



## CMPE 492

### TEDU GuidAR

### Senior Design Project Backlog

Task Name	User Story	Sprint Ready	Priority	Status	Effort	Assigned to Sprint
<b>SPRINT 8</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Complete</b>	<b>92</b>	<b>Yes</b>
<b>Final Presentation Preparation</b>	Prepare a presentation explaining the project architecture, implementation, and results.	Yes	High	Complete	12	Yes
<b>Live Demonstration Rehearsals</b>	Rehearse the live demo multiple times.	Yes	High	Complete	10	Yes
<b>Final Report Writing &amp; Formatting</b>	Format final report so that all project outcomes and methodologies are documented for submission.	Yes	High	Complete	16	Yes
<b>Submission Package Assembly</b>	Compile all deliverables into a single submission package.	Yes	High	Complete	8	Yes
<b>Source Code Cleanup &amp; Repository Organization</b>	Clean up the repository to be clean and well-documented.	Yes	Medium	Complete	8	Yes
<b>Final Performance Validation</b>	Confirm FPS, latency, tracking stability, and navigation accuracy on the final build.	Yes	High	Complete	10	Yes

<b>Risk Assessment &amp; Contingency Planning for Demo Day</b>	Prepare backup plans for hardware or software failures.	Yes	Medium	Complete	6	Yes
<b>Stakeholder Feedback Review &amp; Last-Minute Adjustments</b>	Address final evaluator or advisor feedback.	Yes	Medium	Complete	8	Yes
<b>Final Product Submission &amp; Delivery</b>	Submit the completed application, report, presentation, and supporting materials.	Yes	High	Complete	14	Yes
<b>SPRINT 7</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Complete</b>	<b>88</b>	<b>Yes</b>
<b>Final System Optimization</b>	Optimize rendering, localization, and routing performance.	Yes	High	Complete	12	Yes
<b>End-to-End User Acceptance Testing</b>	Validate the complete navigation workflow.	Yes	High	Complete	14	Yes
<b>Final UI/UX Polish</b>	Polish the UI for a refined and intuitive AR interface.	Yes	High	Complete	10	Yes
<b>Audio Guidance &amp; Accessibility Refinement</b>	Improve audio cues and accessibility support.	Yes	Medium	Complete	8	Yes
<b>Demo Scenario Finalization</b>	Finalize stable and repeatable demo scenarios.	Yes	High	Complete	8	Yes
<b>Final Bug Fixing &amp; Regression Testing</b>	Verify that resolved issues do not introduce new problems.	Yes	High	Complete	12	Yes
<b>Deployment Build Preparation</b>	Prepare a deployment-ready build for the Meta Quest 3.	Yes	High	Complete	8	Yes
<b>Technical Documentation Finalization</b>	Finalize technical documentation.	Yes	High	Complete	10	Yes
<b>Demo Video Recording &amp; Editing</b>	Record a professional demonstration video.	Yes	Medium	Complete	6	Yes
<b>SPRINT 6</b>	<b>Yes</b>	<b>No</b>	<b>Complete</b>	<b>Complete</b>	<b>86</b>	<b>Yes</b>

<b>Test Plan Design &amp; Documentation</b>	Prepare a normal test plan.	Yes	High	Complete	10	Yes
<b>Unit Testing for Core Modules</b>	Test individual modules (SLAM, path planning, AR rendering).	Yes	High	Complete	12	Yes
<b>Integration Testing (Module Interactions)</b>	Verify interactions between modules.	Yes	High	Complete	14	Yes
<b>Stress Testing in Complex Indoor Environments</b>	Evaluate performance in crowded or complex spaces.	Yes	High	Complete	12	Yes
<b>Tracking Loss &amp; Recovery Testing</b>	Ensure the system recovers quickly from tracking loss.	Yes	High	Complete	10	Yes
<b>Multi-Floor Navigation Testing</b>	Test accurate guidance across floors.	No	Medium	Complete	8	Yes
<b>Performance Testing (FPS, Latency, Resource Usage)</b>	Measure system performance under different conditions.	Yes	High	Complete	12	Yes
<b>Bug Tracking &amp; Issue Prioritization</b>	Log and prioritize bugs.	Yes	High	Complete	8	Yes
<b>SPRINT 5</b>	<b>Yes</b>	<b>No</b>	<b>Complete</b>	<b>Complete</b>	<b>80</b>	<b>Yes</b>
<b>Initial Real-World Environment Testing</b>	Test the system in a real building.	Yes	High	Complete	16	Yes

<b>Navigation Accuracy Benchmarking</b>	Measure localization and routing accuracy.	No	Medium	Complete	8	Yes
<b>Basic UX Refinement</b>	Make clearer navigation cues.	Yes	High	Complete	10	Yes
<b>Performance Profiling &amp; Bottleneck Identification</b>	Identify FPS drops and resource bottlenecks.	Yes	Medium	Complete	8	Yes
<b>Tracking Stability Improvements</b>	Ensure more stable tracking.	Yes	Medium	Complete	8	Yes
<b>Test Scenario Development</b>	Define indoor test scenarios.	No	High	Complete	12	Yes
<b>Data Logging &amp; Debug Tools</b>	Log SLAM and navigation.	Yes	High	Complete	10	Yes
<b>Refinement Backlog Creation</b>	Document issues and improvements.	Yes	High	Complete	8	Yes
<b>SPRINT 4</b>	<b>Yes</b>	<b>Yes</b>	<b>Complete</b>	<b>Complete</b>	<b>80</b>	<b>Yes</b>
<b>Advanced Multi-Floor Routing Logic</b>	Improve routing decisions across complex floor transitions.	Yes	High	Complete	12	Yes
<b>Landmark-Based Navigation Support</b>	Use visual landmarks to enhance navigation clarity.	Yes	Medium	Complete	8	Yes
<b>Re-localization After Tracking Loss</b>	Recover user position after SLAM failure.	Yes	High	Complete	12	Yes
<b>Dynamic Obstacle Awareness</b>	Adjust navigation cues based on moving obstacles.	No	Medium	Complete	10	Yes
<b>User Feedback Collection Module</b>	Allow users to report navigation issues.	Yes	Medium	Complete	6	Yes
<b>Map Scaling for Large Buildings</b>	Support larger and more complex indoor spaces.	Yes	High	Complete	14	Yes

<b>Indoor POI (Point of Interest) Management</b>	Add, update, and categorize indoor locations.	Yes	High	Complete	8	Yes
<b>Continuous Localization Accuracy Monitoring</b>	Track navigation accuracy over time.	Yes	High	Complete	10	Yes
<b>SPRINT 3</b>	<b>Yes</b>	<b>Yes</b>	<b>High</b>	<b>Complete</b>	<b>114</b>	<b>Yes</b>
<b>Cross-Platform AR Framework Integration</b>	Enable consistent AR behavior across Meta Quest 3 and mobile devices.	Yes	High	Complete	16	Yes
<b>Persistent Spatial Anchors</b>	Allow users to revisit the same indoor map accurately.	Yes	High	Complete	14	Yes
<b>Improved Occlusion Handling</b>	Ensure navigation cues respect real-world obstacles.	Yes	Medium	Complete	10	Yes
<b>Map Persistence &amp; Storage</b>	Save and reload indoor maps.	Yes	High	Complete	12	Yes
<b>User Calibration Flow</b>	Guide users through initial calibration process.	Yes	Medium	Complete	8	Yes
<b>Gesture-Based Interaction</b>	Enable gesture controls for navigation actions.	Yes	Medium	Complete	12	Yes
<b>Voice Command Support</b>	Allow hands-free destination selection.	No	Medium	Complete	10	Yes
<b>Environmental Lighting Adaptation</b>	Adjust AR visuals to lighting conditions.	Yes	Medium	Complete	8	Yes
<b>Navigation Accuracy Evaluation</b>	Measure localization and path accuracy.	Yes	Medium	Complete	10	Yes
<b>Battery &amp; Resource Optimization</b>	Reduce power and CPU/GPU usage.	Yes	High	Complete	8	Yes

<b>Mid-Project DEMO Preparation</b>	Prepare demo for stakeholders.	Yes	High	Complete	6	Yes
<b>SPRINT 2</b>	<b>Yes</b>	<b>Yes</b>	<b>High</b>	<b>Complete</b>	<b>141</b>	<b>Yes</b>
<b>SLAM Algorithm Integration</b>	Enable real-time localization and mapping.	Yes	High	Complete	20	Yes
<b>Camera &amp; IMU Sensor Fusion</b>	Combine camera and IMU for stability.	Yes	High	Complete	14	Yes
<b>AR Path Visualization</b>	Overlay arrows and navigation cues.	Yes	High	Complete	16	Yes
<b>Indoor Map Data Structure</b>	Define building data representation.	Yes	Medium	Complete	10	Yes
<b>Destination Search Module</b>	Search locations.	Yes	High	Complete	12	Yes
<b>Path Planning Algorithm</b>	Compute optimal route.	Yes	High	Complete	15	Yes
<b>Dynamic Route Update</b>	Recalculate route.	Yes	High	Complete	12	Yes
<b>Multi-Floor Navigation</b>	Support stairs and elevators.	Yes	Medium	Complete	10	Yes
<b>AR UI Design</b>	Simple interface.	Yes	Medium	Complete	8	Yes
<b>Performance Optimization</b>	Maintain 60 FPS.	Yes	High	Complete	10	Yes
<b>System Integration Testing</b>	Test full system.	Yes	High	Complete	8	Yes
<b>Error Handling</b>	Prevent crashes.	Yes	Medium	Complete	6	Yes
<b>SPRINT 1</b>	<b>Yes</b>	<b>Yes</b>	<b>High</b>	<b>Complete</b>	<b>24</b>	<b>Yes</b>
<b>Requirement Analysis and Use Case Definition</b>	Gather functional and nonfunctional requirements and define scope.	Yes	High	Complete	4	Yes
<b>Establish Contact with Potential Partner</b>	Reach out for feedback/sponsorship.	Yes	High	Complete	12	Yes

<b>Technology Stack Selection</b>	Choose AR/SLAM tools and setup environment.	No	Medium	Complete	8	Yes
<b>Preliminary SLAM Feasibility Test</b>	Initial experiments using sensors.	No	Medium	Complete	0	Yes