

1. Simulation Scheme Explanation (Task 4c)

How Reality is Simulated

Our AR prototype simulates the Christmas market environment using **static background images** that represent the user's field of view through the goggles. The main viewport displays contextual images such as a default market scene, specific stall views (e.g., "Vegamax"), and facility views. Scene transitions are triggered upon navigation completion; when the distance counter reaches zero, the background automatically switches to the destination image to mimic physical arrival at a new location.

How User Interactions are Simulated

We simulate two non-touch input modalities using a **Wizard of Oz** approach:

- **Gaze Input:** Real-world eye tracking is simulated via mouse hover + dwell timer. A green circular reticle follows the cursor to provide a clear visual cue. All gaze-targetable elements feature a consistent green hover border.
- **Gesture Input (Head Nod/Shake):** Real-world head gestures are simulated using keyboard shortcuts. Pressing 'N' simulates a "Confirm" nod (green checkmark), while 'S' simulates a "Cancel" shake (red X).
- **Clarity & Consistency:** Each key maps to a specific real-world action, ensuring that you can follow the interaction without ambiguity.

2. Prototype Walkthrough (Task 4b)

Scenario 1: Discovery & Navigation

Task Goal: To find the desired stall and reach it effectively.

Step 1: Main Menu. User opens the hamburger menu using gaze/hover to access "Find Food & Drinks."



Step 2: Filter Selection. Dietary filters (Vegan, Halal) appear. User gazes at "Vegan" to activate selection.

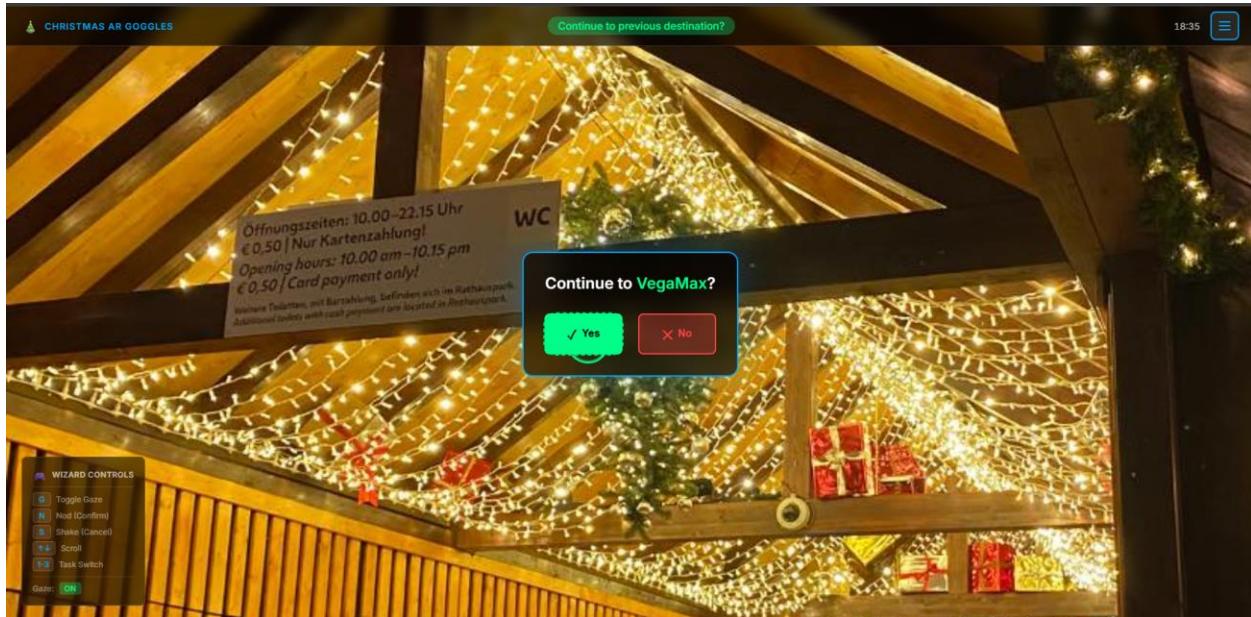
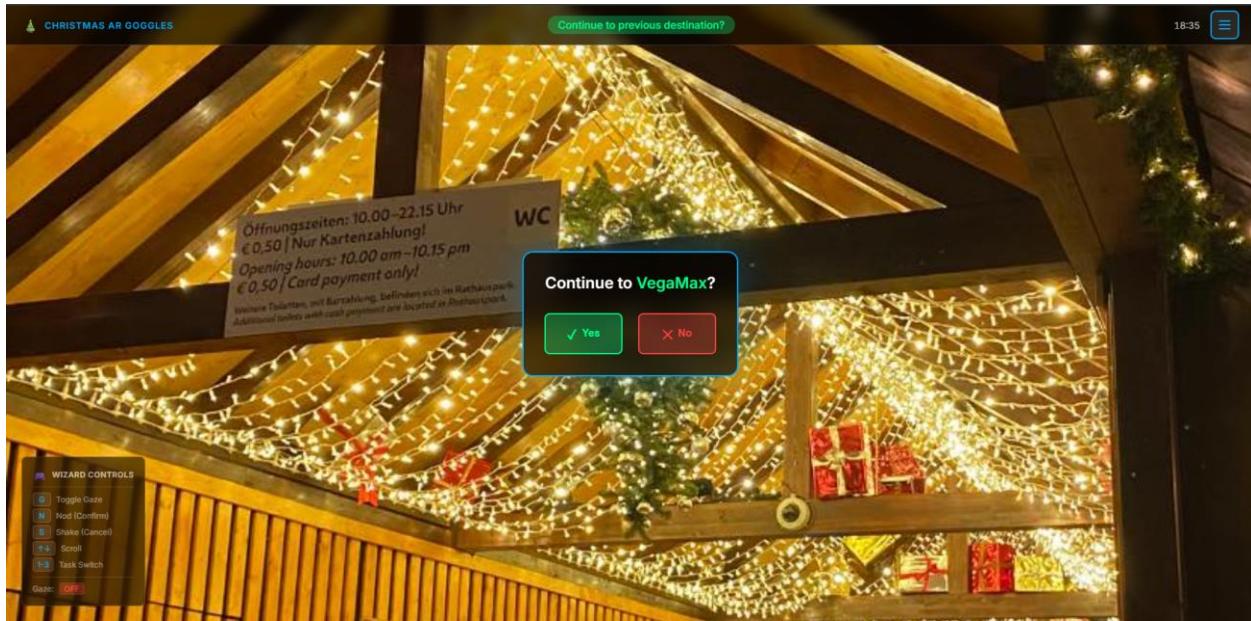


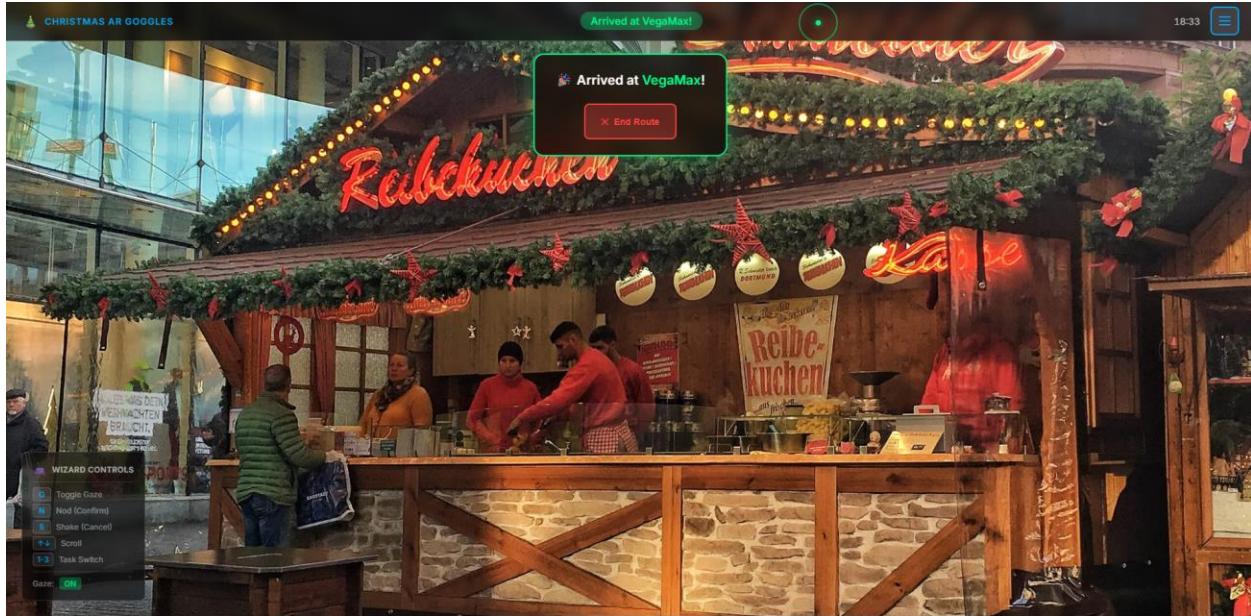
Step 3: AR Navigation. A large red arrow appears over the market background, showing distance to "Vegamax".



Step 4: Diversion Handling. User diverts to a restroom. Upon exit, a "Continue to Vegamax?" prompt appears.







Scenario 2: Group Regrouping

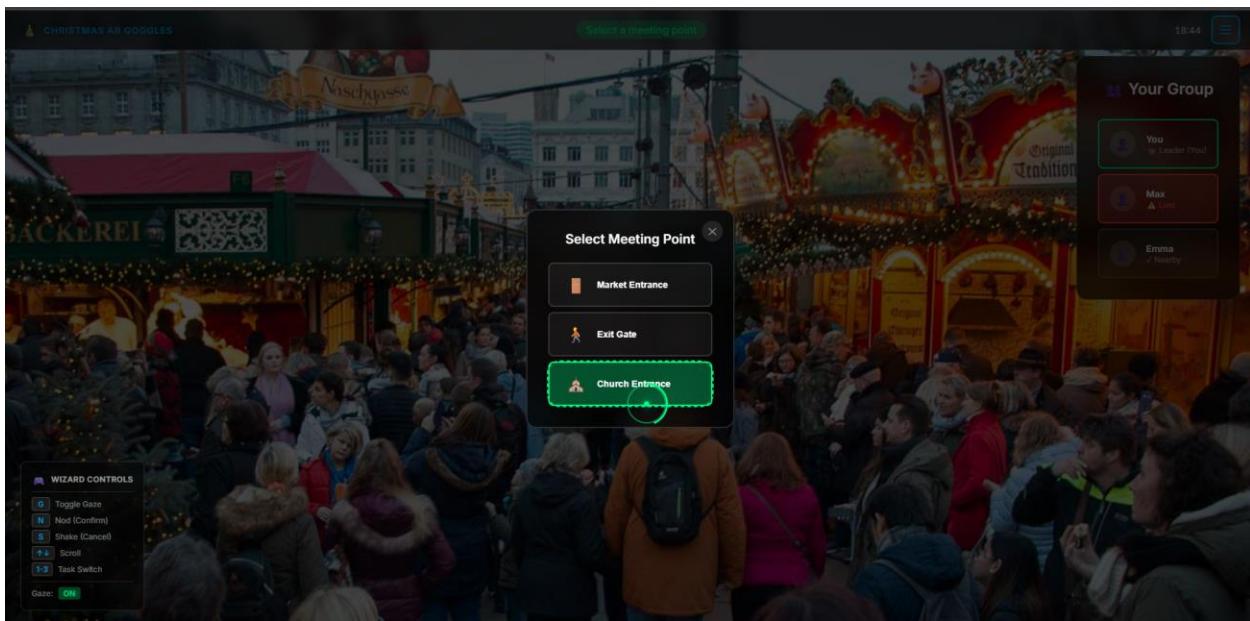
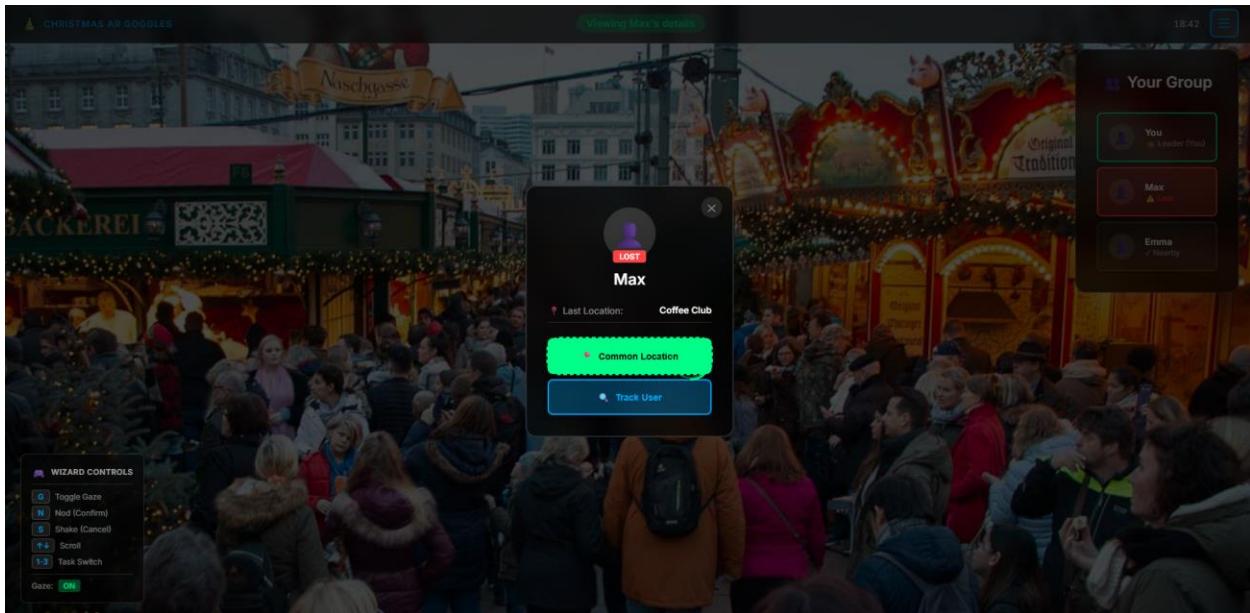
Task Goal: Avoid getting lost and regroup easily via a central meeting point.

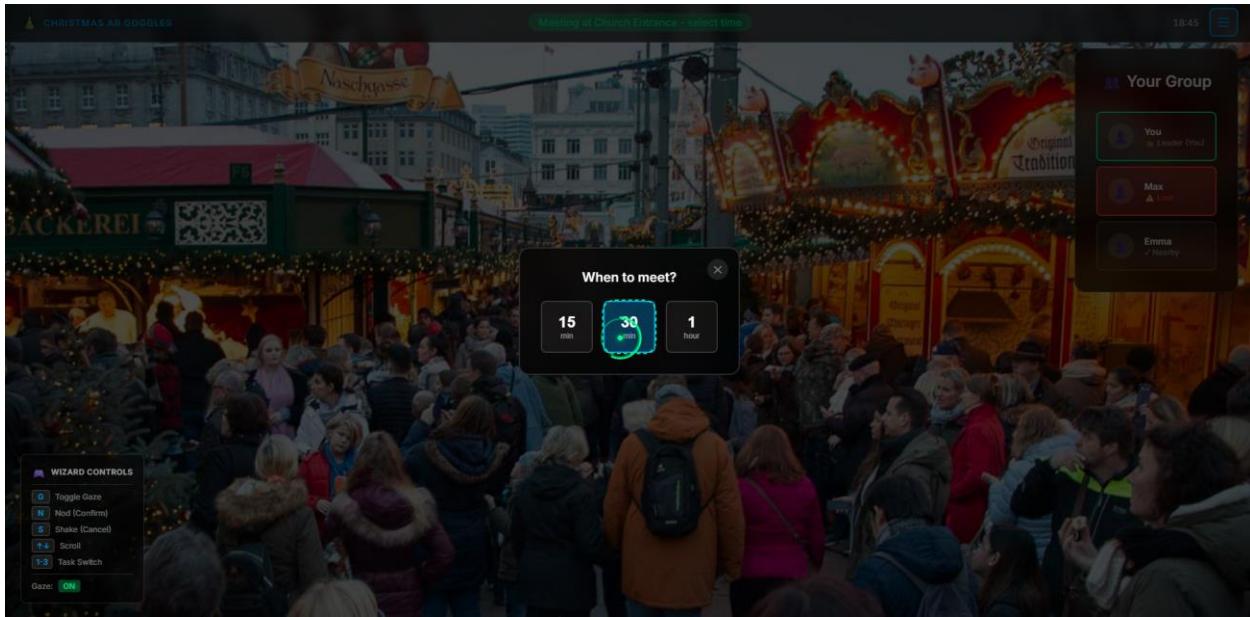
Step 1: Lost Member Alert. A notification triggers: "Max may be lost!" Max's status in the group panel changes to "Lost."





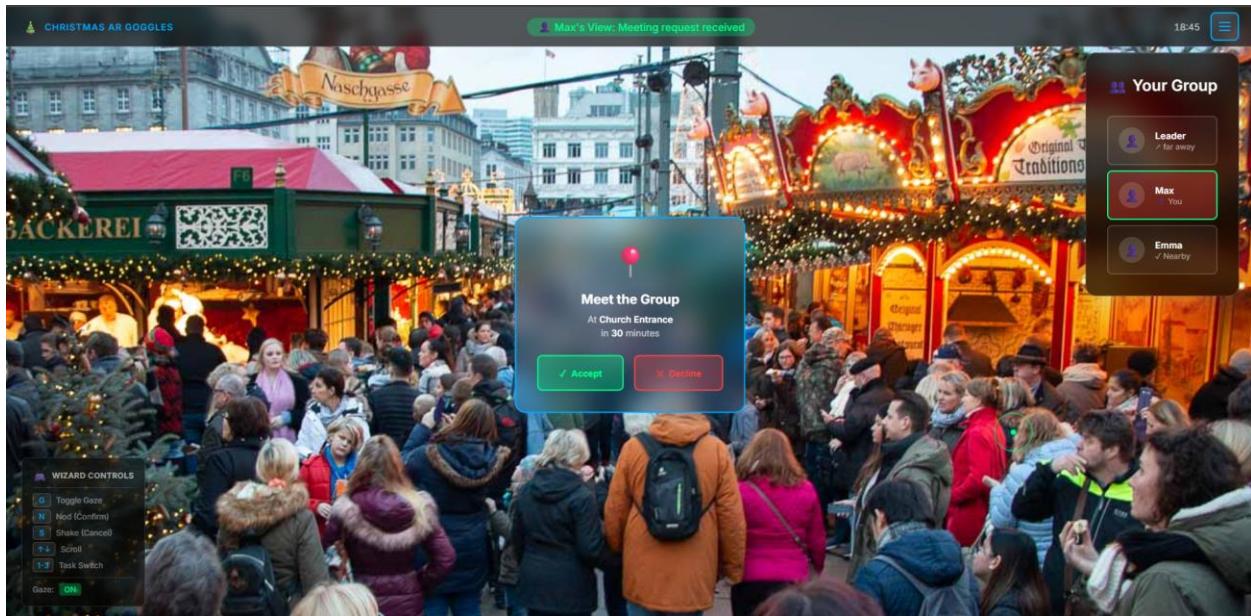
Step 2: Selecting Meeting Point. Leader chooses "Church Entrance" and a meeting time of "30 Minutes."

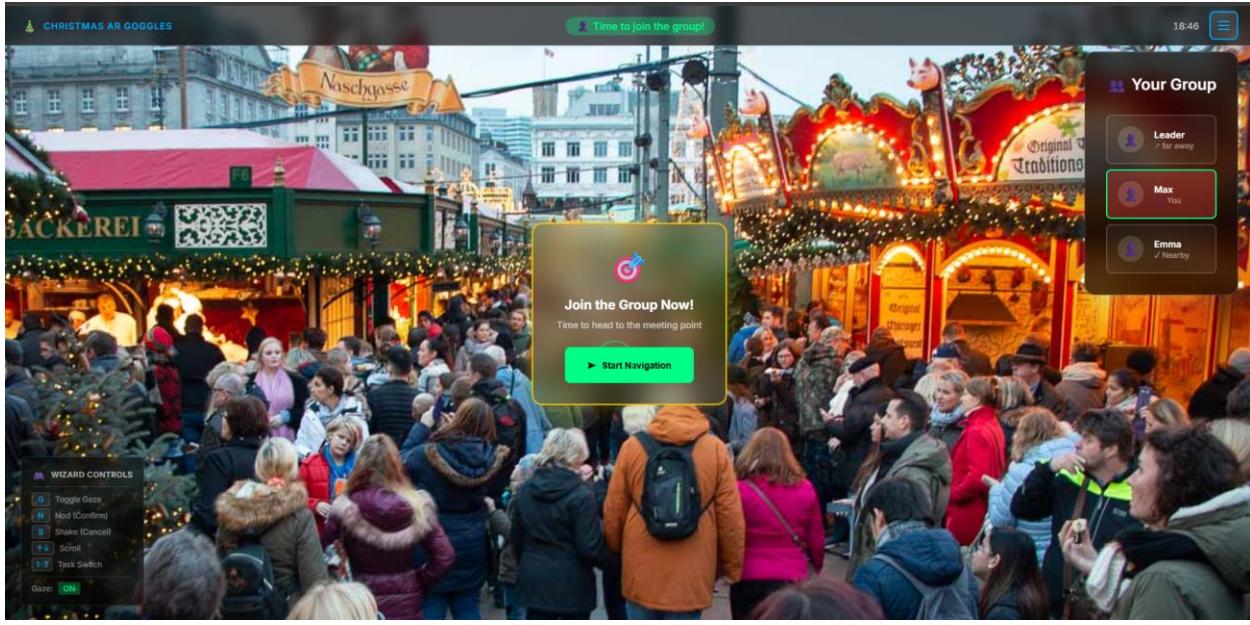




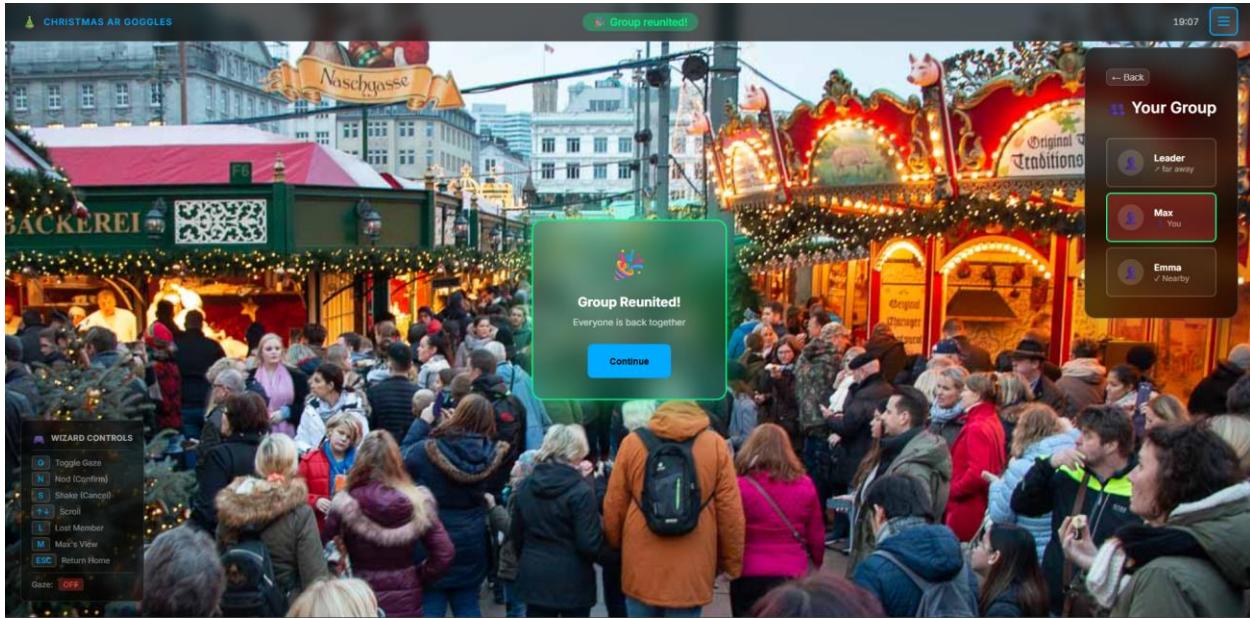


Step 3: Lost Member Perspective. View switches to the lost member receiving a "Join the Group" request.





Step 4: Reunited. Once both follow the AR paths to the entrance, a "Group Reunited!" celebration appears.



Scenario 3: Multi-Stall Selection

Task Goal: Map a plan to visit multiple selected stalls efficiently.

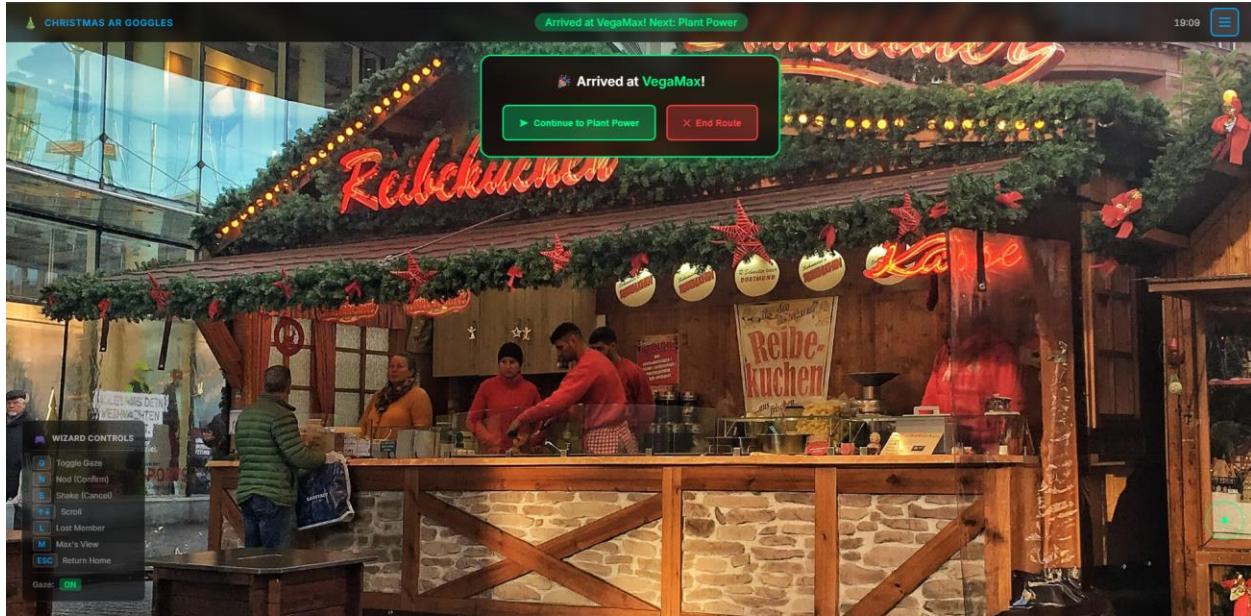
Step 1: Stall Comparison. Stalls appear with star ratings, wait times, and payment methods.

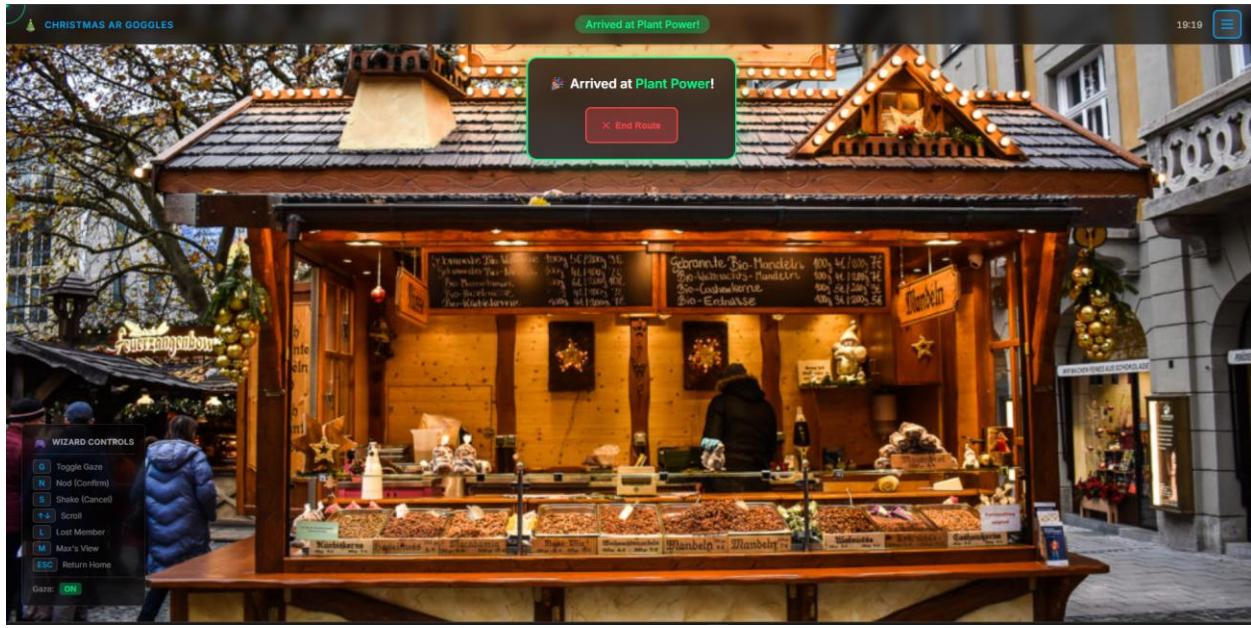


Step 2: Multi-Select. User selects multiple stalls. The UI shows the selection order (1, 2, 3).



Step 3: Progress Tracking. After arriving at Stall 1, the "Continue to Next" button updates the AR path.





3. Design & Controls Reference

Visual Consistency (Task 4c)

- **Gaze Targets:** Green borders/Reticle.
- **Navigation:** Red arrows.
- **Alerts:** Orange/Yellow warnings.
- **UI Style:** Glass morphism (semi-transparent) to ensure market visibility.

Wizard of Oz Key Mappings (Task 4c)

- **G:** Toggle gaze mode
- **N:** Confirm (Nod gesture)
- **S:** Cancel (Shake gesture)
- **L:** Trigger "Member Lost" scenario
- **M:** Switch to Lost Member's UI view