Path Guiding for People with Visual Impairments for Short-Range Rendezvous with a Static Target

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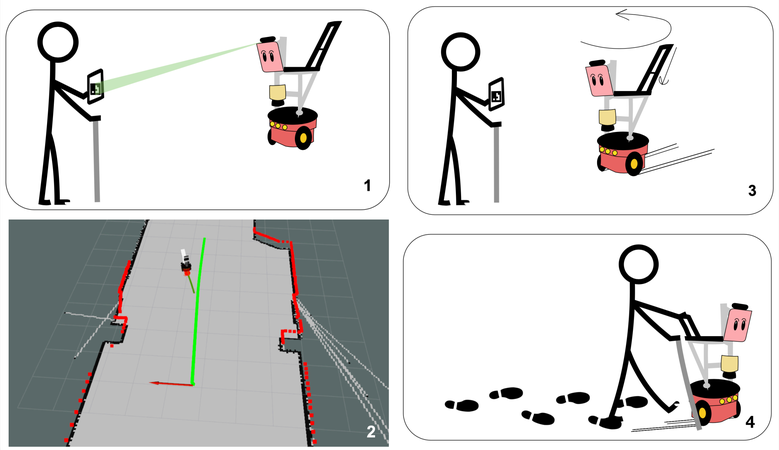
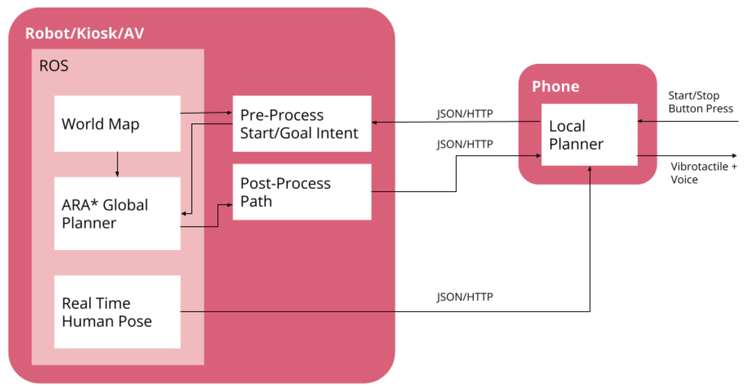
Motivation

Navigating to a static object (e.g., a waiting robot, a kiosk, an autonomous car at the curbside, etc.) in complex indoor spaces like train stations, shopping malls, and university buildings can be challenging for people with visual impairments since current path planning approaches rely on users to spontaneously adjust their trajectories based on their visual knowledge during rendezvous tasks.

Mobile Sensing

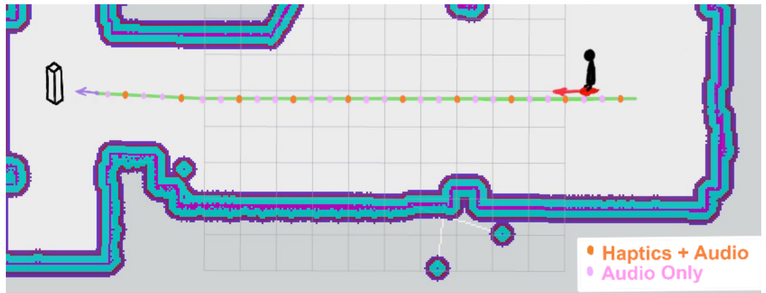


Static Sensing



Approach

We propose an approach that can incorporate information about the user’s position and orientation from sensors attached to the environment, nearby robots, or cars and dynamically plan and give users instructions of how to reach their goal.



Next Steps

- Conduct usability tests with end users
- Adjustable guiding frequency based on path curvature
- Identify effective communication channels (e.g., audio, vibrotactile, etc.)

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