Our design visualizes the collaborative cooking process as a progress bar, similar to a game setting. Additionally, during the cooking session, users are rewarded with experience points for active and continuous interaction until they collectively complete their meals.
User could pre-set the progress milestones for the progress bar, based on key stages of the cooking process or the completion level of each individual meal.

This real-time progress tracking is designed to encourage proactive teaching. When a user needs help or encounters difficulty during cooking, they can call for assistance from the lead chef through wearable devices, triggering a visual obstacle on the progress bar. This obstacle is displayed on shared screens, personal wearables, or kitchen tools, allowing the lead chef or other users to provide immediate support and help resolve the issue together. If the lead chef is occupied, other users can step in to assist, joining the cooking process as new collaborators

Several interactions allow users to earn points during the cooking process:

1. **Role Swapping Between Learner and Teacher**: When a user calls for help, they assume the role of a "learner," while the helper takes on the role of "teacher." To have better learning, they can "swap roles". The teacher will encourage the learner to practice the tasks or techniques instead of just talking. If the learner successfully completes the task independently, they earn points together.
2. **Sharing Knowledge**: Users can also earn points by sharing tips or techniques they've learned from others, such as family or friends who aren't present. If the teacher not only explains how to perform a task but also provides the reasoning behind it, they earn extra points.
3. **Correct Use of Kitchen Tools**: When learners find and use the kitchen tools correctly to complete a task, they earn points. For example, if the teacher asks them to slice vegetables and the learner selects the appropriate knife and cutting board, and slices the vegetables correctly, they gain points. The system detects the tools requested by the teacher via voice recognition. Tools equipped with sensors and wearable devices confirm whether the learner is using the correct items. If the learner follows the teacher's instructions correctly, they are rewarded with points.
4. **Topic-Based Conversation**: Users can pre-set chat topics based on their preferences and adjust before the cooking session. These topics, often related to food preferences, can spark discussions where users share why they like or dislike certain dishes and the stories behind their choices. During the cooking process, pre-set chat topics will randomly appear on shared screens and wearable devices, with haptic feedback to alert users. These topics will be displayed for a while (e.g. 5 seconds) , after which they disappear unless the users choose to discuss them. If users actively engage in a discussion, they earn points.

The following describes how the reward mechanism works. As a reward for completing the cooking collaboratively, there is a Projection Mapping design. Upon finishing the cooking process, users can unlock visual decorations based on their scores, which are projected onto the dining table or surrounding environment. These visual elements enhance the dining atmosphere, creating a more immersive and enjoyable experience.

During the cooking process, the background on the shared screen features a live video or animation, accompanied by background music and visual effects. This creates a relaxing and fun ambiance, making the cooking and dining experience more enjoyable.

Overall Experience

Before starting a cooking session, users can set their preferences for topics of interest and key milestones in the cooking process, with the option to adjust these preferences before each new session. As cooking progresses, the progress bar advances with each completed milestone. If a user encounters difficulty, the progress bar pauses, and a visual obstacle appears. If the system detects five minutes of silence, a topic will pop up to prompt discussion among users. The correctness of task completion is verified through sensors in handheld devices and kitchen tools. Upon finishing cooking, users receive rewards based on their experience points, including virtual achievements and titles, as well as visual decorations through augmented reality projections. Also, the entire collaborative cooking process will be recorded, it can be used to replay cherished memories of cooking with friends..

 Storyboard

https://www.canva.com/design/DAGQOeFrOYI/hth85XoW7KAoMpXh1e-aaQ/edit?
utm_content=DAGQOeFrOYI&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton