Common Lounge

Social Interaction and Connection

Problem Description

Problem Statement

During their college experience, students can struggle to connect with their peers due to busy schedules, social anxiety, or limited opportunities for interaction on campus. This lack of engagement can contribute to feelings of isolation, which in turn negatively impact students' mental health, academic performance, and overall well-being. According to a study by Richard Weissbourd et al. published in the *Journal of College Student Development*, loneliness among college students has become a significant issue, affecting their ability to form meaningful relationships and leading to increased stress and depression. The study highlights that nearly two-thirds of surveyed students reported feeling lonely at some point during their college experience.[2]

Area of Artistic Exploration

This project explores the fusion of interactive technology and social gaming to enhance student engagement on campus and foster meaningful connections among other students. From the beginning, we explored different types of social interaction games, including a lava game featuring multiple players trying to avoid the lava by standing on safe platforms, a pop-up pirate game, and a tabletop ping pong game where players answer questions while playing. We also discovered that one the most popular games on college campuses is Beer Pong, in which there are plastic cups placed on opposite sides of a table. The cups are filled with liquid and each player tries to sink a ping pong ball into their opponent's cup. Each time a ball lands in a cup, the opponent must drink the liquid from that cup.With that in mind, we are transforming the traditional beer pong game into an interactive experience where players answer questions after successfully landing a ball in a cup. This approach combines intellectual engagement, meaningful connection, and fun interactivity, fostering social interaction and friendly competition among students in a fun, tech-driven environment.

Project Overview

The final game is an interactive 'beer pong' -style experience that reimagines the classic game with a technology twist, by integrating voice recognition and encourages student engagement and social interaction. When a player successfully throws a ball into a cup, a question appears on the screen, prompting them to answer and spark conversation. This gamified approach makes meeting new people more engaging and helps break the ice in a fun, casual setting.

Context

The Concept

The game has two main elements: a pong-style setup using cups and balls, and a series of questions, dares or truths that players respond to when a ball lands in a cup. Instead of following the traditional 'beer pong' rule where a player drinks after landing a ball in a cup, our version replaces that action with a social prompt. Players answer a question, share a story, or respond to a dare written on an index card. This simple shift turns the game into a fun and low-pressure way for students to open up, connect on a personal level, and build new friendships through conversation rather than competition or alcohol. The game involves simple interactive elements like cups, balls, and a variety of index cards containing questions, dares, and truths that are designed to spark conversation. We began with a low-tech cardboard prototype that used computer-typed index cards to deliver these prompts, making the game affordable and accessible to students. In that version, when a player landed a ball in a cup, they would need to lift up that cup to see the hidden card and respond to its challenge or question.
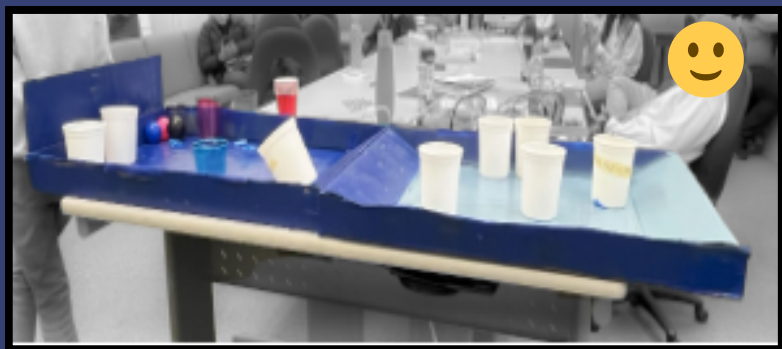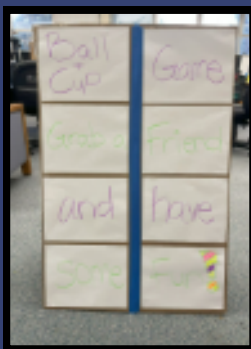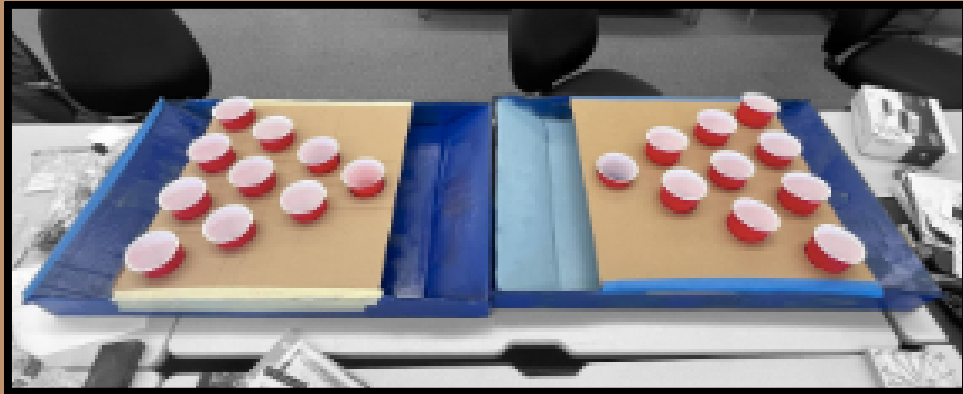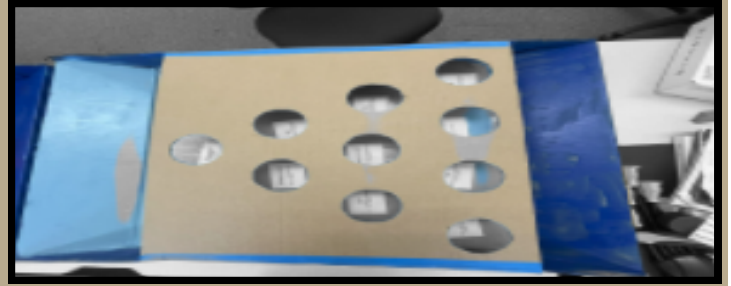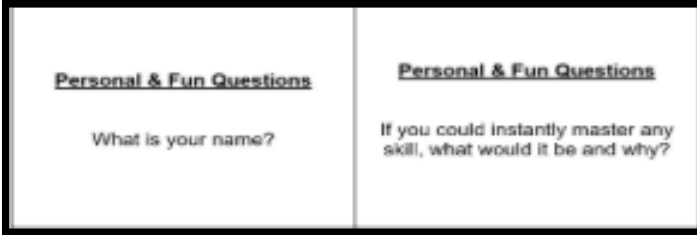
As we received feedback from user testing and advice, the game evolved, and we transitioned from physical cards to a digital format. In the current version, after a player lands a ball into a cup, one of the two players is prompted to respond to personal or thought-provoking questions or challenges displayed on the screen. This shift from physical to digital not only preserves ease of use for new players but also enhances the experience. To add further interactivity, we are integrating the computer's voice recognition feature. Players can now use voice commands to select categories of questions. This makes the experience more immersive and engaging while still preserving its focus on connection and meaningful conversation.
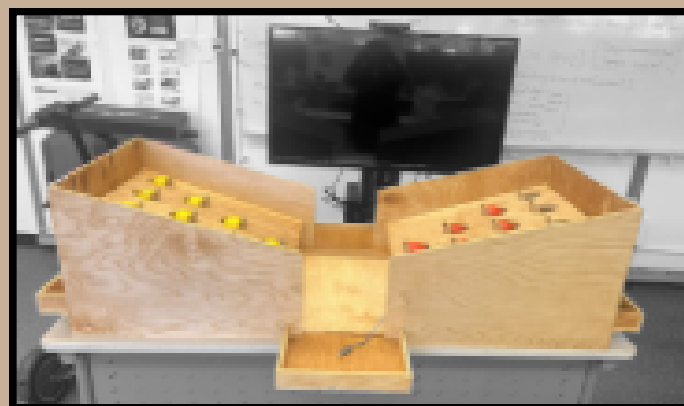
Potential Challenges and Limitations

The interactive game concept does come with a few potential limitations. While the game's simplicity and focus on interaction are its strengths, it could be challenging for college

students who are naturally introverted or feel uncomfortable in social situations. The structure of answering questions, telling truths, and completing dares under the cup could also feel intimidating for some, especially if the questions or dares are too personal or difficult to answer or perform. For the game to be successful, it will be important to strike a balance between fostering meaningful conversations and allowing students the option to opt out of sensitive topics, ensuring everyone feels comfortable and included while still engaging with others.

The interactive game idea has both positive and negative implications. On the positive side, it encourages face-to-face interaction and builds connections in a fun and relaxed environment. It provides an opportunity for college students to engage in light-hearted conversations and activities, making it an excellent icebreaker in social settings. Additionally, the game's simplicity makes it easy for anyone to join, even without gaming experience. Moreover, the game offers creativity and flexibility, allowing the prompts to be customized and updated, keeping it fresh and entertaining. It also supports social bonding by allowing participants to learn more about each other, fostering deeper connections and new friendships.

Game Concept Breakdown and Data Analysis

For the interactive game concept, we analyzed the classically popular analog games 'Never Have I Ever' and 'Beer Pong,' which use cups and drinks as fun and engaging icebreakers that help people bond in social settings. 'Never Have I Ever' is a 3+ player game where players sit in a circle and take turns making statements starting with 'Never have I ever...' followed by something they've never done. Anyone who has done the action mentioned must respond by either taking a drink or performing a specific action. The game continues with each player sharing their experiences, and the goal is to learn fun or surprising things about others. It's a light-hearted game that encourages sharing personal stories and getting to know each other better.

'Beer Pong,' on the other hand, is a 2-4 player cup game. Two teams of two players take turns throwing ping pong balls into cups arranged on a table, aiming to score. The cups are filled with either water, soda, juice, or beer, and when a ball lands in a cup, the opposing team is required to drink from it. The game continues until one team successfully lands a ball in all

of the other team's cups, eliminating them from the game. The goal is to eliminate all the opposing team's cups while trying to avoid having your own cups hit. It's a competitive, fun game often played at parties. In terms of positive consequences, both games help encourage socializing and participation, often breaking the ice among new people in a relaxed atmosphere. They also provide entertainment and laughter, contributing to an enjoyable environment in group settings.

Designing for the Future and Ensuring Inclusion and Engagement

One challenge is making sure that the questions, dares, and truths are inclusive and appropriate for all players, so no one feels uncomfortable or excluded. The questions, dares, and truths should be designed to fit the different experiences and backgrounds of the players, so everyone feels included and comfortable. For example, a light truth might ask, "What's your favorite way to relax after a stressful week?" A dare could be as simple as "Share a song you like with the group," and a prompt question might be, "Who in your life has inspired you and why?" These types of prompts encourage reflection and connection without becoming too personal or invasive. This means considering factors like personalities and comfort levels when creating the questions, truths and dares. Another challenge is that some students might hesitate to join in, especially if they're shy, nervous, or unsure about the game. We believe that this can be solved by designing the game to feel low-pressure and fun, making it easy for students to jump in without feeling too put on the spot. To help achieve this, we include light, non-personal warm up prompts at the beginning of the game. This feature helps ease students into participation at their own pace while keeping the tone playful and relaxed. It is important to create a welcoming, no judgement environment so students feel confident and comfortable participating at their own pace. Another consideration that we have is keeping the game engaging over time, which could be solved by adding new questions, dares, and truths or making a digital version of it for continued excitement. All of these considerations informed the design principles and iterations behind The Common Lounge helping us ensure the game is fun, inclusive, engaging, and socially effective.

Visions and Values

The future we wish to envision for The Common Lounge is one where college students have a fun, engaging, and effortless way to connect and socialize with each other. Rather than just attending classes and leaving campus, we want our interactive game to inspire real conversations and foster meaningful interactions. Designed to help students break the ice with each other, Common Lounge encourages new friendships, builds connections, and allows everyone to have fun while getting to know and learning about each other better. The game can be placed anywhere on campus, from dorm lounges to student centers, empty classrooms, and social events, making it a go-to activity that creates opportunities for students to meet people in a relaxed, enjoyable way. We aim for The Common Lounge to be a catalyst for spontaneous socializing and to become an essential part of the campus experience, helping students connect and bond beyond their digital screens.

The values associated with the Common Lounge are **communication**, **connection**, **fun**, and **engagement**. It gives college students a way to start conversations, whether they're new on campus, returning, transferring, looking to expand their friend group, or just want to take a break from social media and digital distractions.

The game's design makes the values a core part of the experience. The combination of physical engagement through playful movement, such as throwing the ball into cups, and conversation prompts keeps things interactive, exciting, and fun. This physical action not only adds energy to the gameplay but also lowers social barriers by giving players something to focus on besides talking. It ensures that the game isn't just about winning but about getting to know people and sharing experiences. Because the questions, dares, and truths can be updated or customized, the game can continue to be exciting and fresh.

To measure the value of The Common Lounge, we acknowledge that it can be challenging to directly quantify the personal benefits each student gains from the experience. However, we can evaluate its broader impact through a variety of methods, including tracking the frequency of students' engagement with the interactive game, gathering user feedback, and conducting observational research. For instance, we could set up the game in a hallway within a specific department such as Art & Education or Meiklejohn and observe changes over time. These might include more students greeting one another, starting small conversations, pausing to interact, or a general shift in the atmosphere. Similarly, the game could also be placed in an outdoor area on campus. In those areas, we could observe whether students

who are walking by choose to stop, watch, or join in. While we may not be able to directly attribute these behaviors to participation in the game, increases in casual interaction and students lingering around the game setup could suggest that it is helping to foster a more welcoming and socially connected campus environment. If students who might not normally interact start participating together or stay longer in the area to talk, it could suggest that the game is encouraging social interaction and helping to create a more welcoming campus atmosphere.

# Project Development

Conception of the Idea

The initial idea stemmed from observing the social dynamics on college campuses. Through informal conversations and interviews with students, many expressed difficulty in meeting new people, whether due to shyness, cultural differences, or a lack of opportunities to engage outside of academic settings. Traditional social events like parties and networking sessions often do not appeal to everyone, and some students struggle to break out of their immediate social circles. Some also shared that even casual hallway interactions or striking up conversations with strangers on campus felt intimidating or unnatural. For example, one student mentioned feeling hesitant to join large events, preferring smaller, low-pressure settings for making connections. Another student noted that parties often felt exclusionary, making it difficult to form genuine relationships. These insights highlight that social barriers exist not only at large events but also in everyday campus interactions. This reinforces the need for inclusive, low-pressure opportunities that support meaningful social connection and foster community among students.

> ⚠️ To address this issue, we wanted to create an experience that was both engaging and approachable. Beer pong is a well-known game that has been played in social settings for decades, making it an ideal starting point for an interactive social experience. However, rather than simply recreating the traditional game, we sought to enhance it by incorporating technology to create a more immersive and inclusive experience.

Intermediate Design Challenges & Technical Details

a. Choosing the Right Technology
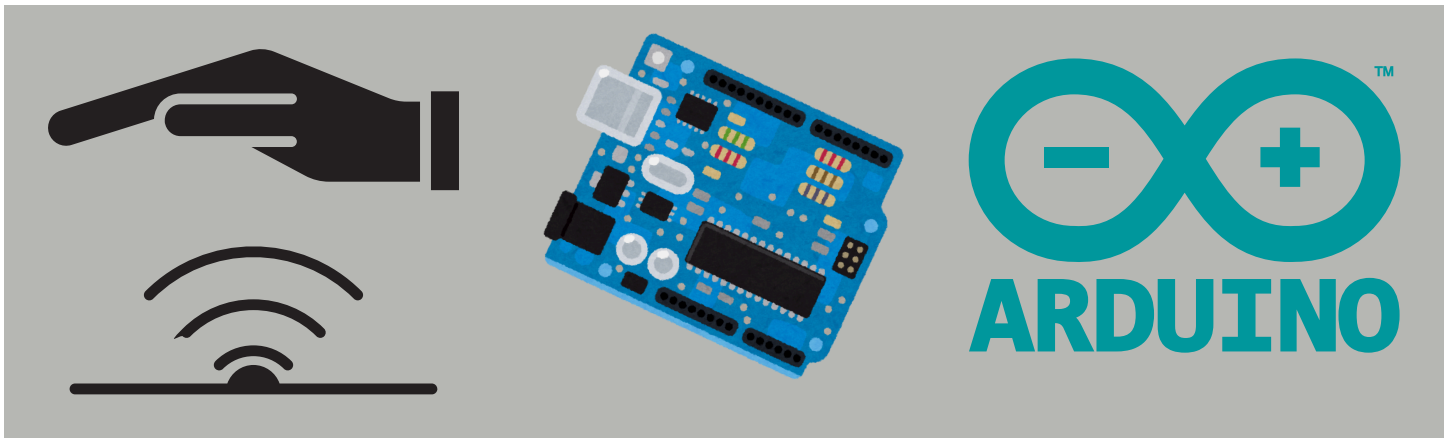
We decided to use Arduino and light sensors to detect when the plastic balls land inside the cups. Once the plastic ball lands inside the cup, it will activate an interface that introduces interactive elements and plays a sound to let the user know the ball is fully inside. This sound then triggers a voice activation on the Kinect, which begins the process of selecting and reading questions on a nearby screen. This became a creative way to build upon our voice activation feature and to introduce a further interactive element of sound.

b. Designing an Intuitive User Experience

As this was created using human-centered design, one big priority was ensuring that the user experience was intuitive and accessible to all students, regardless of their familiarity with beer pong or gaming technology. To achieve this, we developed a user-friendly interface on each component of the game, with clear instructions, visual cues, and adaptive difficulty levels.

The interface consists of four main components:

1. Game Setup & Interaction Screen: A monitor placed in the middle of the game board would allow users to select different categories. It also displays trivia questions and challenges after successful throws, encouraging conversation and interaction.
2. Throw Detection System: Now powered by Arduino and light sensors, this system detects when a plastic ball lands inside one of the cups. When no light is detected inside the cup (indicating that a ball is inside the cup), a sound is triggered, which activates the next slide in the program to begin the next step in the interaction.
3. Interactive Question & Challenge Screen: After a successful throw, players are presented with a trivia question or challenge on the monitor, prompting discussion and interaction.
4. Physical Game Board: This includes the 20 cups, plastic balls, and the game surface. The board is designed to look familiar and inviting, and also includes clear written and illustrated instructions to help players understand how to play.
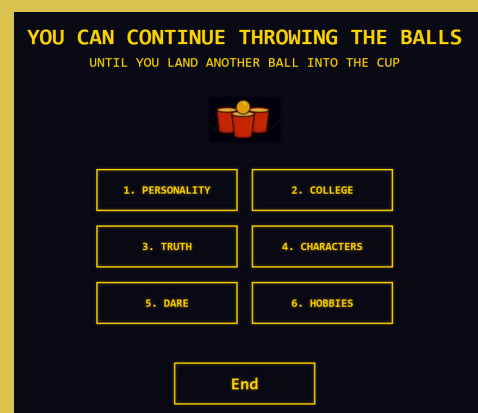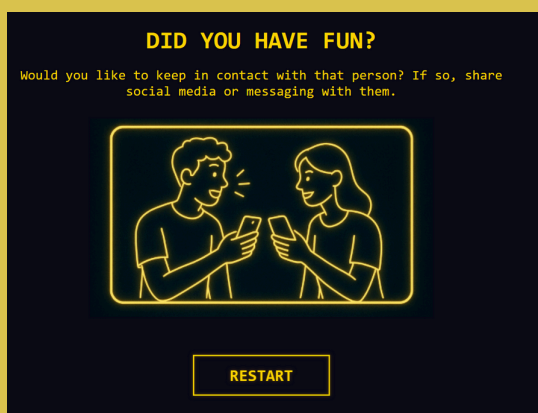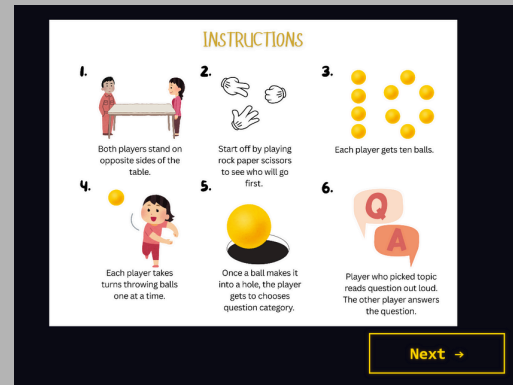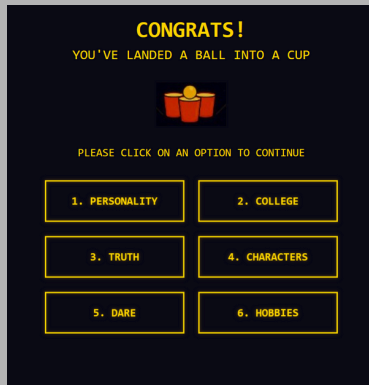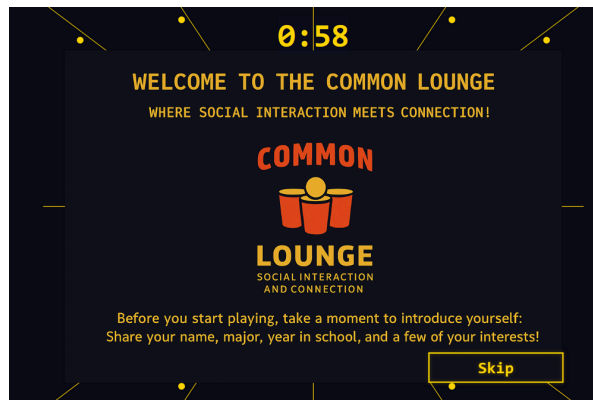
Prototyping and Iterative Process

Stage one: Physical Prototyping and Iterative Design

The development of the physical game board began with constructing a low-fidelity prototype using cardboard and wood to test core mechanics and spatial dynamics in real-world conditions. The initial design focused on creating a durable yet modular structure that balanced competitive gameplay with social interaction. Key components included a symmetrical board with evenly spaced cups, a central ball retrieval zone, and defined player boundaries to encourage face-to-face engagement. Early iterations revealed critical challenges: the original board size caused crowding during group play, and the flat cup arrangement led to frequent bounce-outs, disrupting gameplay flow. To address this, the team iterated on the board's dimensions—widening it by 20% to accommodate players comfortably—and angled the cups inward to guide balls smoothly into their targets, reducing frustration and maintaining momentum. A second major iteration focused on streamlining the ball retrieval system. The initial design required players to manually collect balls after each round, which slowed pacing and diverted attention from social interaction. The team prototyped a gravity-fed ramp system using lightweight cardboard, positioned beneath the cups, which funneled balls into a central tray for quick access. This adjustment not only accelerated gameplay but also encouraged spontaneous banter as players waited for balls to return.

Stage two: Technology Integration and Sensory-Driven Interaction
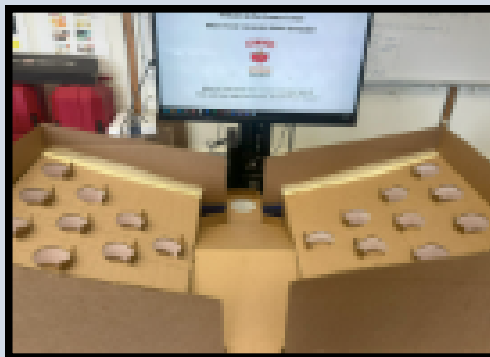
With the physical board design finalized, the team focused on merging motion-tracking technology with immersive sensory feedback to enhance gameplay. Central to this phase was the Xbox 360 Kinect sensor, programmed via Visual Studio to detect player movements and ball trajectories. Initial tests revealed challenges, such as inconsistent motion tracking under

variable lighting and difficulty distinguishing the plastic ball from cup interiors. To resolve this, the team recalibrated the Kinect's sensitivity and repositioned it overhead for optimal coverage, while integrating Arduino-powered light sensors inside each cup. These sensors served a dual purpose: detecting successful throws and triggering dynamic sound effects—celebratory chimes, crowd cheers, or playful melodies—to heighten the game's energy and provide immediate auditory feedback. Voice activation replaced manual interfaces, allowing players to verbally answer trivia questions or select prompts, streamlining interactions and reducing physical barriers. The trivia system was tied to the light sensors: when a ball landed in a cup, the sensor activated a voice prompt through a connected speaker, posing questions pulled from a customizable digital database. Iterations focused on refining voice recognition accuracy in noisy campus environments and balancing sound effects to avoid overwhelming players. For example, subtle audio cues guided players during throws, while louder, celebratory sounds marked successful shots, creating a rhythm that kept gameplay lively.

Stage three: User-Centric Refinement and Immersive Experience Optimization

The final stage centered on refining the game's atmosphere to ensure it felt engaging, intuitive, and socially inviting. Through extensive user testing on campus, the team identified key areas for enhancement. Players desired clearer auditory feedback, smoother voice interactions, and a more dynamic sense of progression. To address this, we decided to use custom sound effects that were layered into gameplay. Arduino light sensors will trigger the music sound while ambient background music will be played. The trivia system evolved to include student-submitted questions categorized by themes. For a more engaging element, each cup synced to a sound effect. From peer feedback, we got the suggestion to introduce collaborative challenges where multiple persons can engage the game together with more creative answers, shifting focus from competition to collaboration. The game achieved a polished, rhythmically cohesive feel that kept players immersed, laughing, and connecting—transforming The Common Lounge into a vibrant social catalyst aligned with its mission of fostering organic campus relationships.

User Testing and insights

1. Methodology

2. Key Findings

Through user testing, we gained valuable insights into student behavior and interaction patterns. Observations during user testing indicated that the game successfully encouraged social engagement and connection among college students in a way that felt more natural and inclusive than traditional social games like beer pong. Players were observed to be more willing to initiate conversation and collaborate after approaching the game, compared to their initial hesitation when first encountering the setup. For instance, one student who was hesitant at first agreed to join after another player invited them to play. They later said it helped them talk to people more easily because they didn't have to come up with something to say on their own. The game's low-pressure design—relying on Arduino-triggered responses, voice prompts, and interactive visuals—was described by several students as removing typical barriers to participation, particularly for those who felt uncomfortable in traditional party settings or competitive sports. The absence of physical props, drinking elements, or complex or unfamiliar controls that might make new users feel nervous or unsure helped make the experience feel more accessible and welcoming. These findings support research that highlights how emotionally safe, low-stakes environments, such as those encouraged in "icebreaker" tools[1] and card-based connection games[3 & 4], can improve engagement and reduce social anxiety.

`One of the most well-received features was the integration of trivia and light challenges, which not only added variety to the gameplay but also acted as conversational catalysts. Players said they enjoyed debating trivia answers or laughing over quirky questions, creating moments of shared humor and reflection that deepened the social aspect of the experience.

However, the testing also revealed areas for improvement. Some players noted inconsistencies in motion detection, especially when gestures were subtle or performed from different distances. Others pointed out that the game would benefit from more polished visuals, smoother animations, and clearer sound or light-based feedback to reinforce successful actions and guide player behavior. Overall, the experience demonstrated strong potential to create an engaging, inclusive, and conversation-driven activity, but it will need refinement in visual feedback and motion responsiveness to reach its full potential

3. Refinements Based on User Feedback

Following user testing, we implemented the following refinements:

- Adjusted the difficulty and variety of trivia questions to maintain engagement over multiple rounds. We added a mix of light, humorous prompts (e.g., "What's your go-to karaoke song?") alongside more reflective ones (e.g., "Who has influenced your life the most?") to better suit different comfort levels and conversation styles.
- Enhanced motion feedback by incorporating visual indicators that showed when a throw was detected and whether a cup was successfully hit. This helped reduce confusion for players who weren't sure if their throw had registered, especially in louder or more visually distracting environments. This improvement made the game feel more responsive and gave players immediate confirmation that their action had been recognized.
- Redesigned the game's visual elements, including the digital interface on the screen, the layout of the game board, and the look of the physical components like cups and balls, to create a more polished and inviting aesthetic.
- Improved game flow by introducing guided prompts to help new players understand the mechanics quickly.

4. Broader Implications and Future Development

Our project has demonstrated the potential of gamification and interactive technology to foster meaningful social interactions among college students. Beyond this initial implementation, there are opportunities to expand on the concept by:

- Introducing themed trivia questions based on different subjects or events.
- Allowing students to submit their own questions to personalize the experience.
- Offering customization options for each university, enabling the experience to be tailored to campus-specific culture, events, and student interests

In the future, we hope to refine the game further based on continued user feedback and explore ways to implement it in different college environments, student events, and social spaces.

Results and Discussions

Despite these validations, our user testing also revealed areas for improvement. For example, some testers mentioned that certain trivia questions felt too personal or didn't relate to their experiences, which made them uncomfortable or unsure how to respond. This feedback helped us realize that, while the prompts were intended to spark conversation, they sometimes created pressure or awkwardness depending on the group. Additionally, a few students appeared less engaged, possibly due to the game's simplicity. The game itself does not rely on high-tech equipment. Lastly, when putting the game out for students to play, depending on the location and time of day, we either saw a huge success with lots of interested students wanting to partake in our game or a smaller group of participants, likely due to lower foot traffic, as fewer students attend classes on Friday compared to other weekdays. On other weekdays, we saw a lot more traction. The specific location also played a significant role. When it was placed outside the Art Department, only a few students showed interest. However, when it was set up inside the Art Department, many more students appeared interested.

To evaluate the impact of The Common Lounge, we will measure player participation, tracking metrics such as total session count, average players per session, and bystander conversion rate to assess how well the game attracts engagement. Retention metrics, including repeat participation rate and average playtime per user, will indicate long-term interest. To measure social interaction, we will track the number of new connections made, the frequency and duration of in-game conversations, and the ratio of group vs. solo play to determine if the game effectively fosters peer engagement. Qualitative feedback will be gathered through post-game surveys, capturing user sentiment, trivia enjoyment, and overall experience ratings. Observational data, such as cheering, laughter, and speech volume, will serve as indirect indicators of enthusiasm and engagement levels. At scale, these insights can inform game placement on campus, optimize content customization, and justify potential expansions, including digital leaderboards, mobile integration, and campus-wide adoption as a long-term interactive social tool.

Personal Reflection

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> "I really enjoyed having the opportunity to think about the CSUEB student body as whole, and figure out ways in which students can learn to better communicate with their peers in a form of game play. It was intriguing being able to gain an understanding as to what college students want to do during their free time. Some lessons that I will be carrying with me in my next phase of my career journey is having the ability to have a deep level of understanding of why people choose to do certain things, rather than the thing that society expects them to do. "
>
> — Adriana
>
> 99

Conclusion

For the "Common Lounge", we will measure success by seeing how many students come to interact with our product and how they would interact with each other. The amount of students who come to our product will give us an indication as to whether or not we need to improve The Common Lounge and the advertisement of the product. If we see a lot of students playing and talking with new people, we will know we are doing well. If we do not get much interest, that will show us we need to work on improving the interactive game and advertising better. Students will be more inclined to come to a product that catches their attention. Based on past observations of interactive products and environments on campus, we anticipate that a lot of students will likely be drawn to try the product out if they already see people interacting with the product already. This social aspect often encourages students to join in and watch or experience the product for themselves. We will also make changes to The Common Lounge if we notice students having trouble playing the game. In addition to observing whether the The Common Lounge" itself works, we also need to ensure that our users, who are college students, enjoy playing the overall experience of the game. If they do not seem interested or leave quickly, that will tell us we need to improve the user experience to make it more fun and exciting. In order for us to have a successful product our users need to be having fun while playing the game.

For the future of this project we hope to continue improving The Common Lounge by adding more interactive elements that would make the game fun and engaging. We will keep working to make sure the The Common Lounge stays comfortable, fun, and welcoming for students. The questions, dares, and truths will be appropriate and not too personal, and players if needed will be given the option to skip anything they don't feel comfortable answering. By observing how students behave, and collecting direct feedback, we can keep improving The Common Lounge in a thoughtful and responsible way. Looking further ahead, The Common Lounge can be placed in dorm lounges, student centers, and used at campus

events or even shared with other colleges. We also hope to create themed question packs to keep the game fresh and interesting.

⭐ Our overall goal was to make the Common Lounge a fun and easy way for students to break the ice, start conversations, make connections, and build friendships during their college experience. We completed this project with a fully-working prototype, including improvements based on feedback. We hope that this game encourages further exploration on the topic of social connection on college campuses.

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