Snap Vision

User Manual Document

Demo 4 – Updated Version

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1. Introduction

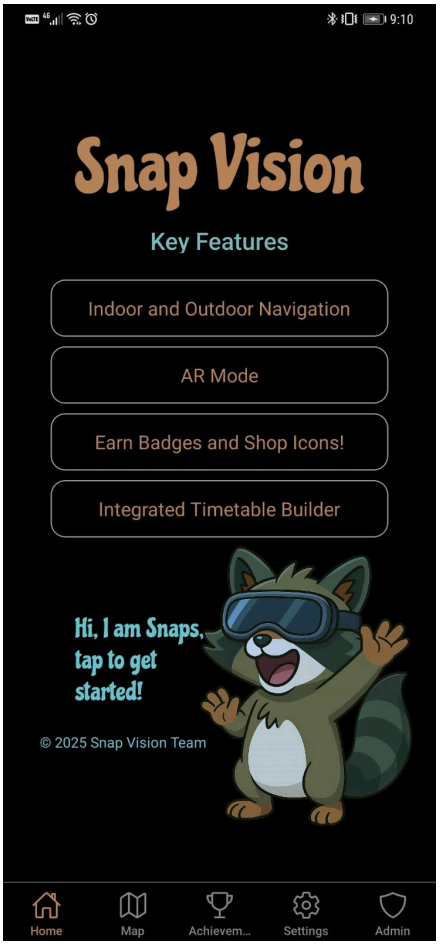
Snap Vision is an AR-powered indoor and outdoor navigation app that helps you find your way around buildings, locate rooms, and discover points of interest. With both outdoor and indoor navigation capabilities, Snap Vision makes exploring simple and intuitive.

1.1 Who Can Benefit from Using Snap Vision

- **University students** navigating large campuses.
- **First-year students or visitors** unfamiliar with building layouts.
- **Lecturers and administrative staff** who move between lecture halls, offices, and departments.
- **Event attendees** trying to locate venues or facilities.
- **Shoppers and mall-goers** in large indoor shopping centers.
- Anyone needing **accessible**, turn-by-turn indoor and outdoor guidance.
- **Location administrators looking to provide digital navigation within their facilities.**

1.2 Key Features of Snap Vision

- **User-friendly, mobile-first navigation app**
- **Augmented Reality (AR)** support for immersive, real-time guidance.
- **Outdoor navigation** using GPS, Wi-Fi triangulation, and Bluetooth beacons.
- **Manual indoor positioning system** for precise room-to-room navigation
- **Crowd density visualisation** to avoid congested areas.
- **Interactive 2D maps** with zoom and search capabilities.
- **Voice-guided directions** for hands-free navigation.
- **Shareable location links** for easier meetups.
- **Gamified exploration** with achievements and point-based rewards.
- **No ongoing subscription fees** – Snap Vision is free to use.



2. Minimum Device & System Requirements

The minimum requirements for running the Snap Vision mobile application and administrative tools are:

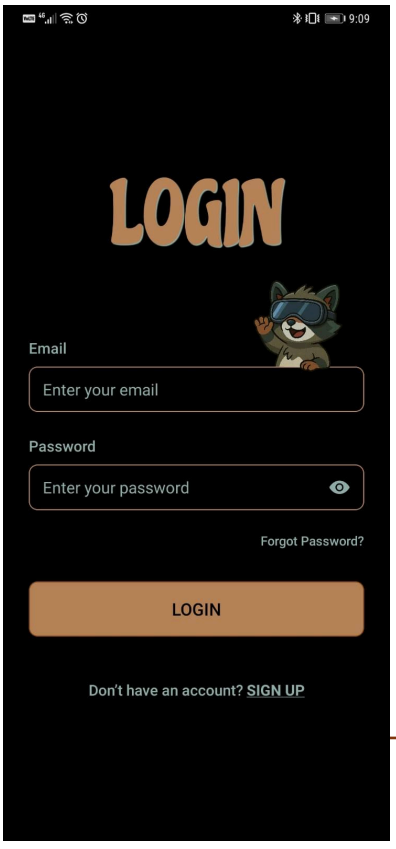
Mobile App:
Operating System:
Android 9.0 (Pie) or later

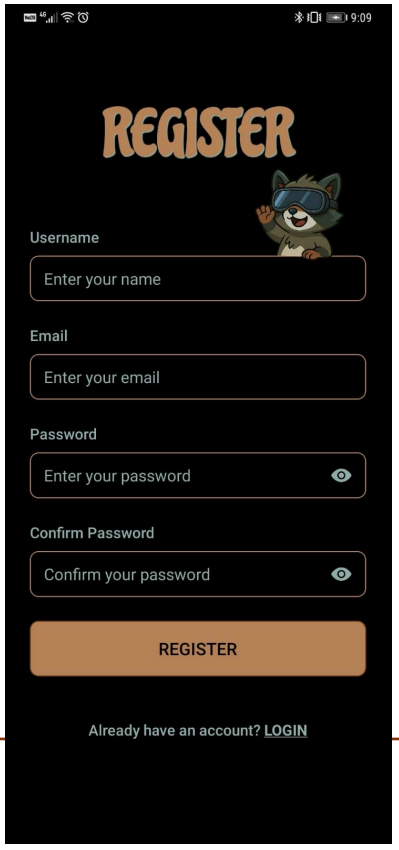
Hardware Requirements:
Device with:
AR support
GPS, gyroscope, and accelerometer sensors
Rear-facing camera with autofocus

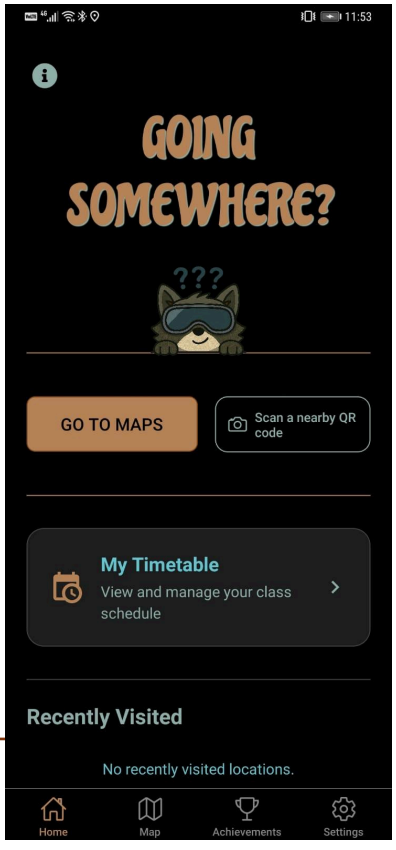
3. Getting Started

When you first enter the app you will be greeted with the login screen. Here you can enter your details or choose to Register an account by clicking on the words “SIGN UP” located below the login button. This will lead you to a Register page where you can input your details to become a registered Snap Vision User!

Once logged in or registered you will be directed to the home page. From here you can access various parts of the app from the bottom bar such as - Map, Achievements, Settings and Admin (only if you are an Admin User). You can also click “GO TO MAPS” to go straight to the mapscreen. If you are indoors and want to scan a QR code, you can click “Scan a nearby QR code”. You can also set up your class timetable here.







4. Finding Your Way Outdoors

Navigate to Buildings

There are two ways to select a destination:

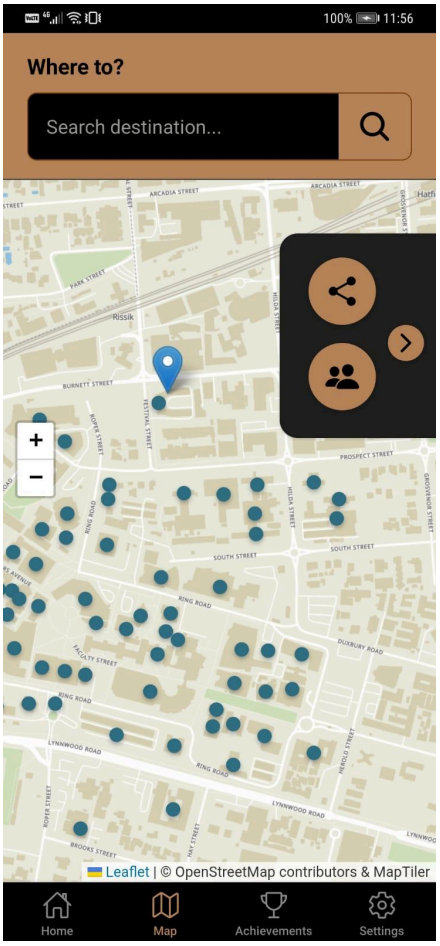
One:

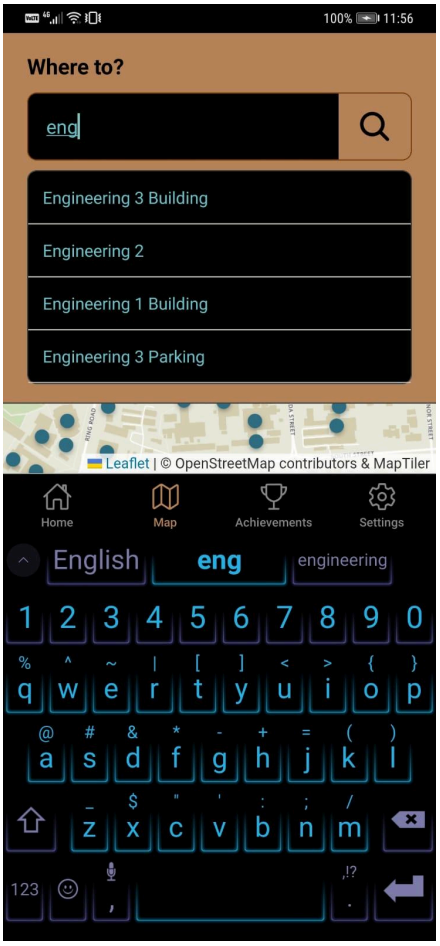
- Tap the search bar at the top of the screen.
- Type the name of your destination building.
- Select from the search results.

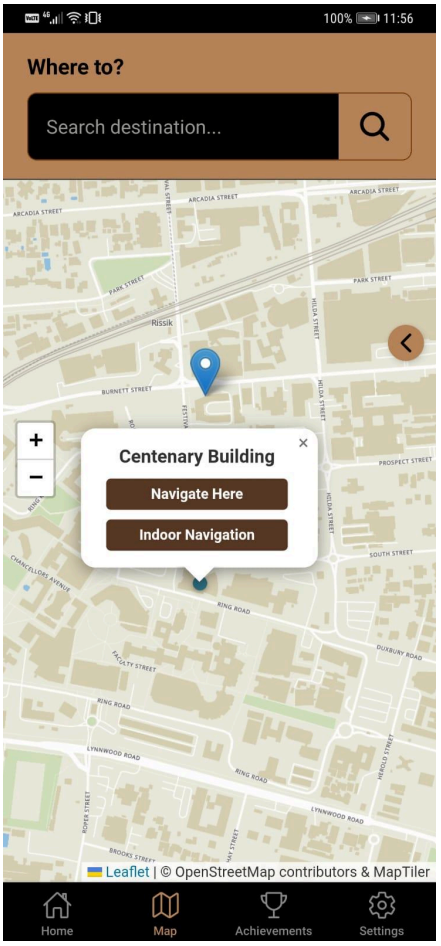
OR

Two:

- Click on a blue marker to see information for the building you have selected.





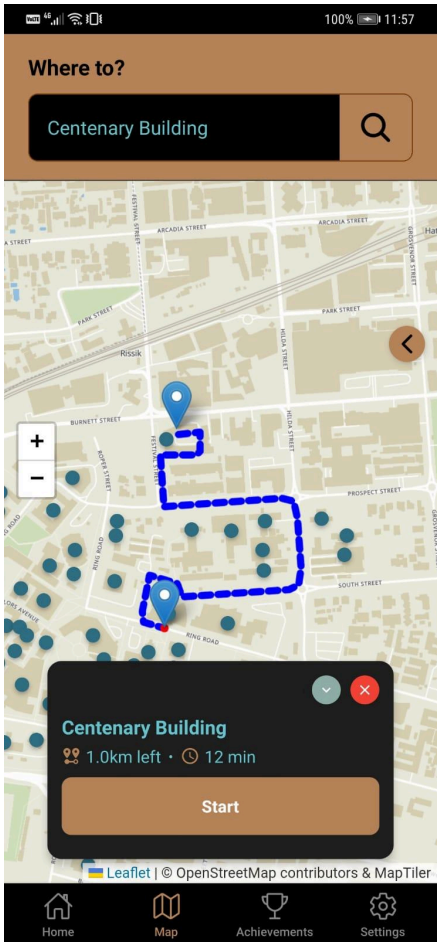


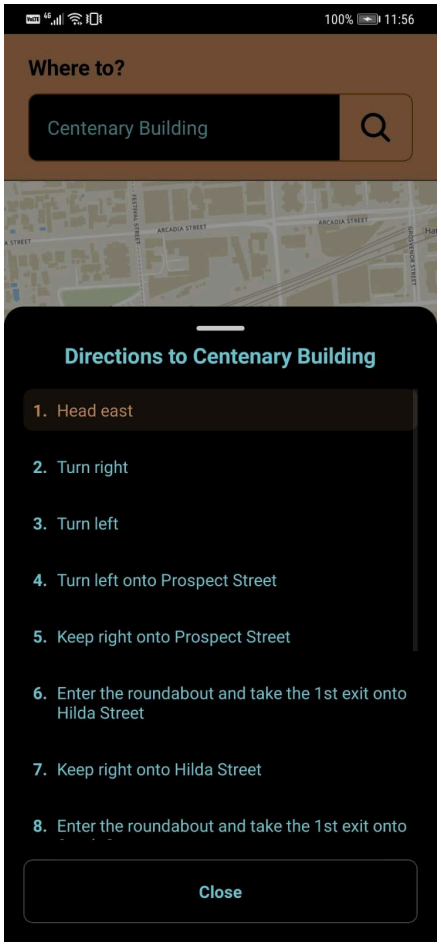
Starting Navigation

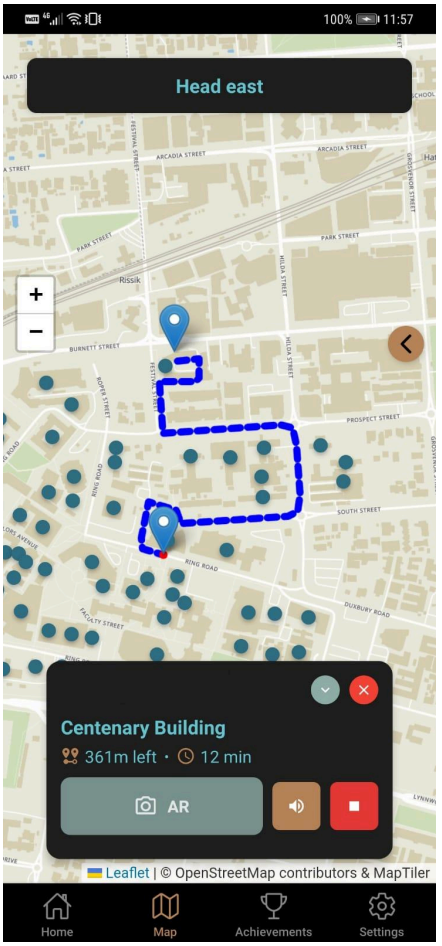
- After selecting a destination, click the “Navigate here” button, and then tap the "Start" button.
- Follow the highlighted route on the map.
- View distance and estimated time information at the bottom of the screen.
- View directions at the top of the screen.

Using Voice Guidance

- Toggle voice guidance by tapping the speaker icon.
- Voice instructions will guide you along your route.
- Follow step-by-step directions as you navigate.





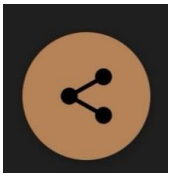


Other Map Features

You will notice a button on the right side of the screen. Once tapped it will open to show two more buttons. These are the Share Location, and Crowd Report features.

Share Location

The Share Location feature allows you to send your current location to friends:

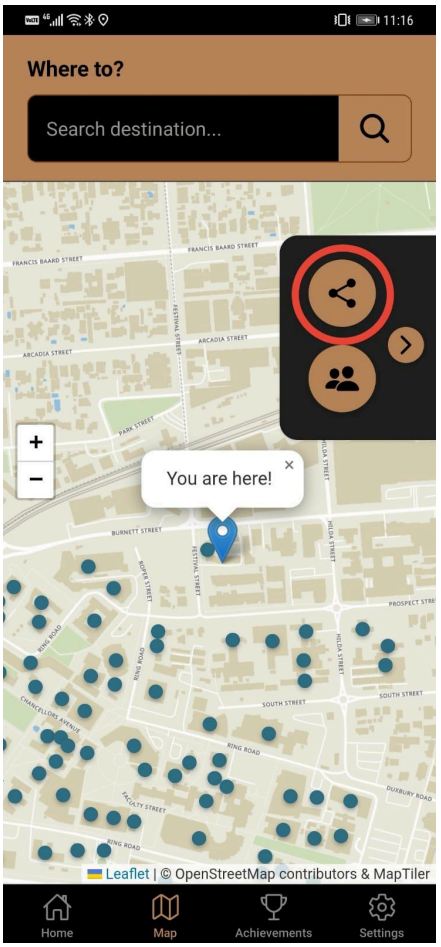


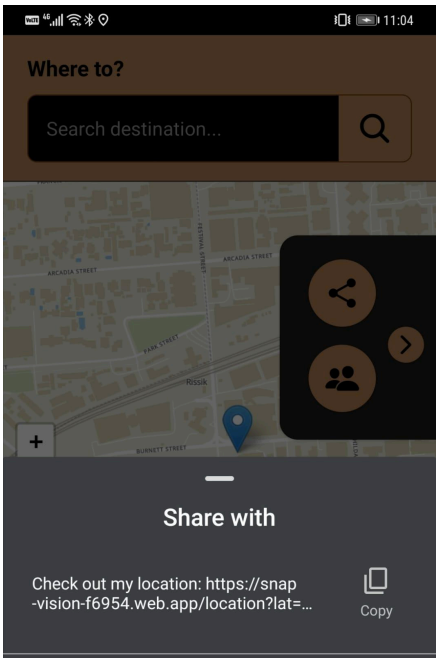
Sharing Your Location

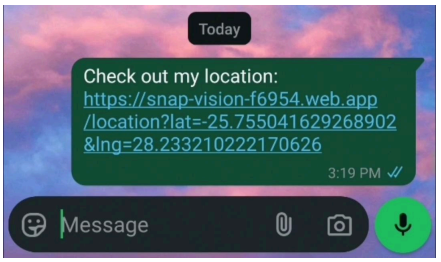
- Tap the Share Location button (top button on the bottom right).
- Select how you want to share (messaging, email, social media).
- Choose who you want to share with from your contacts.
- Add an optional message like "Meet me here".
- Tap "Send" to share your location.

Viewing Shared Locations

- When someone shares their location with you, you'll receive a link.
- Tap the link to open Snap Vision.
- Their location will appear as a special marker on your map.
- Tap "Navigate" to get directions to their location.







Crowd Density Report

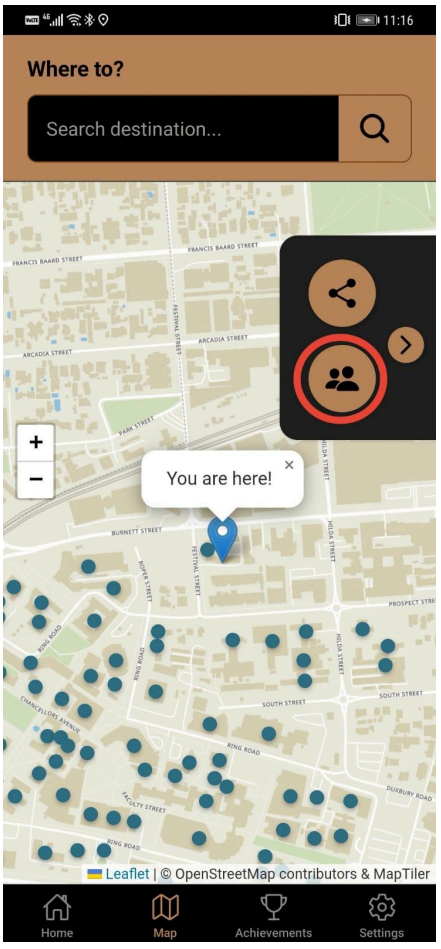
The Crowd Density feature helps you see how busy different areas are:

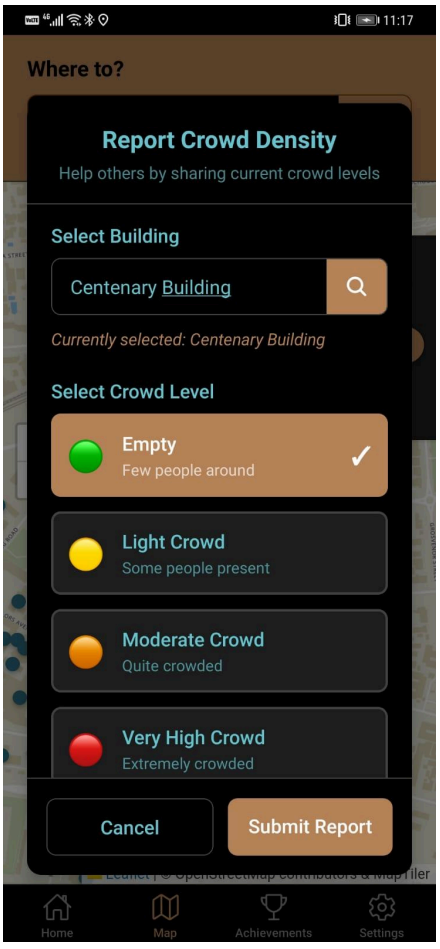
Viewing Crowd Density

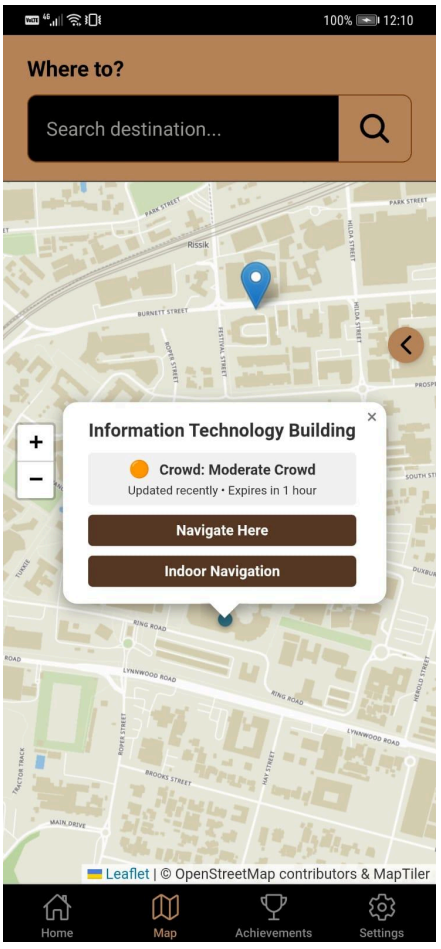
- When buildings on the map are selected, if they have density data it will display in the popup.
- Green: Not crowded
- Yellow: Moderately crowded
- Orange: Busy
- Red: Very crowded
- Black: Overcrowded

Contributing to Crowd Reports

- You can help others by reporting crowd levels.
- Tap the Crowd Density button (bottom button on the bottom right).
- Select "Report Current Location".
- Select the building you are reporting on.
- Choose the crowd level you're experiencing.
- Tap "Submit" to share your report.







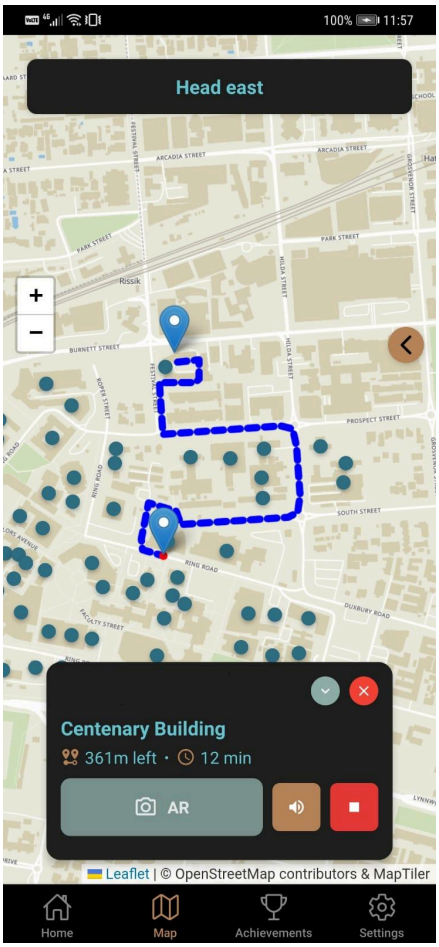
5. AR Navigation

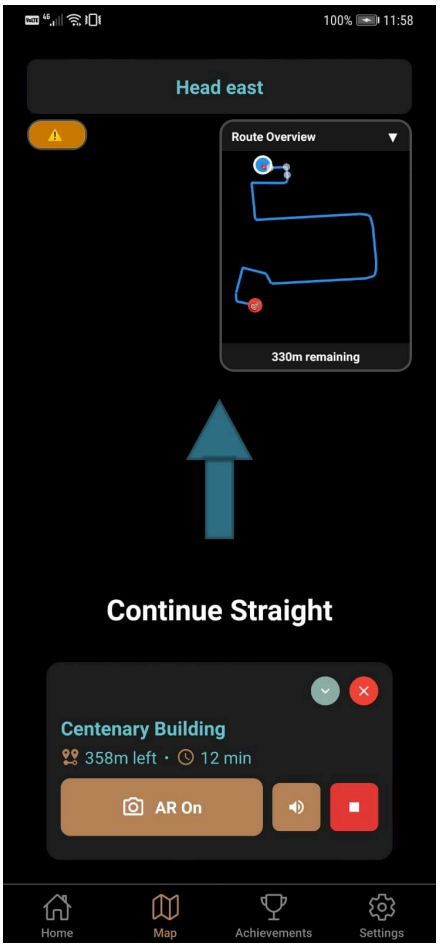
Snap Vision features advanced Augmented Reality (AR) navigation that overlays directional guidance directly onto your camera view, providing an immersive navigation experience. AR Navigation can be accessed from the Map. When you start navigating to a building, you are able to toggle between 2D and AR mode with a button in the navigation panel.

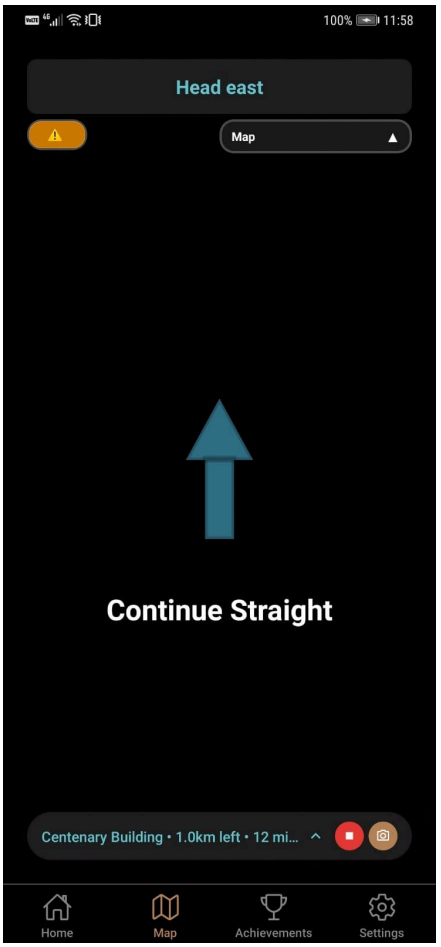
Using AR Navigation

Starting AR Navigation:

1. Begin navigation to any destination
2. Tap the AR navigation button when available
3. Allow camera permissions if prompted
4. Hold your device upright or tilted towards the ground and follow the arrows







AR Interface Elements

Navigation Warning (Top Left):

- Minimizable warning about AR accuracy limitations
- Tap to expand/collapse the warning message
- Reminds users that AR is for general guidance only

Mini Map Overlay (Top Right):

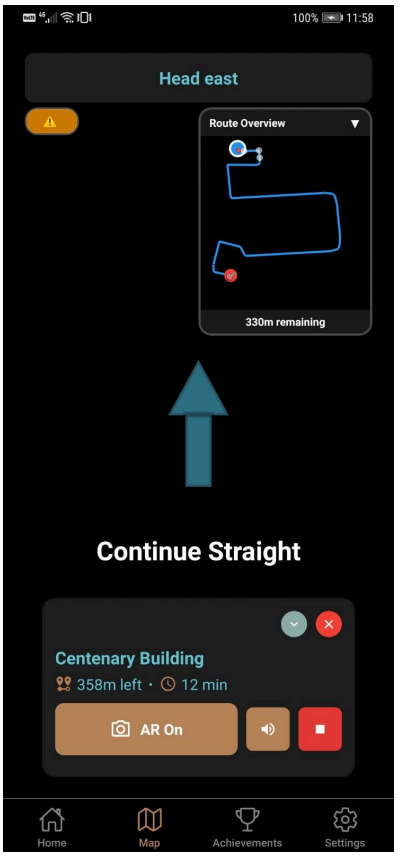
- Collapsible route overview showing your position
- Real-time position tracking with blue dot
- Route path with completed segments in green
- Upcoming waypoints and destination marker

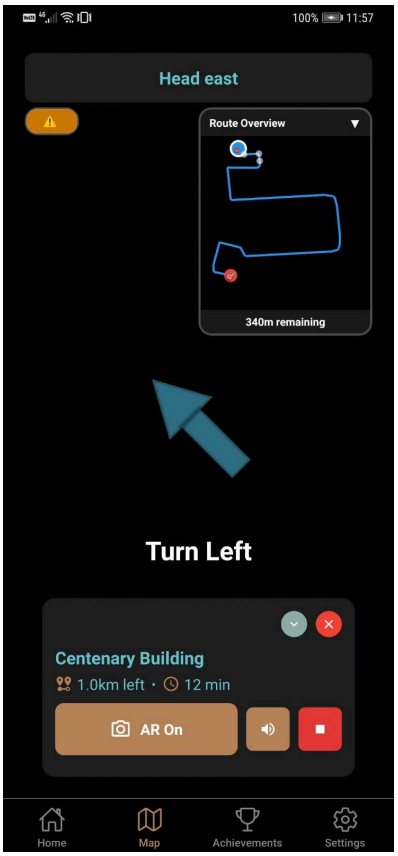
Main Guidance Display (Centre):

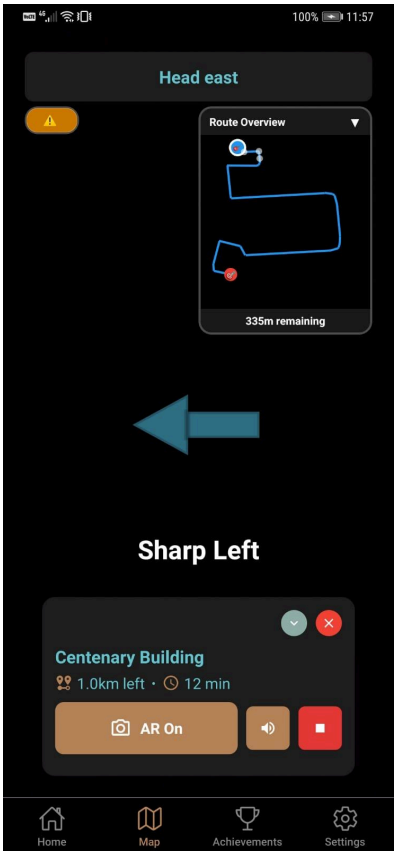
- Large directional arrow (160px) for clear visibility
- Direction instruction text with background for readability

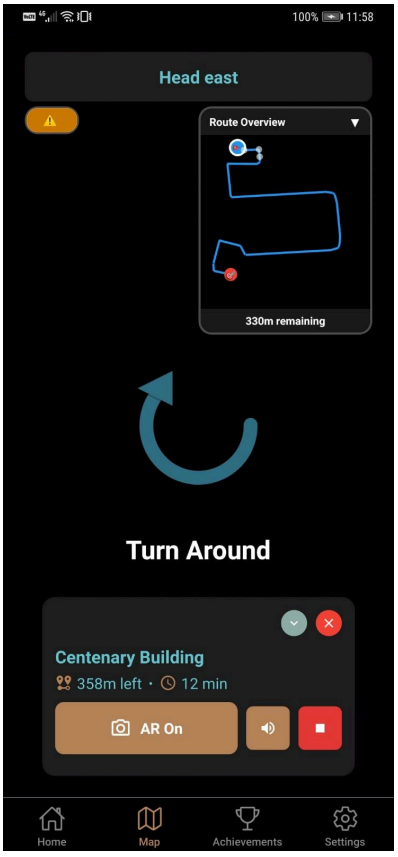
Smart Direction Indicators:

- **Continue Straight**: Upward-pointing arrow when on the correct path
- **Turn Right/Left**: Angled arrows indicating slight turn directions
- **Sharp Turns**: Arrow for significant direction changes. Follow the instruction that indicates a left or right turn.
- **Turn Around**: Special circular arrow for 180-degree turns indicates you need to turn around to be on the correct path.


100% 11:58
Head east
Route Overview
330m remaining
Continue Straight
Centenary Building
358m left · 12 min
AR On
Home
Map
Achievements
Settings


100% 11:57
Head east
Route Overview
340m remaining
Turn Left
Centenary Building
1.0km left · 12 min
AR On
Home
Map
Achievements
Settings


100% 11:57
Head east
Route Overview
335m remaining
Sharp Left
Centenary Building
1.0km left · 12 min
AR On
Home
Map
Achievements
Settings


100% 11:58
Head east
Route Overview
330m remaining
Turn Around
Centenary Building
358m left · 12 min
AR On
Home
Map
Achievements
Settings

AR Navigation Accuracy

Best Practices:

- Hold your device steady for accurate readings
- Recalibrate if arrows seem inaccurate

Important Limitations:

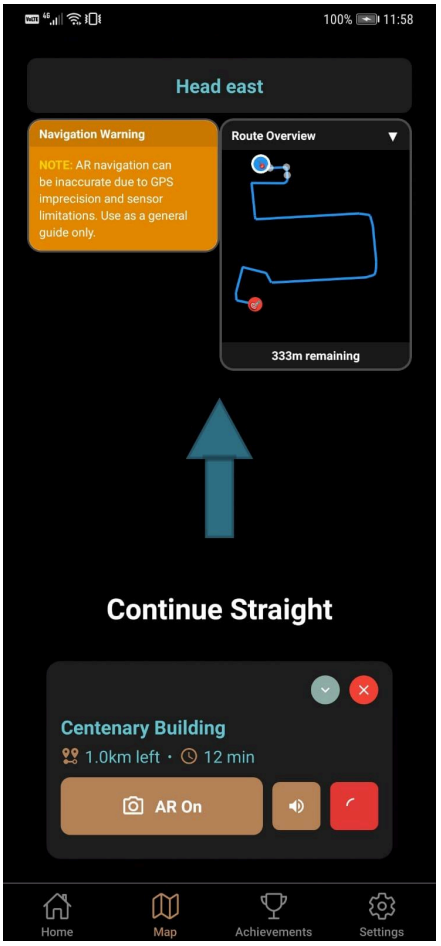
- AR navigation uses GPS and device sensors which can be imprecise
- Weather and environmental factors can affect GPS accuracy
- Use AR as a general guide, not for precise positioning

Camera Issues:

- AR navigation requires camera access
- If camera is unavailable, fallback compass navigation is provided
- Simple arrow-based guidance works without camera access
- If "No camera available" appears, restart the app
- Check device permissions for camera access
- Fallback navigation will automatically activate

Arrow Direction Problems:

- Wave your device in a figure-8 pattern to calibrate compass
- Ensure device sensors are not blocked
- Move away from magnetic interference (metal objects, electronics)



6. Indoor Navigation

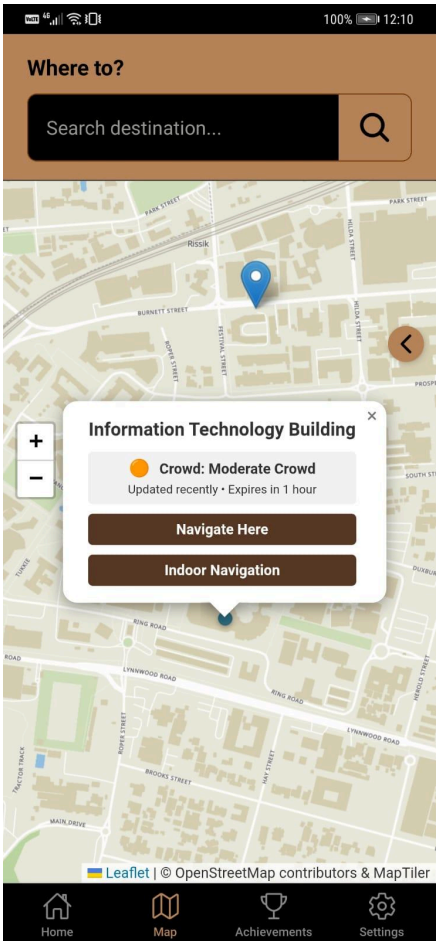
Snap Vision features comprehensive indoor navigation capabilities:

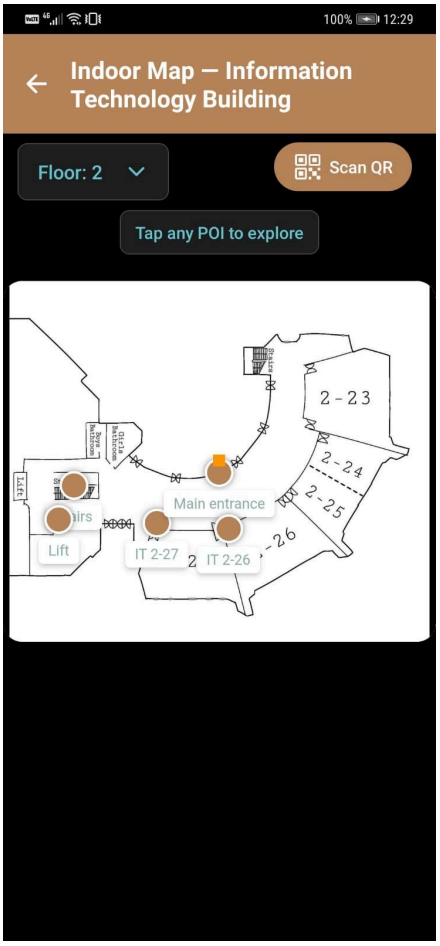
Indoor Navigation Features

- **Interactive floorplan maps** with room markers
- **Multi-floor navigation** with easy floor switching
- **Room search and selection** within buildings
- **Turn-by-turn indoor directions** with visual and voice guidance
- **Accessibility route options** when available

Starting Indoor Navigation

1. **From Outdoor Map:** Tap on a building marker and select "Indoor Navigation"
2. **From QR Code:** Scan a QR code inside a building to instantly start navigation

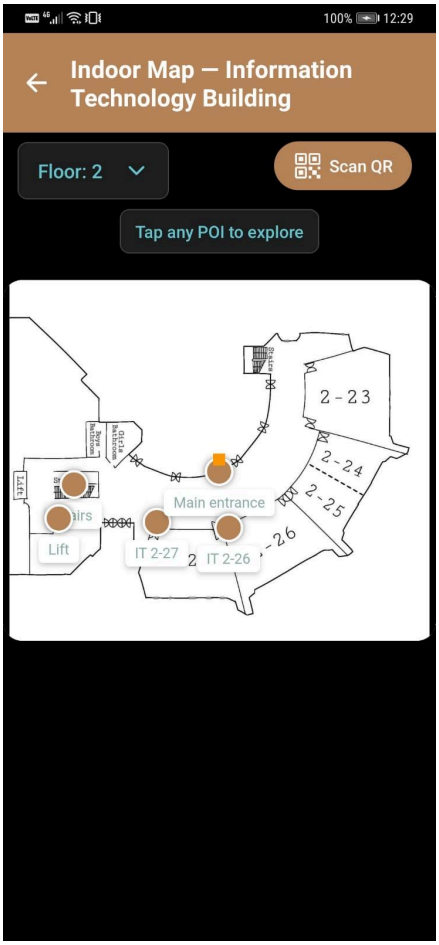


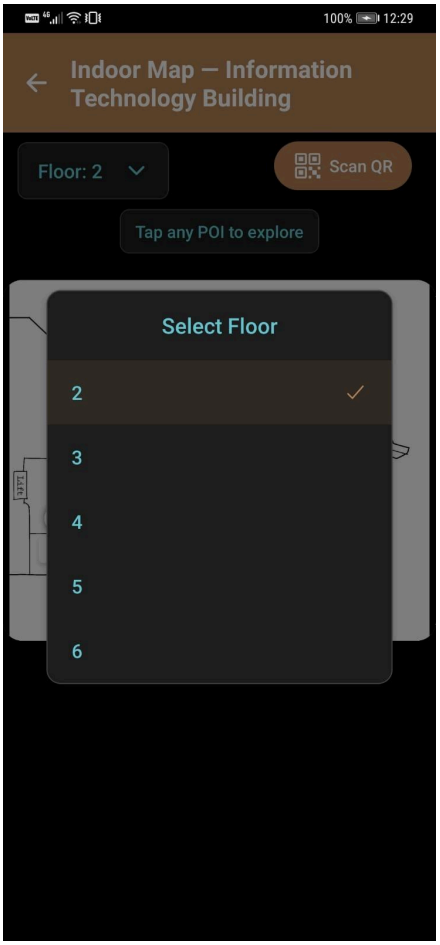


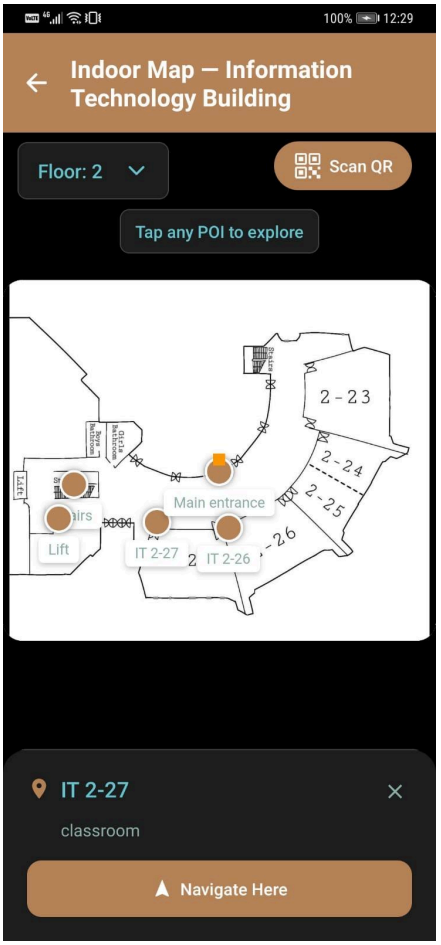
Using Indoor Maps

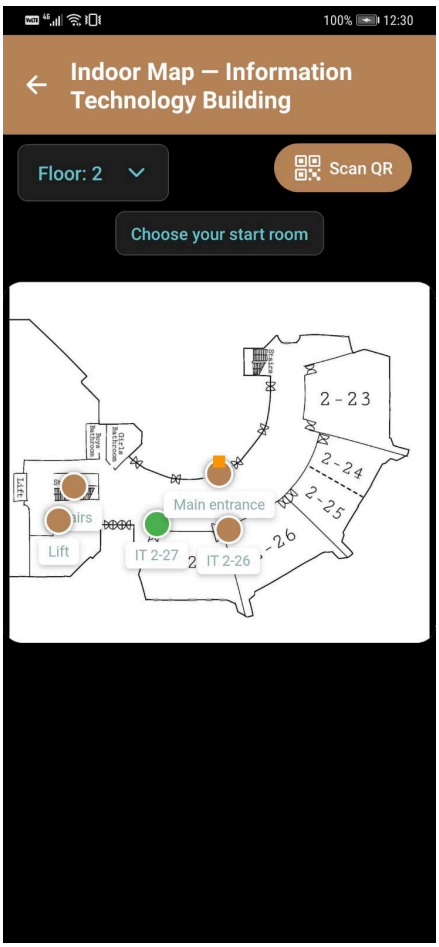
You can zoom and pan on floorplan images, and tap room markers to view details.

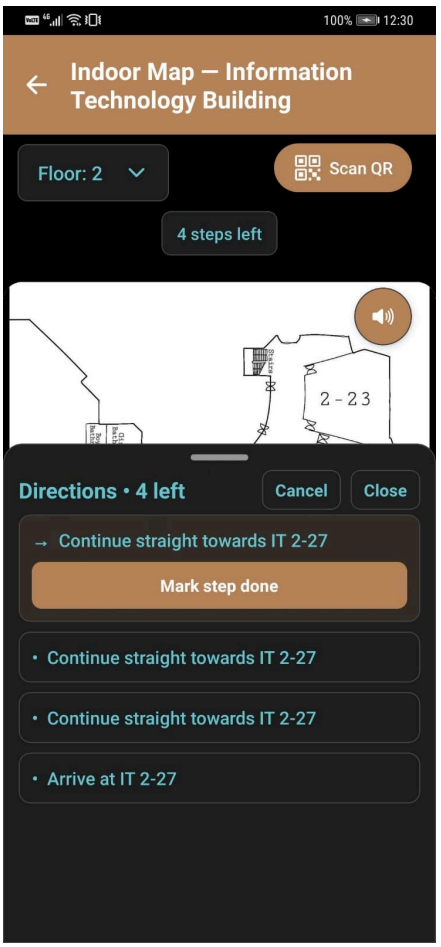
1. **Switch between floors** using the floor selector
2. **Select a Room** as a destination
3. Click **Navigate Here**
4. Choose the **room marker from where you are starting**
5. **Follow** step-by-step navigation and mark each step as complete to reach your destination

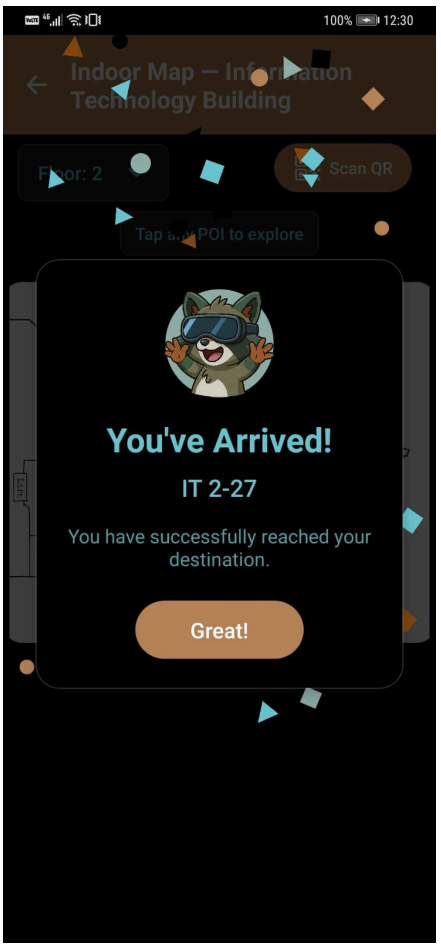







100% 12:30
Indoor Map — Information Technology Building
Floor: 2
Scan QR
Choose your start room
2 - 23
2 - 24
2 - 25
2 - 26
Main entrance
Lift
IT 2-27
IT 2-26


100% 12:30
Indoor Map — Information Technology Building
Floor: 2
Scan QR
4 steps left
2 - 23
Directions • 4 left
Cancel
Close
→ Continue straight towards IT 2-27
Mark step done
• Continue straight towards IT 2-27
• Continue straight towards IT 2-27
• Arrive at IT 2-27

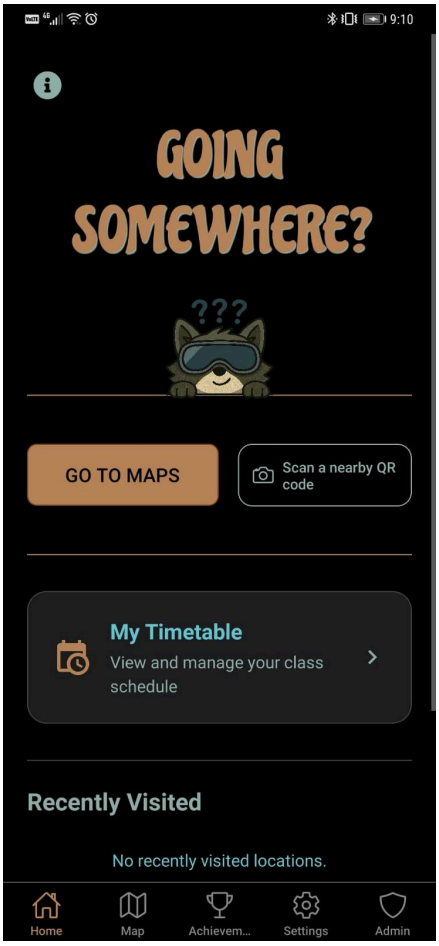

100% 12:30
Scan QR
You've Arrived!
IT 2-27
You have successfully reached your destination.
Great!

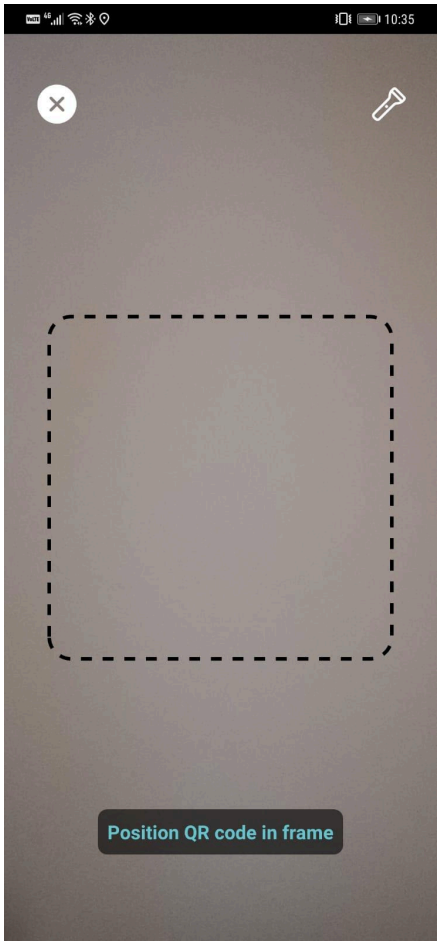
7. QR Code Scanning

QR codes are placed around locations and are able to be scanned with your mobile device. QR codes provide instant location identification and navigation setup:

Scanning QR Codes

1. Use the QR scanner (accessible from Home Page of the app or camera)
2. Point your camera at a Snap Vision QR code
3. The app automatically detects your location and sets up navigation
4. Your starting position is set to the scanned location





8. My Timetable

Snap Vision includes a comprehensive timetable system that helps you manage your class schedule and provides automatic navigation assistance. Access your timetable by tapping the timetable card on the home screen.

Setting Up Your Timetable

Adding a New Class:

1. Tap the "Add Class" button on the timetable screen
2. Fill in the required information:
    - **Course Code** (required): Enter your course code (e.g., "COS301")
    - **Day** (required): Select the day of the week
    - **Building** (required): Choose from the list of available campus buildings
    - **Venue** (required): Enter the specific room or venue (e.g., "IT 2-26")
    - **Start Time** (required): Select when your class begins
    - **End Time** (required): Select when your class ends
3. Tap "Save" to add the class to your timetable

Managing Classes

Viewing Your Schedule:

- Your timetable is organized by day of the week
- Each class shows the course code, time, and venue
- Classes are displayed in chronological order for each day

Editing Classes:

1. Tap on any existing class entry
2. Modify the information in the form that appears
3. Tap "Save" to update the class

Deleting Classes:

1. Tap the "×" button on any class entry
2. Confirm deletion in the popup that appears
3. The class will be removed from your schedule

Auto-Navigation Feature

The Auto-Navigation feature automatically provides navigation assistance before your classes begin.

Enabling Auto-Navigation:

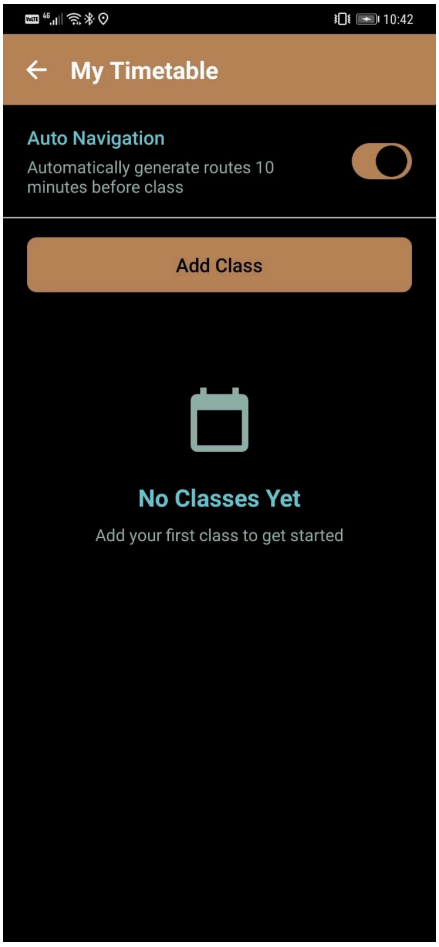
1. On the timetable screen, locate the "Auto Navigation" toggle at the top
2. Toggle it ON to enable automatic navigation assistance
3. When enabled, you'll receive notifications 10 minutes before each class

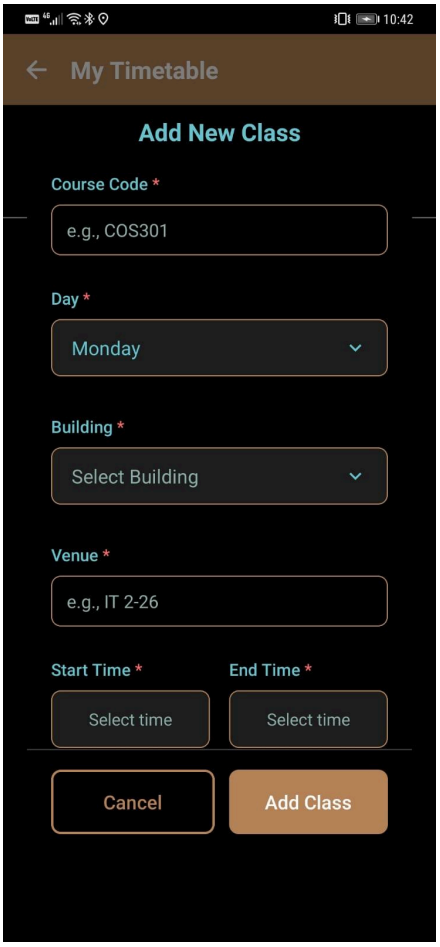
How It Works:

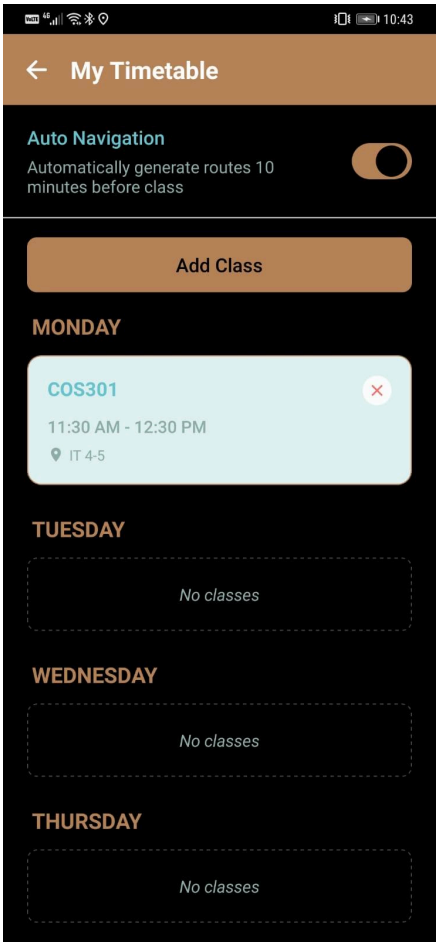
- 10 minutes before your class starts, you'll receive a notification
- The notification includes class details and navigation options
- Tap the notification to open the map with automatic route planning to your class location

Auto-Navigation Settings:

- You can enable or disable auto-navigation at any time using the toggle
- Changes are saved automatically
- When disabled, you won't receive pre-class notifications







9. Achievements and Challenges

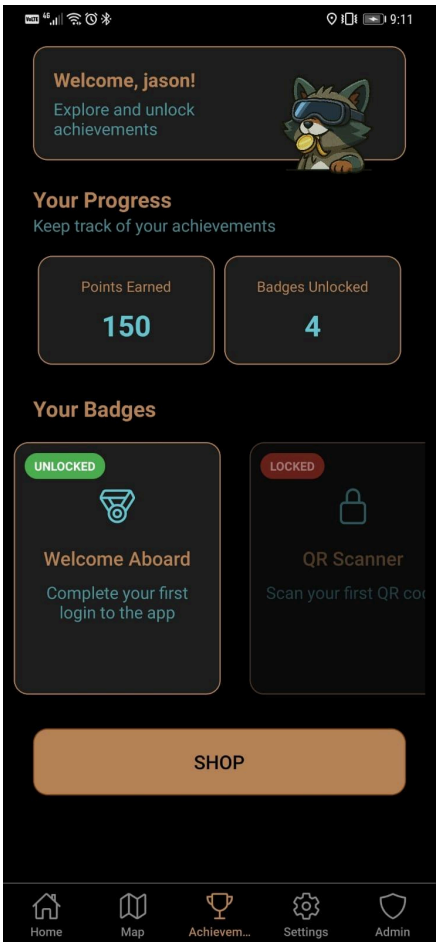
Snap Vision rewards your campus exploration with badges, points, and special challenges. The more you explore, the more rewards you earn! On the Achievements page you will be able to view your badges and challenges. Earning badges and completing challenges allows you to earn points which you can use to shop.

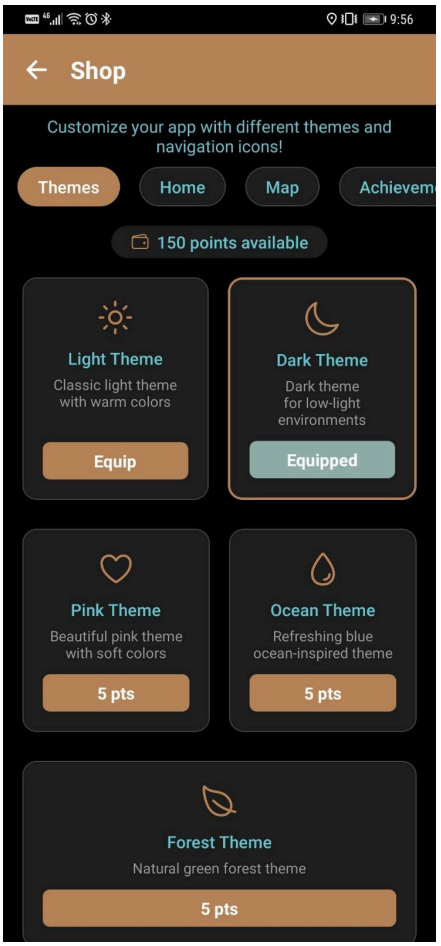
Badge System

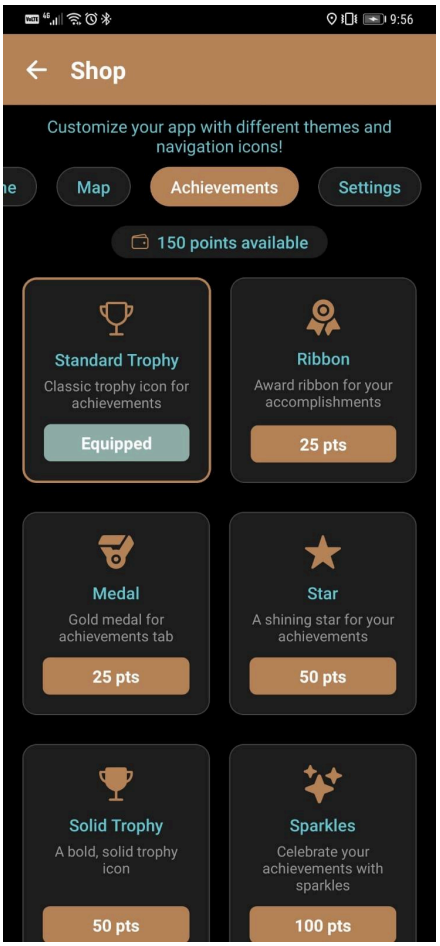
The Achievements screen shows your complete badge collection. Completing these badges can earn you points.

Badges:

- **First Steps**: Welcome aboard, first navigation, first destination
- **Navigation Milestones**: 10, 50, 100, 150, and 200 destinations reached
- **Community Engagement**: Share location, report crowd levels
- **App Mastery**: QR code scanning, theme switching, notifications enabled
- **Special Achievements**: Speed runner, point collector







Shop Features

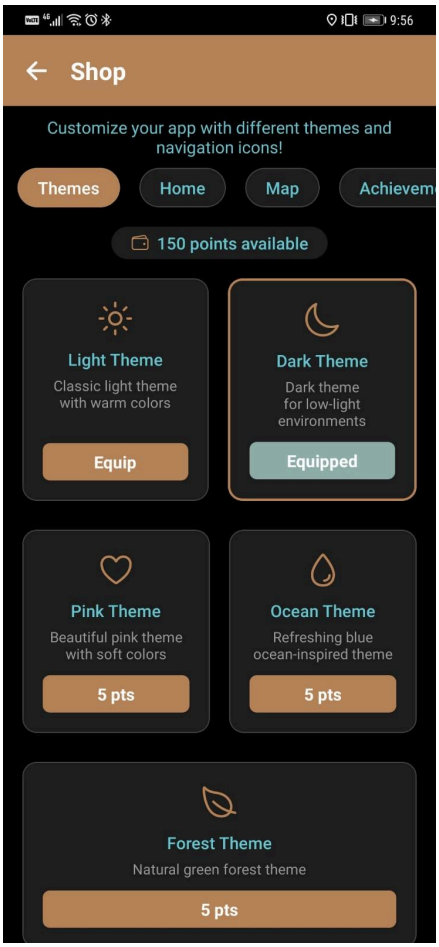
Access the Shop through the "SHOP" button on the Achievements screen. You can shop for various different theme colours and icons which will be applied across the app.

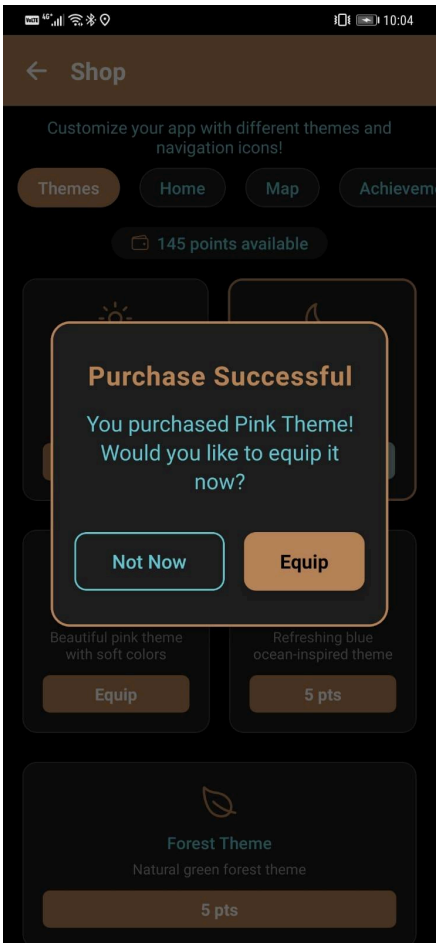
Making Purchases:

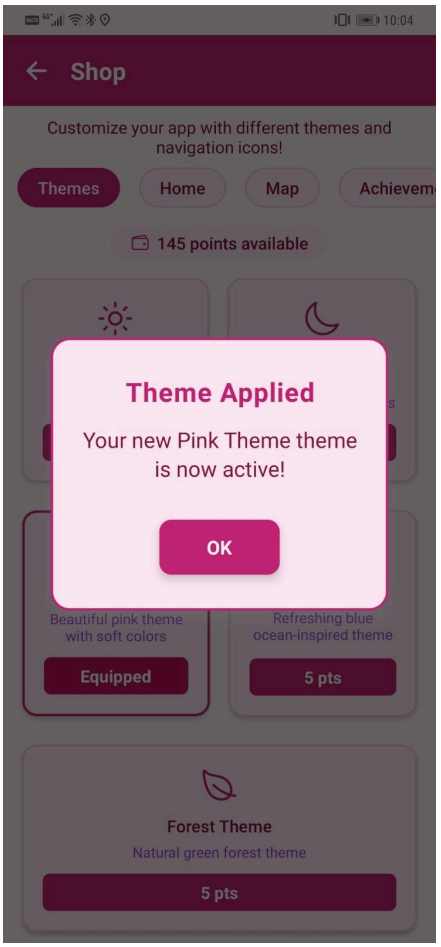
1. Browse available items by category (Themes or Icons)
2. Check your point balance at the top of the screen
3. Tap "Purchase" on any item you can afford
4. Confirm your purchase in the popup
5. Items are automatically equipped after purchase

Managing Equipped Items:

- Only one theme can be active at a time
- One icon per tab can be equipped
- Switch between owned items at any time
- Free items are equipped by default

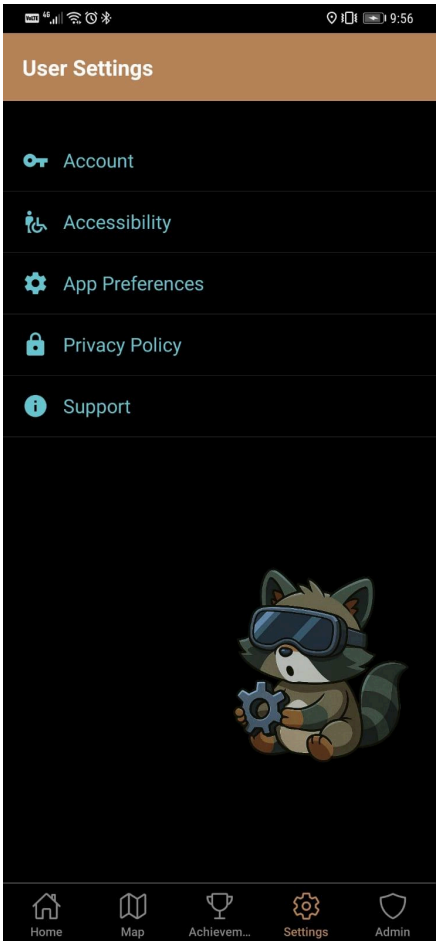






10. Settings

Access settings by tapping the profile icon in the bottom navigation bar and selecting "Settings".



Account Settings

Manage your personal account information:

- View your profile information
- Log out

Accessibility

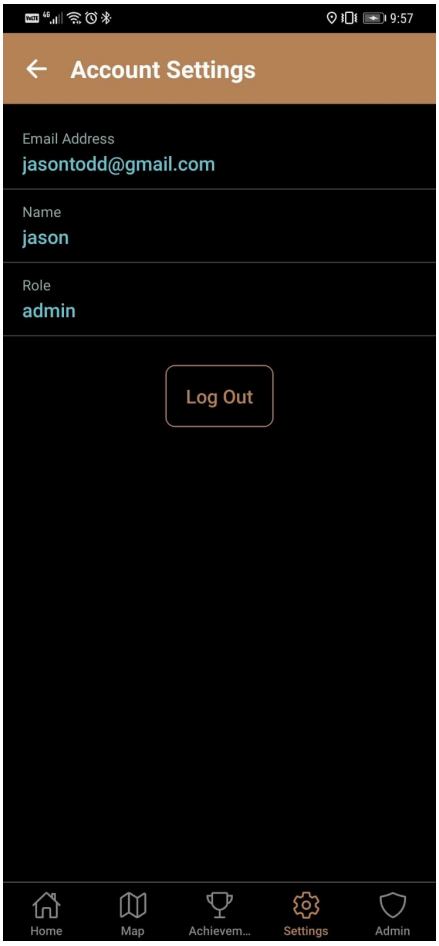
Manage accessibility settings

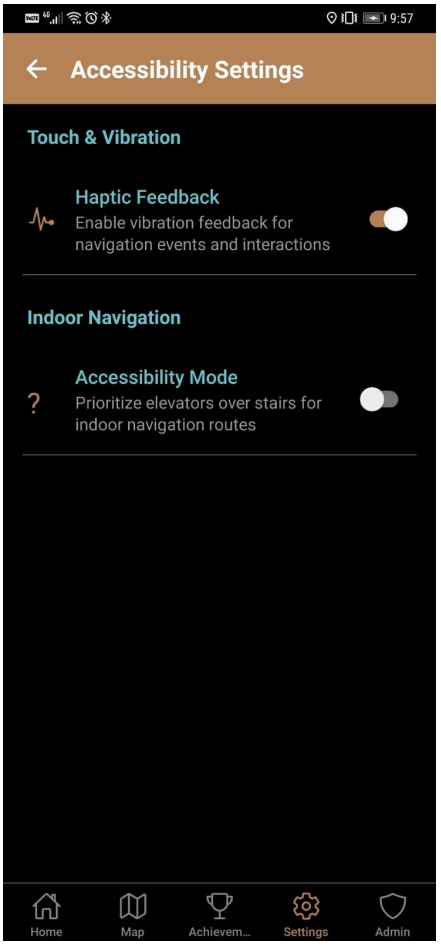
- Enable or disable haptic feedback

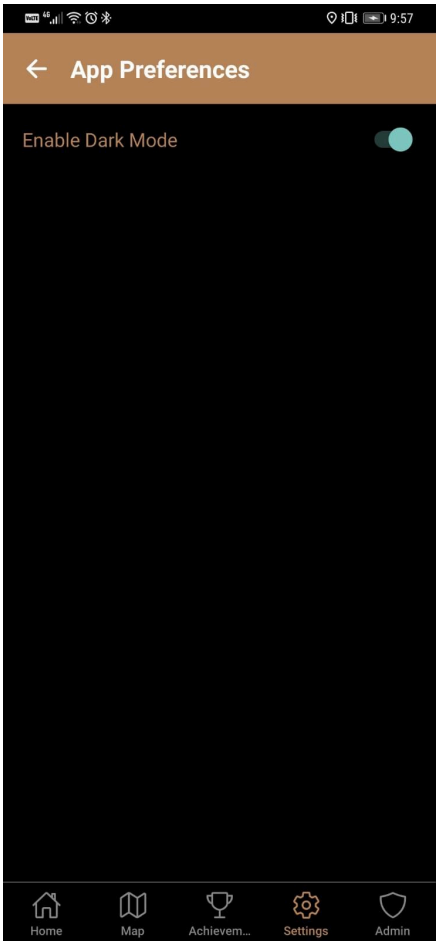
App Preferences

Customize how the app looks:

- Dark Mode: Toggle between light and dark themes.







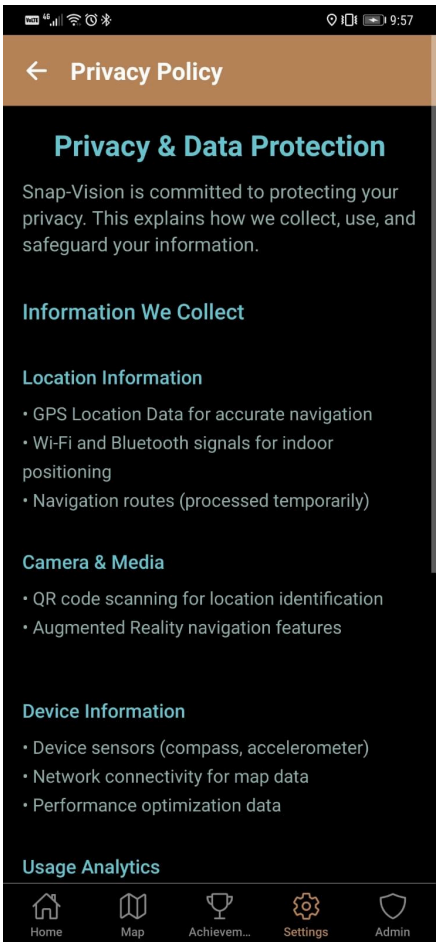
Privacy Policy

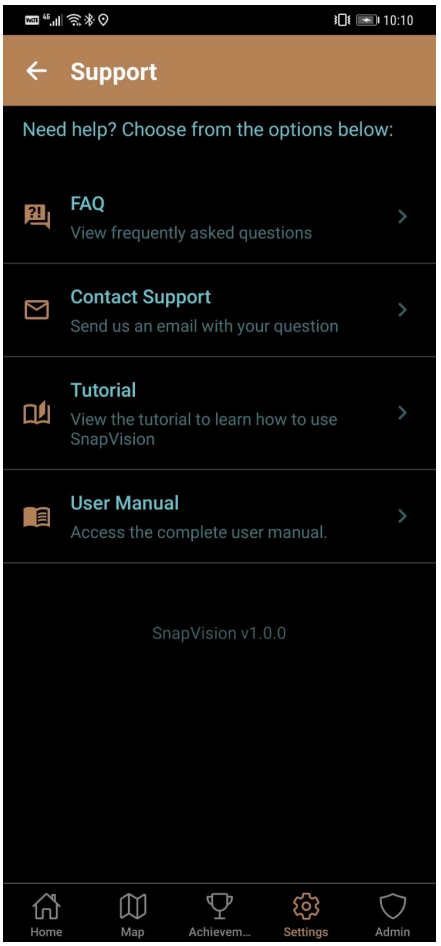
Here you will find our privacy policy about how we protect your data.

Support

Get help when you need it:

- FAQ: Browse frequently asked questions.
- Contact Support: Reach out to the support team via email.
- Tutorial: View app tutorials.
- User Manual: Tap here to get a link to this user manual.



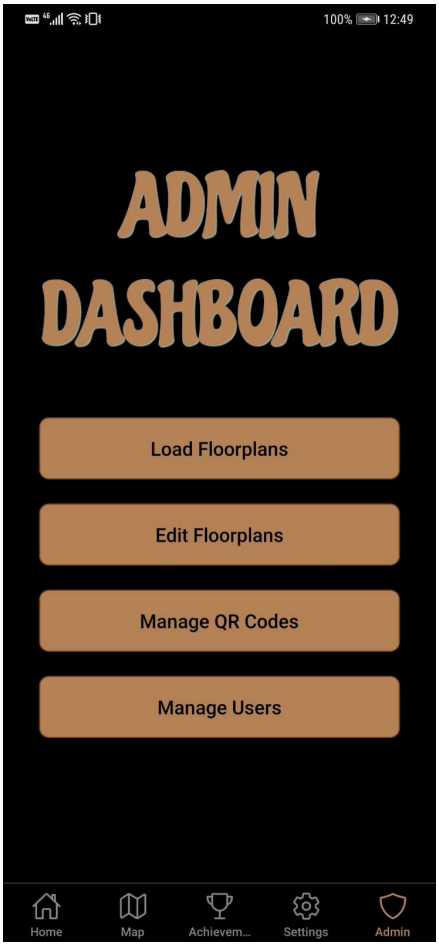


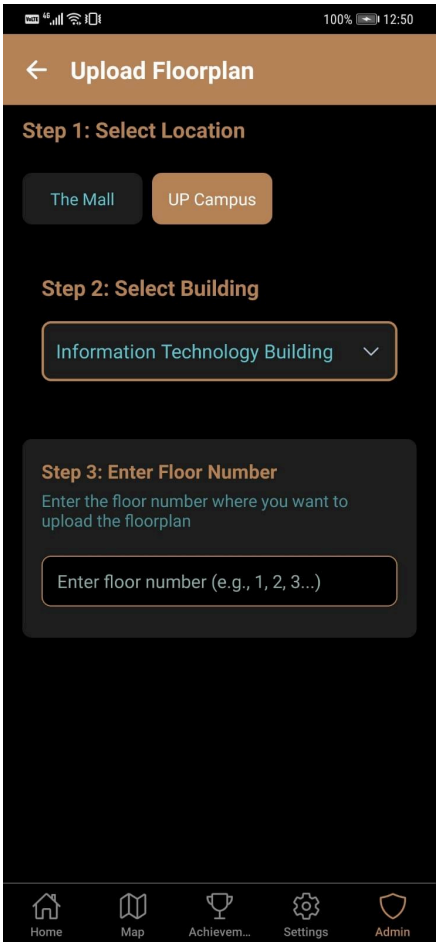
11. For Administrators

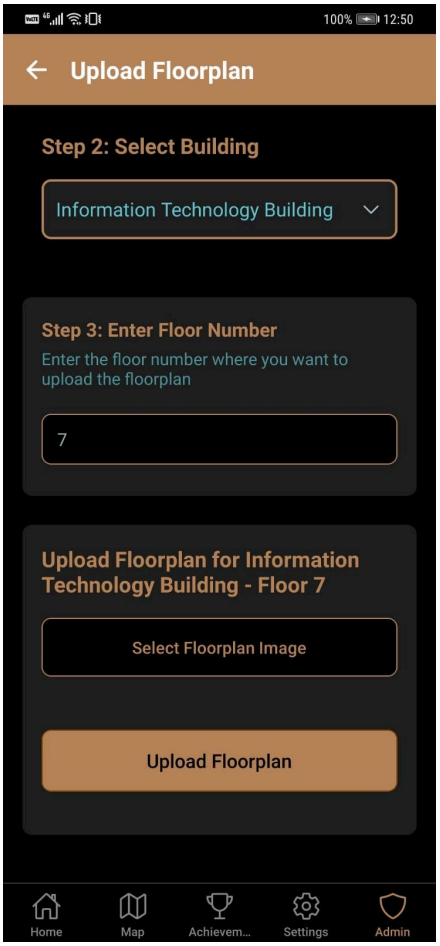
If you have administrator privileges, you can manage floorplans and points of interest, and manage admin specific settings.

Uploading a New Floorplan

- Navigate to the Admin Dashboard.
- Select "Load Floorplans".
- Choose a Location.
- Choose a building or enter a new building name.
- Enter the floor label (e.g., "Floor 1", "Basement").
- Select a floorplan image file (Note: only PNG or JPG files accepted. If you have a PDF, we recommend using a free online converter to convert PDF to JPG).
- Tap "Upload Floorplan".

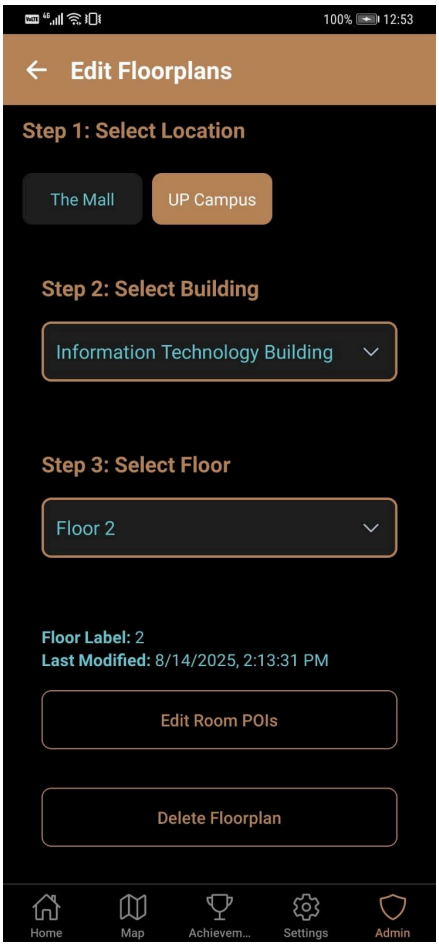


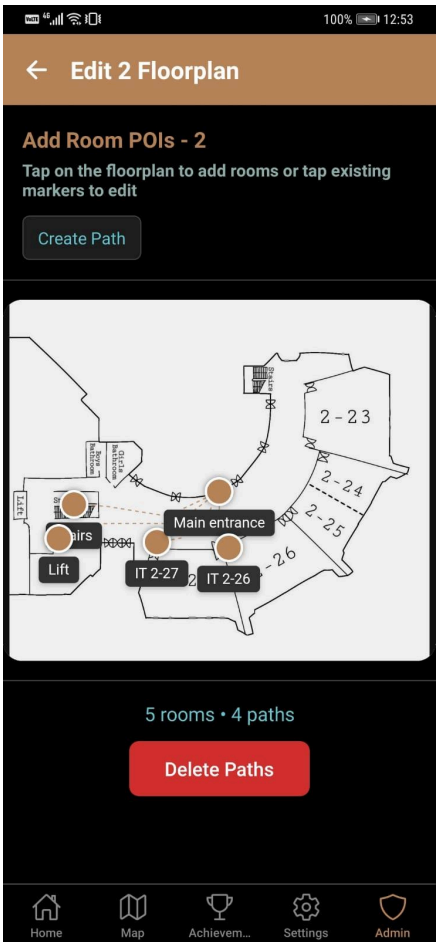


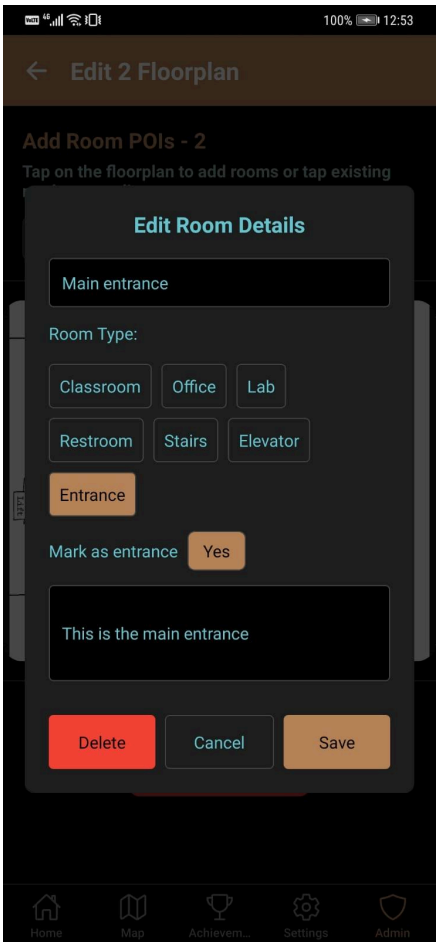


Editing Room POIs

- From the Admin Dashboard, select "Edit Floorplans".
- **Select a floorplan** from the list.
- Tap "**Edit Room POIs**".
- **Tap on the floorplan to add** a new room marker.
- **Fill in room details** (name, type, description). If this is an entrance make sure to mark it as one.
- Tap "**Save**" to add the room.
- You can also **edit an existing room** POI by **tapping on the marker**.
- Once you are done adding/editing POIs, you can click the “Save” button which takes you back to the Edit Flooplans page.
- You can also delete a floorplan by tapping “Delete Floorplan”.

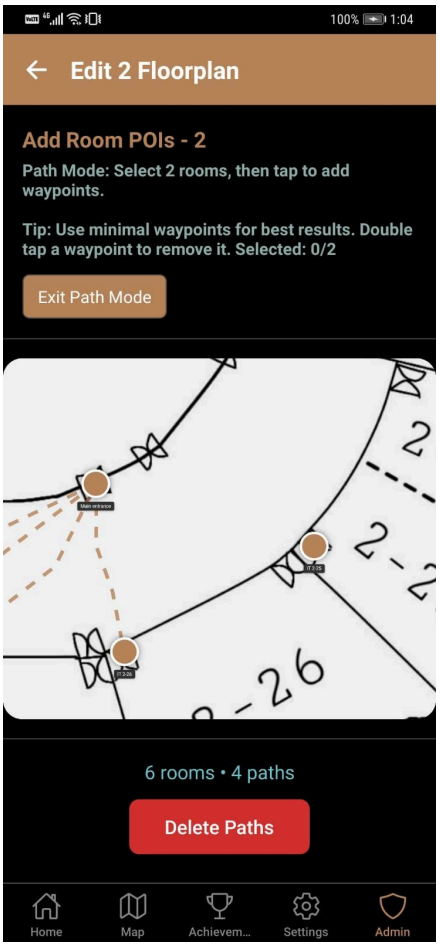


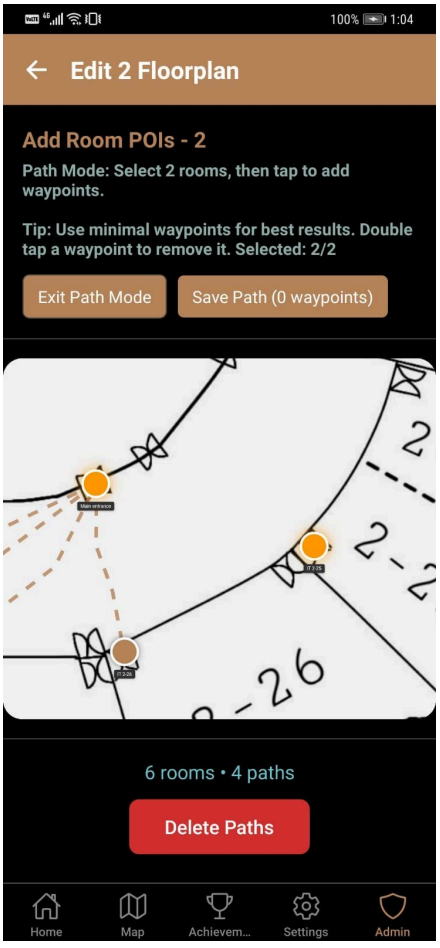


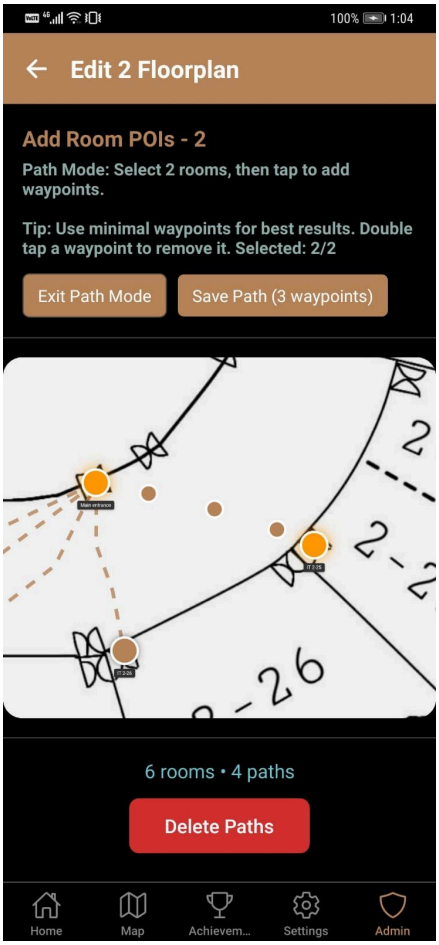


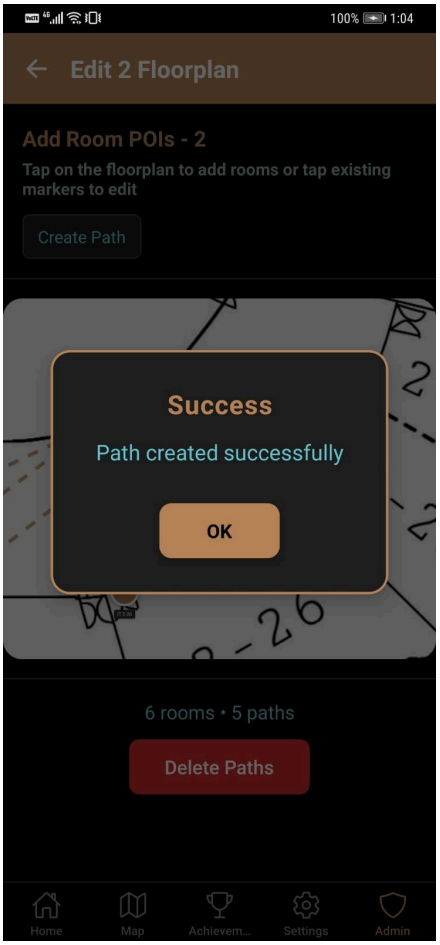
Creating Paths Between Rooms

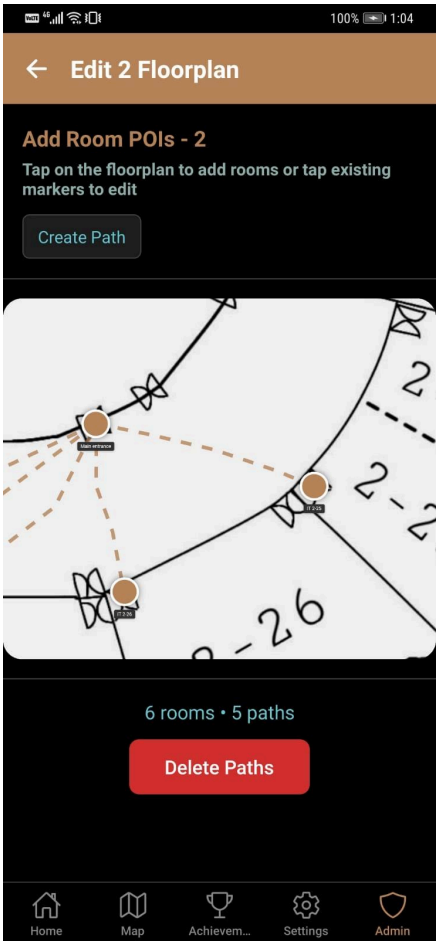
- In the Floorplan editor where you add/edit the room POIs, here you can also create paths between these POIs
- You click **Create Path**
- You have now entered **Path Mode** - **Select two room markers**
- Place **Points** on the map to join the two rooms (NOTE: place minimal points mostly at turns and 1-3 points on straights)
- You can **Save Path** or **Exit Path Mode** if needed
- At the bottom of the page, you can also **Delete a Path**






100% 1:04
Edit 2 Floorplan
Add Room POIs - 2
Path Mode: Select 2 rooms, then tap to add waypoints.
Tip: Use minimal waypoints for best results. Double tap a waypoint to remove it. Selected: 2/2
Exit Path Mode
Save Path (3 waypoints)
6 rooms • 4 paths
Delete Paths
Home
Map
Achievem...
Settings
Admin


100% 1:04
Edit 2 Floorplan
Add Room POIs - 2
Tap on the floorplan to add rooms or tap existing markers to edit
Create Path
Success
Path created successfully
OK
6 rooms • 5 paths
Delete Paths
Home
Map
Achievem...
Settings
Admin

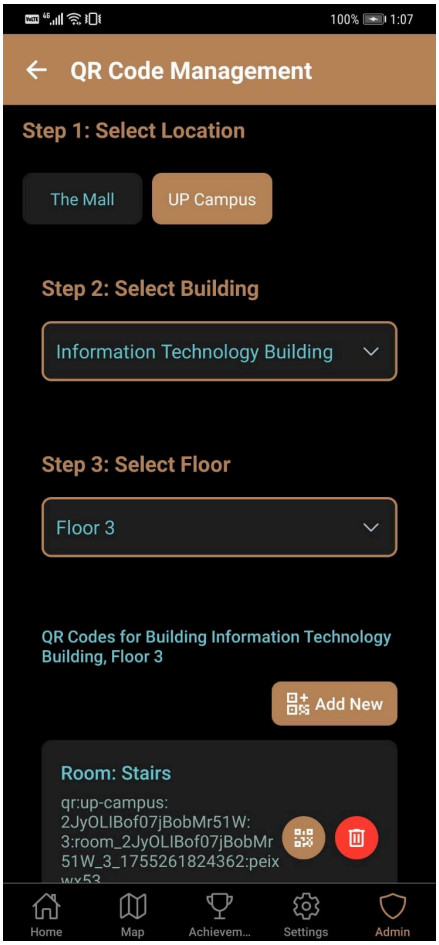

100% 1:04
Edit 2 Floorplan
Add Room POIs - 2
Tap on the floorplan to add rooms or tap existing markers to edit
Create Path
6 rooms • 5 paths
Delete Paths
Home
Map
Achievem...
Settings
Admin

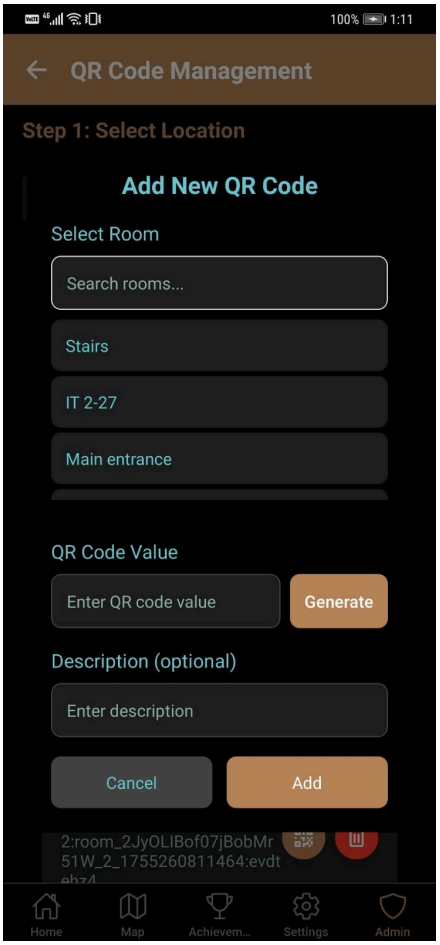
QR Code Management

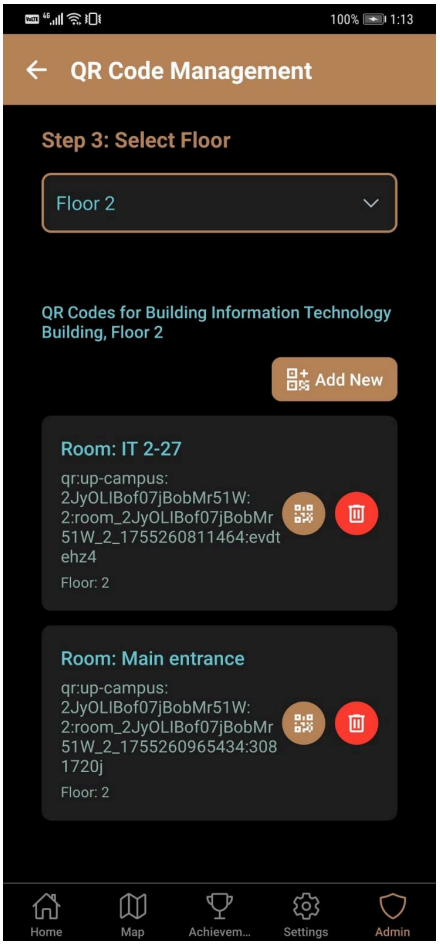
Create and manage QR codes for precise indoor positioning and location identification.

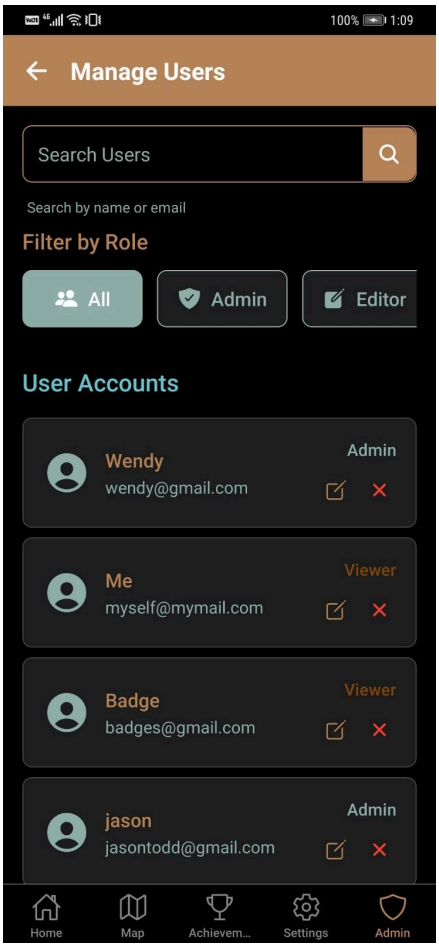
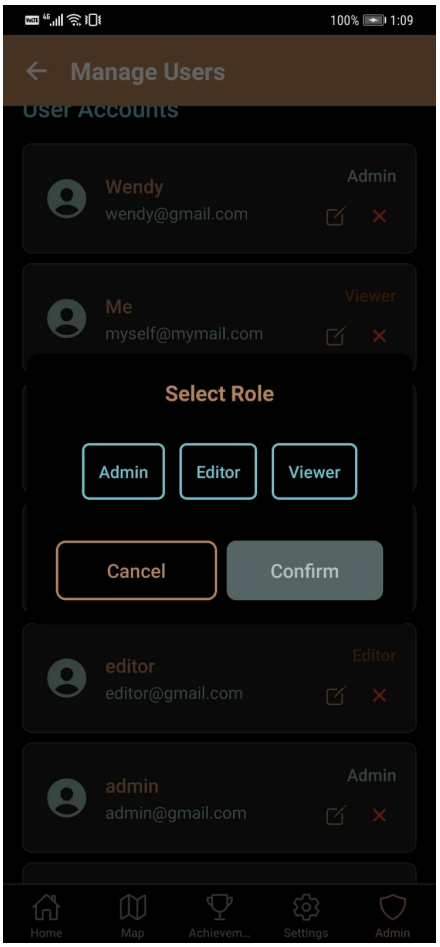
Creating QR Codes:

1. **Select** location, building, floor and the click **Add New**
2. **Select** specific room
3. **Generate** a QR code value
4. Enter **descriptive text** for the QR code
5. Click **Add** to generate a unique QR code value
6. **View** all QR codes and you can **Delete** as needed







Managing Users

- From the Admin Dashboard, select "Manage Users".
- View the list of all users.
- Search for users by name or email.
- Filter users by role (Admin or Viewer).
- Tap the edit icon to change a user's role.
- Tap the delete icon to remove a user.