Theia: Indoor Navigation Assistant - User Manual

1. Getting Started

To begin using Theia, simply open the app on your smartphone. Theia is designed to work seamlessly with your phone's built-in accessibility features (Voiceover on iOS or Talkback on Android). For the best experience, ensure these features are enabled.

The app will greet you and be ready to accept your first command.

2. How to Interact with Theia

You can control Theia using two main methods: **Voice Commands** (the primary and fastest way) and **Touch Gestures** (a reliable alternative for noisy environments or when you need quiet)

2.1. Voice Commands (Primary Method)

Activate voice commands by double tapping the top half of the screen or by using the app's wake word "Hey Theia" (This can be customized in the setting provided for caregiver). Speak clearly into your phone's microphone.

Main Routines	Common Voice Commands:
Setting a Destination (Home Screen)	"Directions to the main lecture hall." "Find the nearest restroom." "Take me to room 251."
Managing Routes (Route Selection)	"Find a route without stairs." "What are my route options?" "Select route number 2"
During Navigation (Navigation Screen)	"Repeat last instruction." "How much further?" "Where am I?" "Cancel navigation."

2.2. Touch Gestures (Alternative Method)

Theia's touch interface in the bottom half of the screen provides haptic feedback (gentle vibrate when scrolling and strong vibrate for activation) and audible confirmation for every gesture. Here are the standard gestures you can use:

Gestures	Actions
Swipe Left or Right (with one finger):	• Moves the focus to the previous or next item on the screen (e.g. suggested destinations, routes options). • Theia will announce each item as you land on it.
Swipe Up or Down (with one finger):	• Swipe up to increase the feedback volume and swipe down to decrease it. • Theia will provide audible confirmation of the new volume level.
Single Tap (with one finger)	• Announce the item you have tapped on without activating it. (e.g. finding out what's available and avoiding accidental activation)
Double Tap (with one finger)	• Activate or select the currently focused item. (e.g. choose menu items or confirm a destination)
Two-Finger Tap	• Pause or resume audio instructions during navigation.
Two-Finger Swipe Up or Down	• Swipe up to make the voice speak faster and swipe down to make it speak slower.
Emergency Gesture - Three-Finger Triple Tap	• Immediately activate the emergency procedure. Double-tap within 3 seconds to cancel.
Two-Finger Double Tap	• Cancel navigation or go back to previous screen.

2.3. Understanding Feedback

Theia communicates with you through sound and touch.

- **Audio Instructions:** Clear, spoken directions will guide you. This includes distances ("Walk forward 30 feet"), turns ("Turn left at the next corner"), and alerts ("Stairs ahead").

- **Haptic Feedback (Vibrations):** Your phone will vibrate to confirm actions or provide important alerts without sound.

  - **Short Buzz:** Confirms a command was received.

  - **Two Short Buzzes:** You are approaching a turn.

  - **Continuous Pulse:** Warning! An obstacle or hazard (like stairs) is very close.

3. Key Features Explained

3.1. Setting a Destination

When you open the app, it will ask for your destination.

1. **Use a voice command** like, "Take me to the library."

2. Alternatively, **swipe right** through the list of recent or suggested destinations and **double tap** to select one.

3. Theia may offer multiple routes (e.g., "fastest" vs. "most accessible"). It will announce the options. Say your choice or **swipe** to it and **double tap**.

3.2. Following a Route

Once a route is active, Theia will provide continuous guidance.

- Listen for audio instructions for each step.

- Pay attention to haptic feedback for upcoming turns or warnings.

- If you get disoriented, use the "Where am I?" voice command.

3.3. Obstacle and Hazard Warnings

Theia uses building maps to know about permanent obstacles like walls and furniture. It will also warn you about:

- **Stairs and Elevators:** You will receive an audio and haptic warning as you approach them.

- **Unexpected Obstacles:** If your phone has the capability (LiDAR or advanced camera), Theia can provide alerts for temporary obstacles. However, always continue to use your primary mobility aid (like a cane or guide dog).

3.4. Emergency Assistance

If you need help, you can trigger the emergency feature.

1. Use the **Triple Tap** gesture or find the "Emergency" button in the app.

2. Theia will ask for confirmation via an audio prompt.

3. Say "Yes" or **double tap** the "Confirm" button.

4. An emergency message with your current location will be sent to your designated caretaker. The app can also be configured to call emergency services.

4. For the Caretaker

The Theia app includes a secure settings area designed for a caretaker, such as a family member or assistive person, to help configure the app for the primary user's specific needs and safety. This ensures the app is personalized and ready to help in case of an emergency.

Accessing Caretaker Mode To access the settings, open the Theia app and perform a long press with three fingers on the home screen. You will be prompted for a PIN to prevent accidental changes and ensure privacy. This mode allows you to manage the core functionalities of the app without needing to navigate through complex menus.

Once in Caretaker Mode, you can configure the following:

Emergency Setup

This section is crucial for the user's safety.

- **Emergency Contacts:** You can set up primary and secondary emergency contacts. The app can be configured to send an emergency message with the user's current location to a designated contact. You can also add contact information for emergency services or campus police.

- **Alert Type:** Choose whether an emergency trigger places a phone call, sends a text message, or both.

- **Custom Message:** Pre-write the emergency alert message that will be sent. By default, it includes the user's location and a request for help.

Navigation & Route Preferences

You can set default navigation preferences to match the user's needs and comfort level.

- **Default Route Type:** Set the app to prioritize certain routes:

  - **Fastest Route:** Aims to get the user to their destination as quickly as possible.

  - **Most Accessible Route:** Avoids stairs and other potential mobility challenges.

  - **Most Comfortable Route:** Prefers routes the user has taken before and is familiar with.

- **Saved Locations:** Add and name frequently visited locations, such as "Mom's Office," "Dana Hall Room 113," or "Favorite Study Lounge," to make setting a destination easier.

User Personalization

Tailor the app's feedback and behavior to the user.

- **Schedule Input:** Input the user's regular schedule (e.g., weekly classes, appointments). This allows Theia to provide proactive and intelligent suggestions, such as "It's almost 10 AM. Are you heading to your classroom in Spark G45?".

- **Feedback Customization:** Set the default levels for:

  - **Voice Speed:** Adjust how quickly Theia speaks instructions.

  - **Volume:** Set the default audio volume.

  - **Instruction Interval:** Customize how frequently guidance is given (e.g., based on distance or time).

- **Custom Wake Word:** Change the wake word from "Hey Theia" to a phrase the user finds more comfortable or easier to say.

- **Language and Interface:** As part of the system's planned extensibility, this menu will allow you to change the app's language or interface settings to best suit the user.