Theia AS-IS -> TO-BE

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AS-IS Scenario #1

- Stevie is trying to go to his next classroom. He knows he needs to walk ahead a few steps, and then turn left around the corner.

- However, he is not sure when to turn.

- He took a guess, but turned too early, hit the wall and hurt his head.

TO-BE Scenario #1

- The THEIA app tracks Stevie's current location, and asks him for the desired destination.

- The app calculates the route from the current location to the destination.

- THEIA tells Stevie to "walk ahead 10 steps, then turn left" and uses haptic feedback to indicate when to turn.

AS-IS Scenario #2

- Stevie is walking through a university building, a path they take daily.

- Unknown to Stevie, there is an obstacle in the middle of the hallway.

- Stevie's cane misses the obstacle, causing him to run into the object.

TO-BE Scenario #2

- Stevie navigates the same building using the THEIA app.

- The application uses AR features to scan the path ahead.

- It then detects the unexpected obstacle, giving the user an auditory alert alongside a phone vibration, directing Stevie where to go to avoid collision.

- Stevie then safely bypasses the object

AS-IS Scenario #3

- Stevie is walking alone in a large building when he suddenly becomes disoriented and anxious.

- He tries to reach for his phone to call for help but can't find the right contact in time.

- Because of his visual impairment, navigating the phone screen manually is confusing and stressful, especially in an emergency situation.

TO-BE Scenario #3

- When Stevie feels unsafe or lost, he simply taps the lower section of his phone twice.

- The Theia app automatically calls his emergency contact and shares his current indoor location.

- While waiting for help, the app continues to provide audible reassurance and vibrations to confirm the call went through successfully.

Top Priority TO-BE Scenario: Scenario #3

- When Stevie feels unsafe or lost, he simply taps the lower section of his phone twice.
- The Theia app automatically calls his emergency contact and shares his current indoor location.
- While waiting for help, the app continues to provide audible reassurance and vibrations to confirm the call went through successfully.

Analysis

- Who—who initiates the emergency call?

  The user (visually impaired individual). System must also allow caretakers to predefine emergency contacts.

- What—what information is shared during the emergency?

  The user's current indoor location, timestamp, and a pre-set help message.

- When—when should the system trigger the call and stop?

  Immediately after double-tap confirmation; ends only when user cancels or contact answers.

Further Analysis

- How—how does the user know the call succeeded?

  Through haptic feedback (vibration) and an audible confirmation message.

- What-if—what if there is no network signal or app crash?

  The app should automatically retry via SMS or local alert and log the failed attempt for review.

Outcome

Now we know that the system must:

- Automatically detect and handle emergencies even under poor network conditions.

- Provide immediate reassurance and clear feedback to the user.

- Ensure reliability and accessibility, addressing Theia's core goals of safety and independence for impaired users.

Comparisons for Cane, Dog, Stevie and Theia (user + tools)

	Cane	Dog	Stevie	Theia	Stevie + Cane	Stevie + Dog	Stevie + Cane + Theia	Stevie + Dog + Theia
See	No --	Yes ++	No --	Yes +	No ---	Yes +	Yes +	Yes ++
Feel	Yes ++	Yes ++	Yes ++	Vibrates +	Yes +++	Yes +++	Yes +++	Yes +++
Hear	No --	Yes ++	Yes ++	Yes ++	Yes ++	Yes ++	Yes +++	Yes +++
Talk	No --	To some extent (Bark) +	Yes ++	Yes +++	Yes ++	Yes ++	Yes +++	Yes +++
Think	No --	Basic level +	Yes ++	Yes ++	Yes ++	Yes ++	Yes +++	Yes +++
Smell	No --	Yes ++	Yes ++	No --	Yes ++	Yes ++	Yes ++	Yes ++

Navigation Tools: Advantages and Disadvantages

	Cane	Dog	Theia
Advantages	High Reliability, Tactile Feedback, Low cost	Great Awareness, Intelligent, Companionship	Precise Navigation, Enhanced Safety, Easily Accessible
Disadvantages	Limited Range, Partial Detection, No Directional Guidance	Costly, High Responsibility, Limited Access	Tech Dependent, No Companionship, Limited Tactile feedback

Why Theia is the Best Solution

- Theia offers precise precision that your traditional cane and service animal cannot. It does not just get you to a building, it also guides you directly to your desired room or floor

- Theia provides proactive safety. Our app sees hazards from across rooms and halls. It also has built-in emergency features, which can help you make calls when you are disoriented or stressed.

- It gives you back your independence. The app is free and works already if you have a phone!