

## Design Suggestions for Improving Accessibility and Utility of Telepresence Systems for Older Adults

Based on our work using telepresence systems to support remote troubleshooting for older adults, we developed a set of design recommendations for expanding telepresence beyond its current paradigm and increasing accessibility of telepresence systems.

| Design Recommendation   | Examples   | Useful Scenarios   |
|---|--|--|
| Allow For multiple viewpoints   | <ul style="list-style-type: none"> <li>• Desktop Camera</li> <li>• Controllable 360 degree camera</li> <li>• Face cam</li> <li>• Easy access to second and third camera views</li> <li>• Switchable between multiple views (picture in picture, side by side)</li> <li>• Full Body View</li> </ul> | <ul style="list-style-type: none"> <li>• inspecting a room</li> <li>• Live virtual apartment tours</li> <li>• Desktop work</li> <li>• Tech Support</li> </ul>  |
| Allow for Deictic Indicators for video screens, and not just share-screen annotations             | <ul style="list-style-type: none"> <li>• Virtual Drawings on physical technology</li> <li>• Indicating where scrapbook pieces should go with arrows or circling</li> <li>• Projected light pointer</li> <li>• Projected screen overlay with annotations</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Physical Therapy</li> <li>• Social Play</li> <li>• Tech Support</li> <li>• Remote Judging in a contest</li> <li>• Constructive Criticism of sculptures/drawings/diagrams</li> </ul> |
| Have a “tutorial” or “Wizard” setup for users   | <ul style="list-style-type: none"> <li>• Microphone, Speaker, and Camera adjustment tutorial</li> <li>• Permissions for screen-sharing</li> <li>• Setting up 2 cameras</li> </ul>  | <ul style="list-style-type: none"> <li>• Troubleshooting for the camera, microphone, or speaker not working</li> <li>• First time setup</li> </ul>   |
| Subtle View Manipulations can add to sense of presence during a call                              | <ul style="list-style-type: none"> <li>• Facial Tracking for shifting a zoomed camera FOV (see Magic Window Section)</li> <li>• Gesture tracking and recognition</li> <li>• Pointing as a way of generating an annotation</li> </ul>   | <ul style="list-style-type: none"> <li>• Social Play</li> <li>• Collaborative Exercise</li> <li>• Seeing a new area</li> </ul>   |
| 3D representations in a virtual/camera-based environment can add a sense of collaborative control | <ul style="list-style-type: none"> <li>• 3d pieces on a physical board</li> <li>• Augmented Reality representations of objects</li> </ul>  | <ul style="list-style-type: none"> <li>• Collaborative Decoration</li> <li>• Scrapbooking</li> </ul>   |
| Scalable User Interface Allows for Increased accessibility  | <ul style="list-style-type: none"> <li>• Resize buttons</li> <li>• Hide/show UI (button for this always visible, distinct).</li> </ul>   | <ul style="list-style-type: none"> <li>• Accessibility</li> </ul>  |
| Allow for easy access to the client   | <ul style="list-style-type: none"> <li>• Instant access link</li> <li>• No login.</li> </ul>   | <ul style="list-style-type: none"> <li>• Accessibility</li> <li>• Aging</li> </ul>   |
| Allow for different Interface configurations in preset forms                                      | <ul style="list-style-type: none"> <li>• Minimalist interfaces</li> <li>• Technical presets for Technicians using screen sharing</li> <li>• Multi-camera presets for various scenarios</li> </ul>  | <ul style="list-style-type: none"> <li>• Accessibility</li> </ul>  |

For more information, visit our TechSage project page: [Tools for Connected Home Technologies](#)