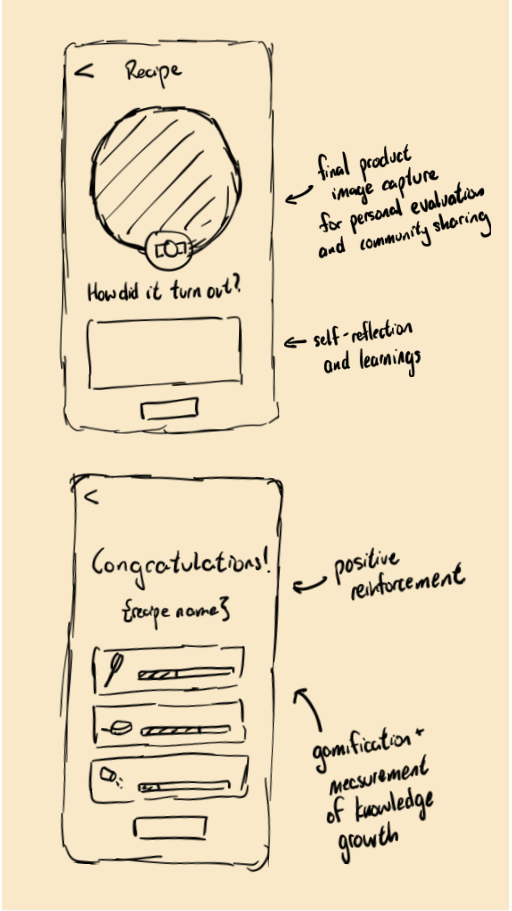
Demonstration provides knowledge based learning. Interactive practice encourages repetition and scaffolds learning. The assessment represents full autonomy and has the opportunity for constructive feedback.

Applying knowledge to actively cooking with others and lone helps with knowledge transfer

Successfully completing assignments improves self-confidence, making students more likely to continue cooking. Assessments ensure that skills have truly been learned.

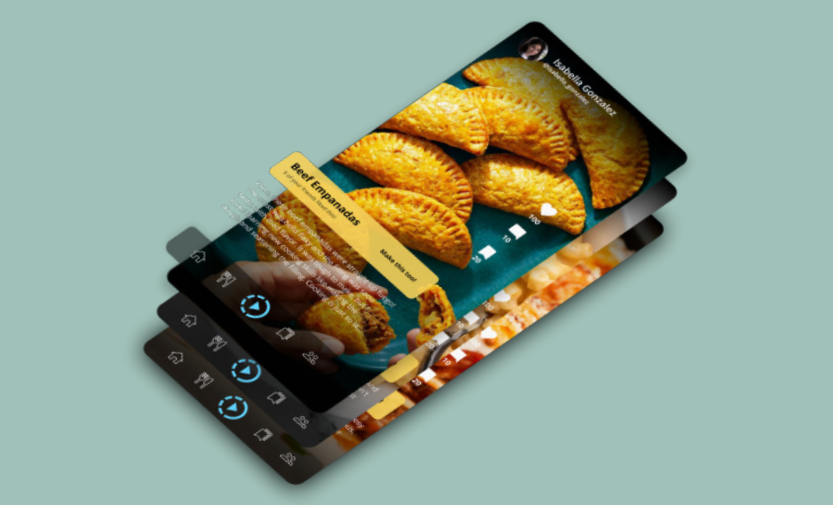
how do we measure effective learning?

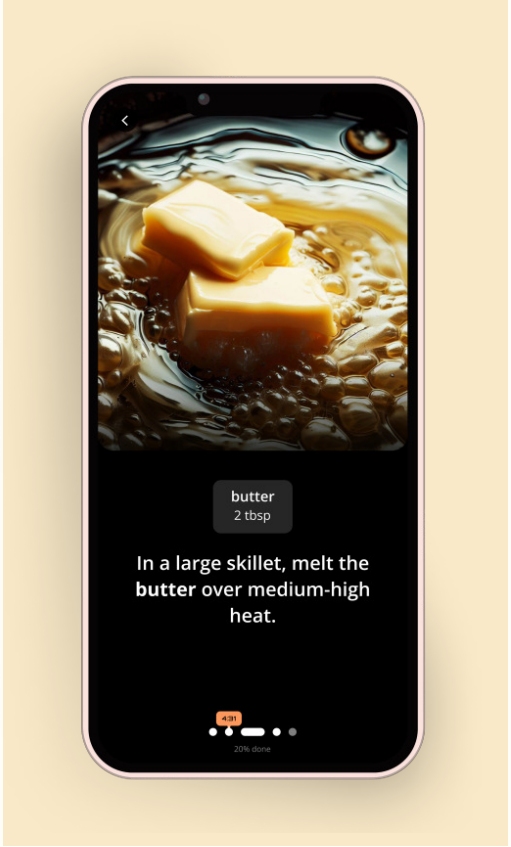


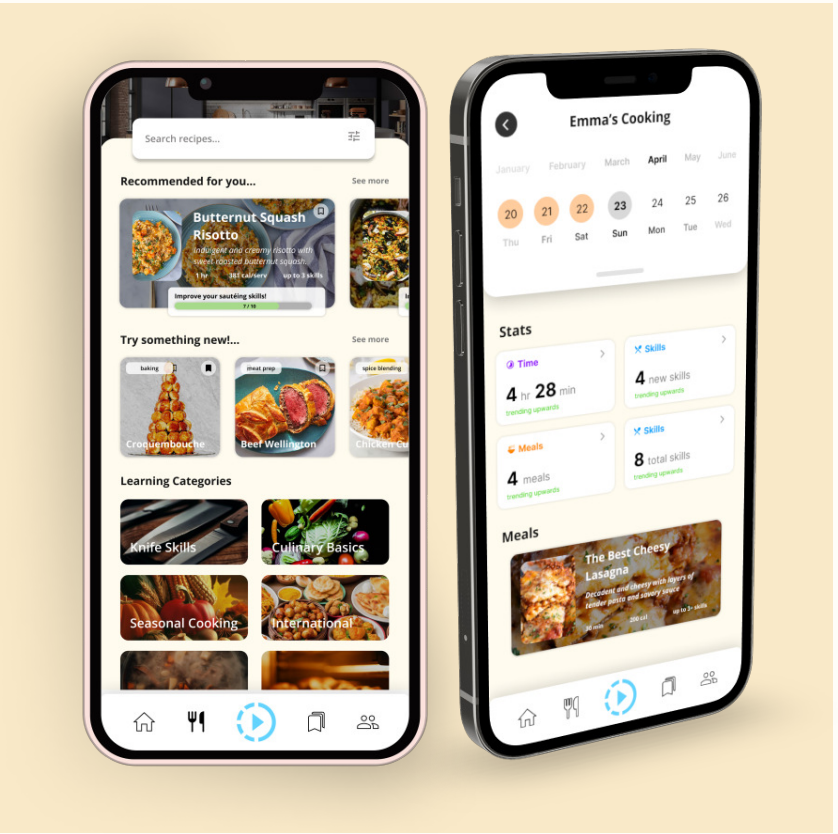


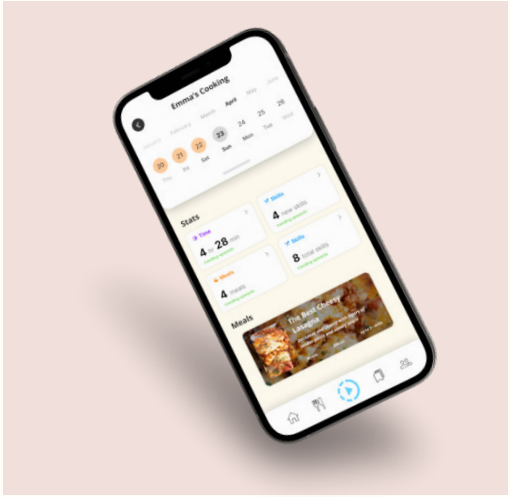
Cooking faces a unique obstacle in its limited **assessment** opportunities, especially from a digital perspective. Recognizing this gap, our product sought to emphasize learner self-reflection of visual and taste of their culinary creations. Furthermore, knowledge checkpoints are introduced to **scaffold** learning during the cooking process.

Gamification alongside community features encourage consistent practice and social learning. By breaking down recipes into fundamental skills, it is possible to measure growth and gaps in knowledge, while providing data visualization to learners. This data can further be used in recommendation engines to suggest new recipes based on previously learned concepts.









By providing step-by-step images generated by artificial intelligence, learners will have the visual stimulus to identify potential gaps between their understanding and the desired outcome. Contextual clues further promote this by minimizing the cognitive load necessary to better understand new concepts.

The incorporation of progress tracking features offers learners an opportunity to be proud of their work and share it with their friends. Additionally, online communities promotes connecting young learners to learn similar techniques and recipes.

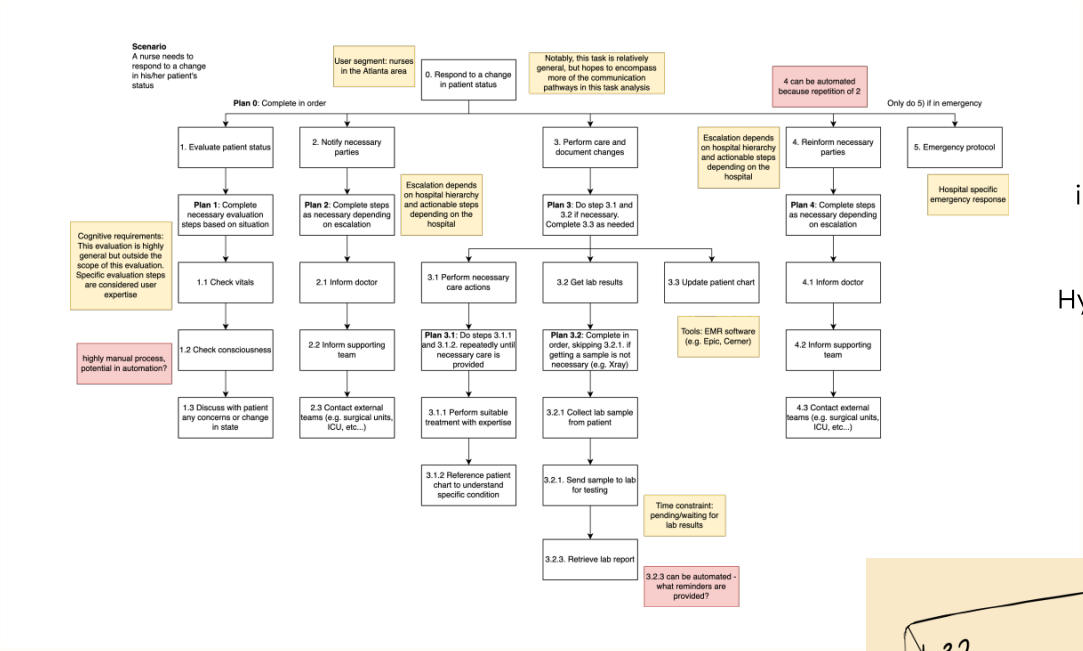
project

enVision

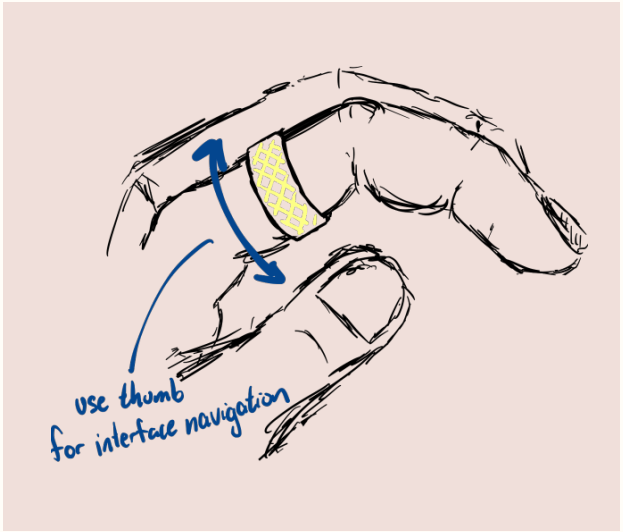
A clinical wearable display with a design focus on peripheral visual elements

project information

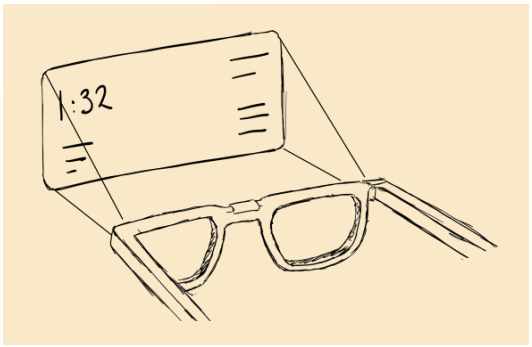
organization:	Georgia Institute of Technology CS 3873 Human-Computer Interaction
date:	August to December 2022
collaborators:	TK Huynh, Courtney Taing, Anna Zhu
role:	user interviews, task analysis, qualitative analysis, lead user interface designer



It was especially important to assess how the user would interact with a given interface. Hygiene was a critical key factor to consider the clinical environment.



This project began with an open exploration of pain points within healthcare environments in the Atlanta metropolitan area. This involved conducting **user interviews** and **shadowing** healthcare workers to gain an understanding of their day-to-day experience. Our analysis came with the realization that one of the major issues was communication repetition. Although EMR applications effectively stored patient data and maintained regulatory compliance, staff communication was only supported by emerging, rudimentary systems such as pagers and/or basic messaging. These platforms showed their cracks such that it was still up to nurses to update doctors through in-person reminders, effectively acting as a middle-man communicators.



As a result, our focus shifted towards innovative solutions to facilitate information acquisition without impeding existing workflows, with an important emphasis on the mode of interactions.

how can we seamlessly share information without impacting existing processes?

Temporal and Event Context

Visual information regarding time, date, and future events are displayed on the left side of the screen.

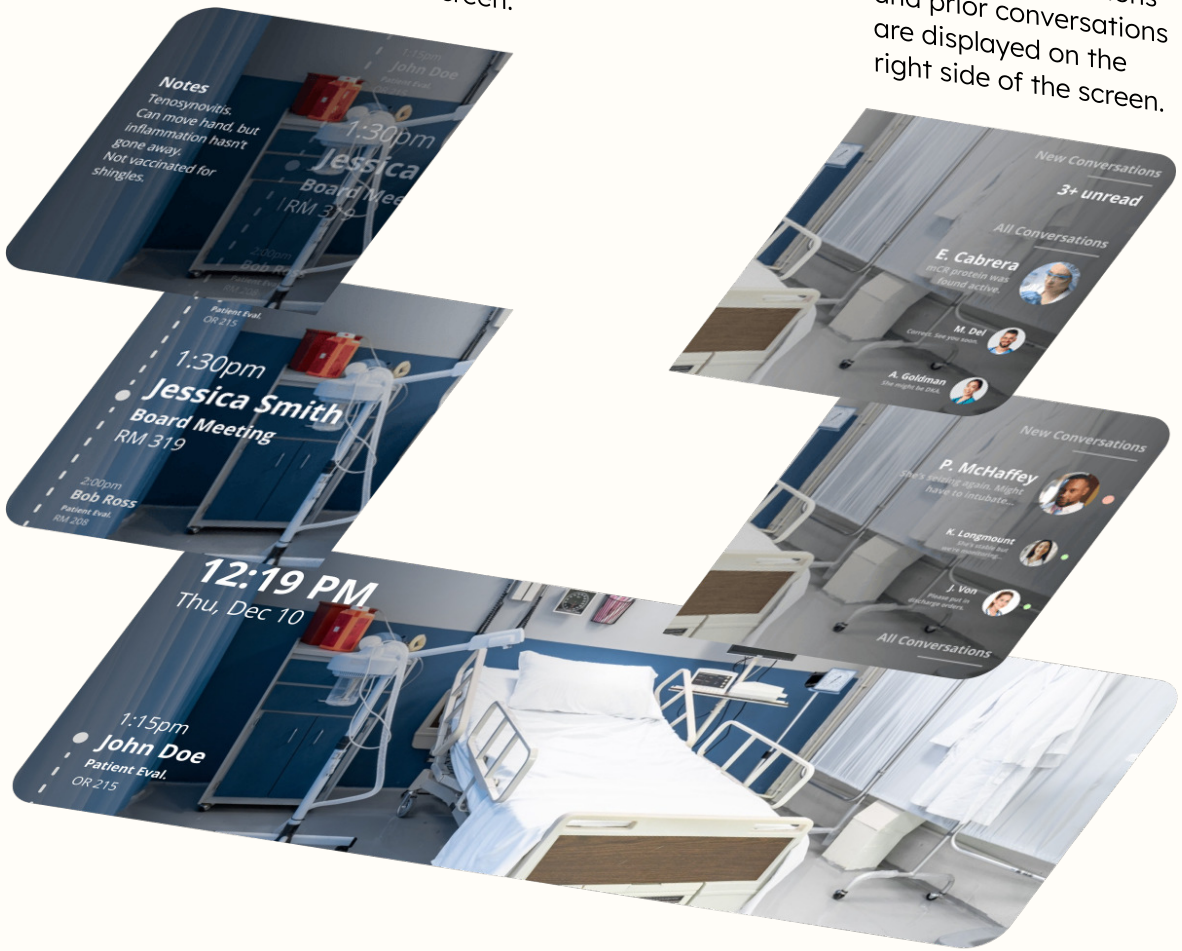
Communication Context

Visual information regarding notifications and prior conversations are displayed on the right side of the screen.

Additional event-specific information can be further revealed

Scheduled and upcoming events

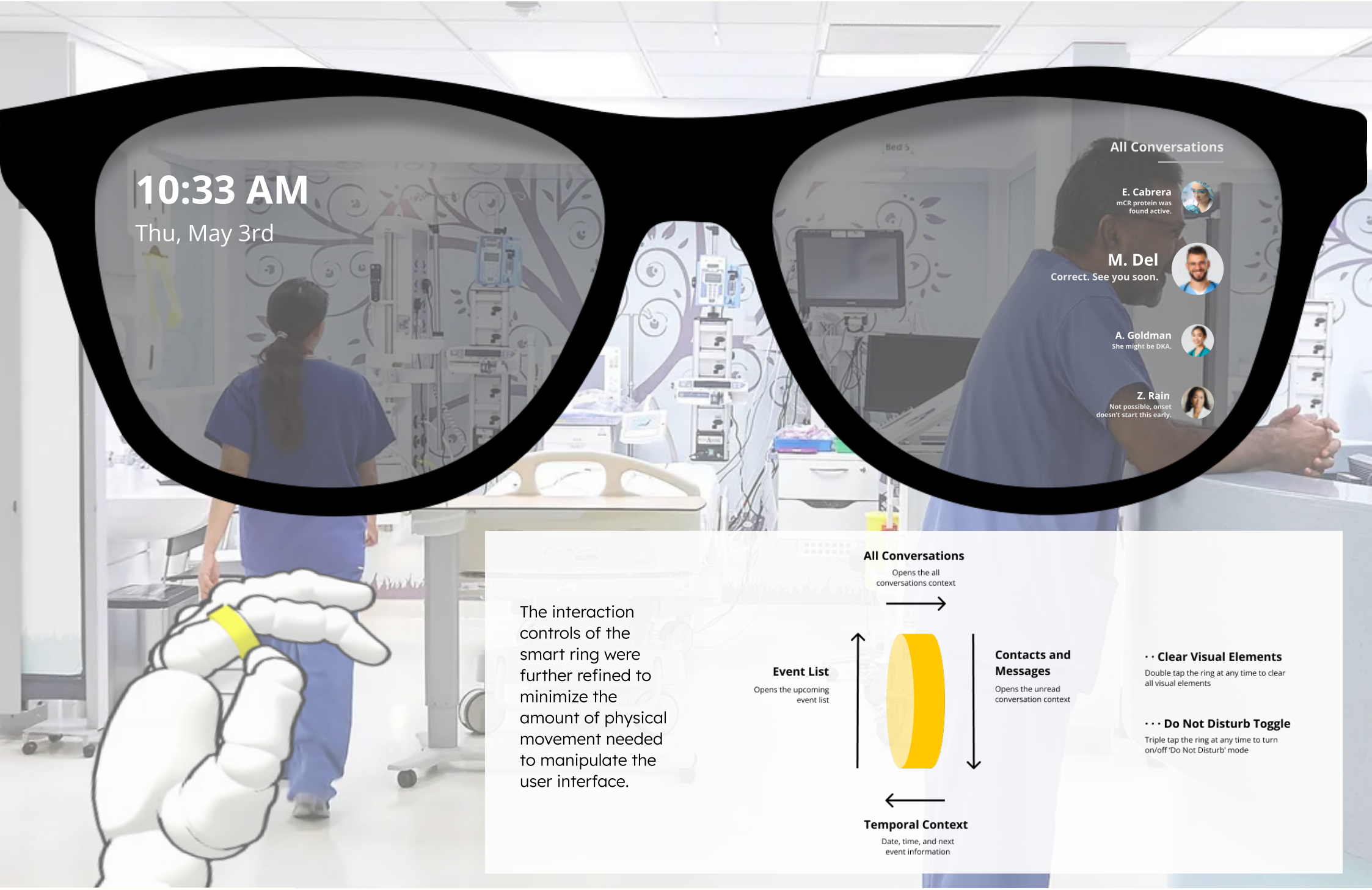
Fundamental, quick access information



Combines both a notification counter as well as most recent conversations between the user and other coworkers

Unread messages received by the user, with a colored indicator of a message's priority

Base layer represents the user's uninhibited vision



The interaction controls of the smart ring were further refined to minimize the amount of physical movement needed to manipulate the user interface.

· · Clear Visual Elements

Double tap the ring at any time to clear all visual elements

· · · Do Not Disturb Toggle

Triple tap the ring at any time to turn on/off 'Do Not Disturb' mode

The ultimate goal is to keep doctors **more connected** while **minimizing distractibility**.

This visual interface embodies the majority of our design decisions in quickly displaying information in a non-distracting manner. As a result, this interface strongly emphasizes the use of peripheral vision - introducing visual elements into the user's vision non-intrusively.

project

Woodruff Park Case Study

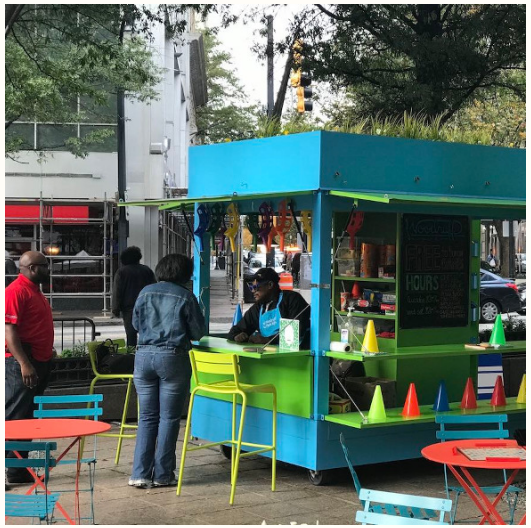
An in-depth user analysis into further understanding effective design approaches to alleviating the growing unhoused population

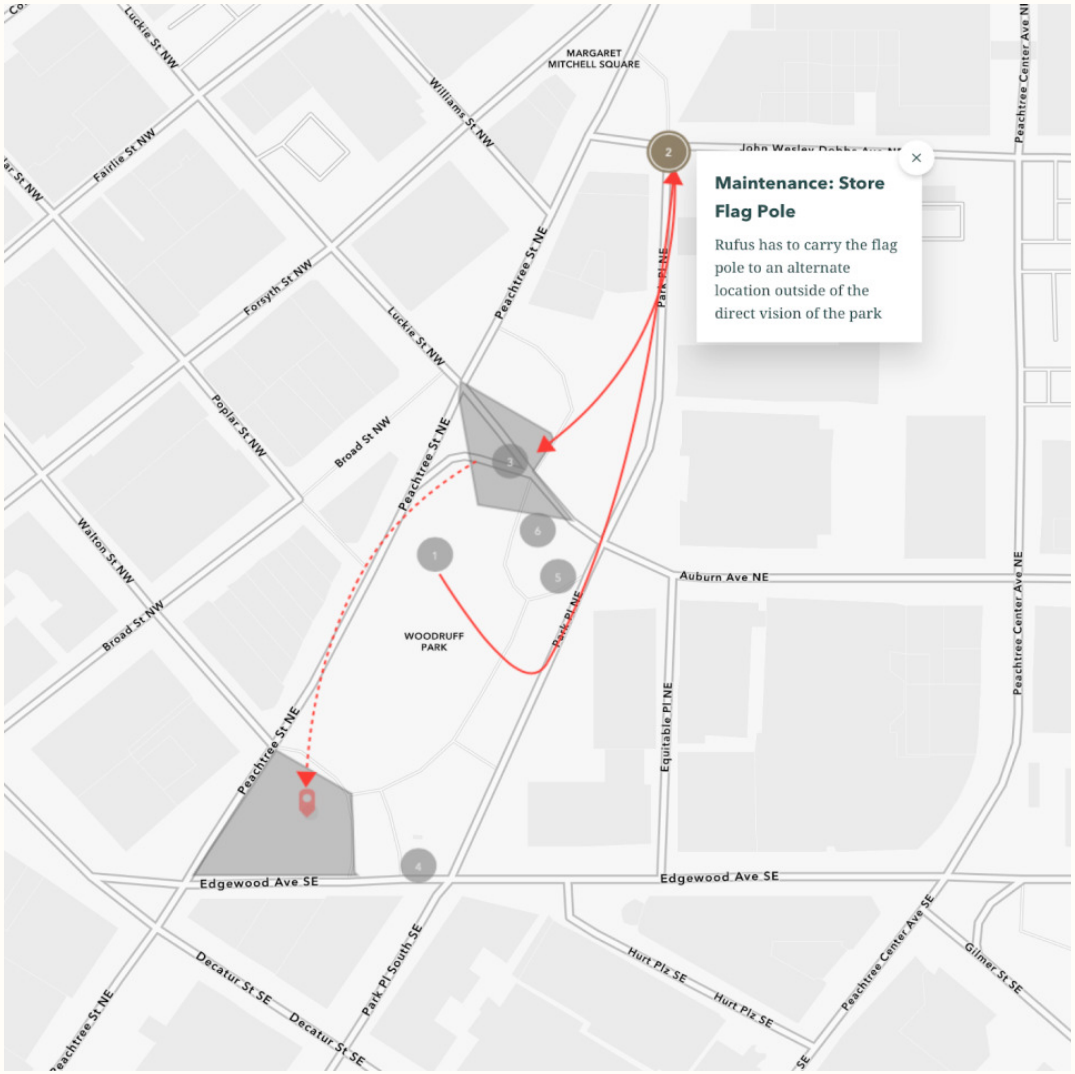
project information

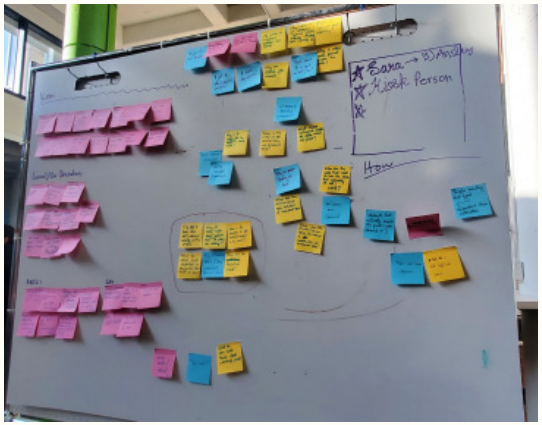
organization:	Georgia Institute of Technology Design Bloc
date:	August to December 2021
collaborators:	Urvi Chakraborty, Ramse Dickey
role:	user interviews and research, qualitative analysis

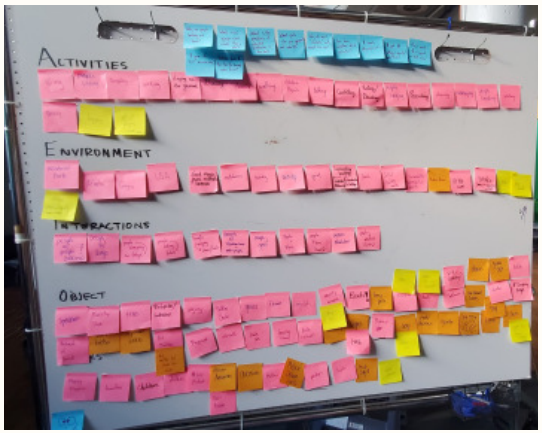
The growing unhoused population in Atlanta, Georgia, particularly in Woodruff Park, presents a complex and challenging problem space. Woodruff Park, located in the heart of the city, has become a focal point for individuals experiencing unstable housing conditions. The park serves as both a gathering place for those seeking shelter and a symbol of the broader systemic issues surrounding homelessness in the area.

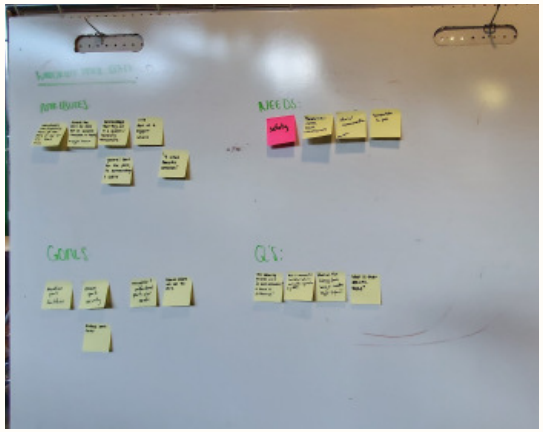
Recognizing the multifaceted nature of homelessness, our investigation focused on the non-profit and government staff that work directly with the park and its inhabitants.











This project involved mixed-method research methodologies, focusing heavily on staff experiences, internal interactions and relationships among the various stakeholders, and personal motivations.

The design solution should make cross-functional jobs more efficient & impactful without additional resources.

Insight #1

Despite their assigned roles, staff members display a keen awareness and offer insightful observations of the surrounding environment. Their cross-disciplinary understanding enables them to identify nuances and interdependencies within the park ecosystem, contributing to a holistic understanding of the challenges and opportunities present.

Insight #2

'Band-aid' solutions reflect larger societal challenges: the prevailing approach of implementing temporary or stopgap measures to address issues - an underlying set of societal challenges that extend beyond the park itself. These challenges necessitate a comprehensive and systemic response rather than mere surface-level solutions.

Insight #3

Internal dynamics and resource constraints impact staffs' capacity for change: internal politics and limited resources significantly impact the staff's ability to effect substantial change within the park. This observation underscores the influence of organizational structures, decision-making processes, and resource allocation on the staff's capacity to implement transformative initiatives.

Insight #4

The staff members exhibit a strong emotional connection to the park, which fuels their personal drive to effect positive change. This intrinsic motivation showcases their dedication, empathy, and passion for having a positive impact on creating a supportive environment.