

# USER MANUAL



**NaviLens**

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Empowering the visually impaired

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## WHAT IS NAVILENS?

NaviLens is a new system of intelligent digital markers which help to make any space more accessible.

It is a set of colour codes similar to QR codes, but with technical attributes that enable them to be read under conditions that no other code has.

NaviLens markers help users to obtain useful information (for example the routes that pass through a stop, the timetable of the stop, description of the stop, incidents in the service, etc...) in the most suitable format and language for the user profile. It helps to improve accessibility to any environment/service and to improve user experience in its use.



## QUICK START GUIDE

(For additional information, check the User Manual Guide)

- 1) **Install** the free app **NaviLens**
- 2) **Run** the application, accept permits and terms of use.
- 3) Close the quick menu and start using the application.

**Point the mobile phone camera** towards the environment to detect a marker (markers can be located on walls, podotactile paving crossings, etc...)

When "click" is heard, which indicates that a marker has been detected:

- NaviLens gives you vocal instructions to reach the marker and the distance to it (this will be the distance between the camera and the marker).
- If you make a **shake gesture (by shaking the mobile) or you press the "read" option**, the information contained in the marker will be read.

To stop obtaining information on a marker, *shake* the mobile again (the camera should not be focused on the marker or it will continue reading).

If there is more than one marker, the application will indicate that it is reading 1 or x markers, 2 of x markers and so on. It will always read the first marker that the camera is most focused on.

- 4) **Customize** the different **setting options** provided by NaviLens to suit your specific needs.

## USER MANUAL GUIDE

### What do I need to use NaviLens?

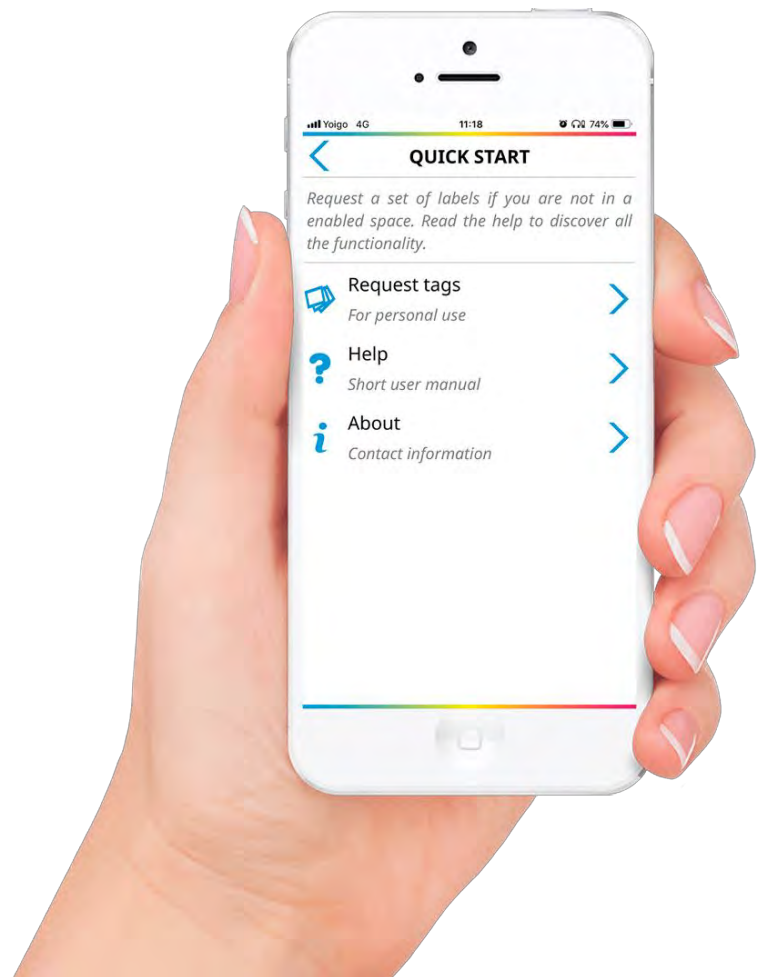
All you need is to install the free NaviLens application from Apple Store or Google Play in your mobile phone.

### I already have NaviLens installed. Now what?

On opening the application and after accepting the permits requested (you will only be asked to accept camera and location permits when you open it for the first time), NaviLens will display the Quick Login Menu.

From this menu you can access:

- Request tags for personal use: In this option, you can request for a pack of tags to be sent, free of charge, in order to tag everyday use elements of your environment.
- Help, brief guide: Here you can access a brief tutorial, summarizing how the App operates.
- About: Lastly, in this option, you can access NaviLens contact information, if you need to make any enquiry or suggestion.





After closing the menu and going to the NaviLens landing screen, you will find a simple interface consisting of a central screen, where detected tags will appear and a lower menu with buttons.

You can interact with the detected tags or markers by selecting them with a double click using your screen reviewer. Tags will appear in descending order, with the most recent at the top.

NaviLens tags or markers are detected and read by the mobile phone camera. To do so, the camera should be pointing outwards, so that it suitably faces the markers (placed on walls, ground, at a height, etc...)

## How can I read NaviLens markers and get information?

Whenever the mobile device camera detects a tag, the device will make a "click" sound, which informs the user that there is a NaviLens marker indicating an element.

To read the tag and obtain the information it contains, the user should *shake* the device or press the "read" option.

The *shake* gesture is made by a twist of the wrist. This means: If the telephone is pointing in a vertical position, put the device horizontally and then return it to a vertical position. On the other hand, if it is in a horizontal position, place the phone vertically and return it to a horizontal position.



You can also initiate reading by pressing the read option.

Once you have made the *shake* gesture, or pressed the read option, NaviLens will read the information contained in the marker (for example, the stop number where you are at and the time of arrival for the next buses).



## How can NaviLens help me reach a marked element?

Once NaviLens finishes reading the information of the marker, it will start to read vocal instructions (right, left, forward, backward, upward, etc...), which will help you reach the tagged element.

After detecting a marker and while you do not *shake* the device or press read to obtain information, the application will show the distance from the element and guiding instructions to reach it.

## What happens if the application detects more than one marker?

When the camera detects more than one marker, the application will indicate the detection of each one with a "click" and will indicate 1 of X, 2 of X, etc. It will first read the marker that is most focused by the mobile phone camera.

## How are tags shown on the screen?

In the main NaviLens screen, the detected tags are displayed in descending order (the most recent one will be displayed on the upper part of the screen), for a period of 30 seconds. The purpose of this characteristic is to be able to select the tag that interests you most, if you have more than one tag displayed, and to silence the location of the other tags.

On selecting a tag, you can add information to markers and personalize them, to be more useful (see the corresponding section)



## What do I do to stop a voice-over?

If you want the device to stop giving information, simply *shake it again*.

Important note: If the device is aimed so that it continues viewing the marker, it will continue giving information. The camera must stop viewing the marker to stop the voice-over.

## What should I do to receive information in the language set in my device?

Nothing! NaviLens will detect the language of your device and will give information in that language. The technology operates in over 15 different languages.



## What information can NaviLens markers contain?

NaviLens can obtain information of any kind. Descriptive information on the environment, functional information on the use of an element, dynamic and changing information such as incidents in the bus service, when the next bus is coming, a hyperlink, etc... When information contains a hyperlink, the voice-over will indicate so. To implement it, simply select the tag on the screen and touch the heading.

## Can I personalize the information contained in the markers?

Yes. Personal notes can be made on any marker. To do this, select the tag on the mobile screen and note the instructions you need. These notes will be read after the information that the tag contains and will only be available for the user who sets it on his/her mobile device.

## How do I set the application to adapt to my needs?

Options to settings and use of NaviLens are found in the four buttons of the lower menu. With these options, you can adapt NaviLens settings to your preferences for more comfortable and easy use.

- Settings (Button)
- Display mode (Button)
- Zoom. (On / Off Switch): When on, the distance of detection will be increased by around 40%, but the viewing angle will be reduced.
- Quick login menu (Button)

## APPLICATION CONFIGURATION MANUAL

### 1) Configuration Button:

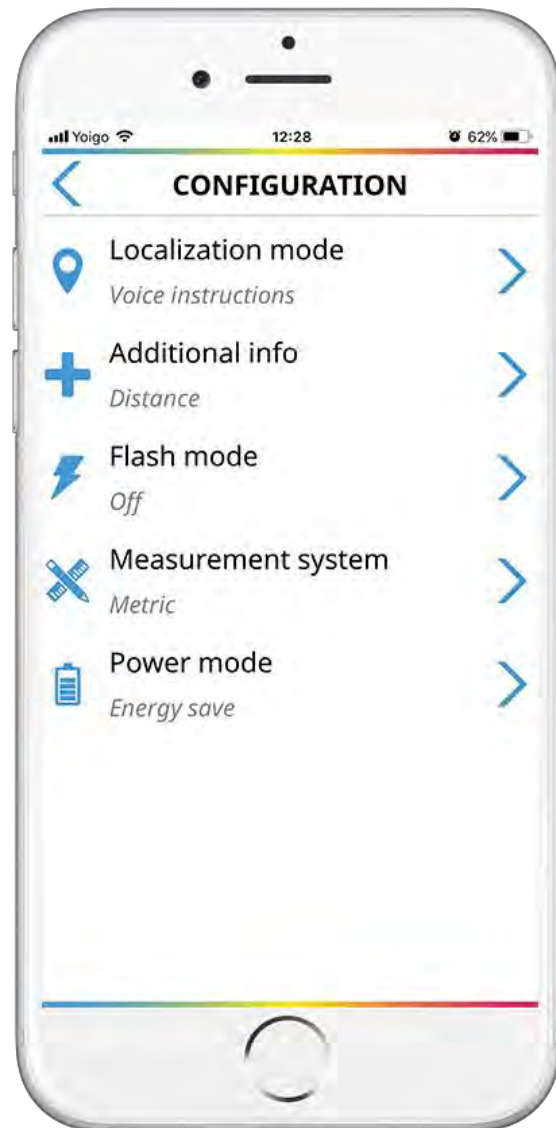
This window is divided into various sections:

- **Location mode:** this enables you to choose how you would like NaviLens to provide helping information while guiding. There are the following options:

- Sounds: The application will indicate through three-dimensional and panned sounds, the location of the tag (see the section on Guiding through sounds)

- Vocal instructions: The application will indicate the location of the tag through voice instructions and will delete sounds (Suitable for beginners, but slower when interacting).

These two options can be combined.



- Vibration (Only in Android devices): The application will inform you of the distance and location of the tag through ramps and vibration patterns: downwards, left, upwards, right.

The device will vibrate with more frequency the closer you are to the tag).

If no option is activated, the system will activate the reading option by default (the application will read the tag when it is detected, without the need to read it with the *shake* or reading option. This option provides speed, but does not give guiding instructions)

- **Additional information.**

You can activate or deactivate the following 3 options:

- Distance: When the tag is read the distance between the tag and your device will be said.
- Orientation: When this option is activated, you will be informed through acoustic signals of the angle in which the tag is located with respect to your device. You will also be given the marker's angle inclination.
- Time: Here, you can activate / deactivate the verbalization of the time it takes for you to detect the tag.

- **Flash mode.**

In this section you can manage the flash mode. You can choose between: Automatic (by default), on and off. The automatic mode can automatically activate the flash in low light environments.

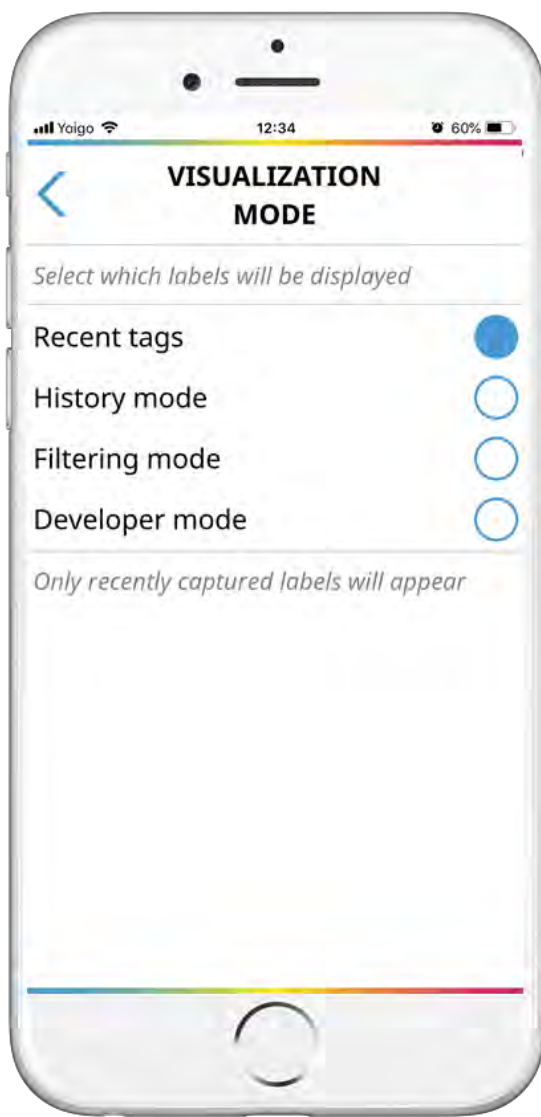
- **Measurement system:**

In this section, you can choose the way in which the application verbalizes the distance of the tag. You can choose between: Automatic (by default), imperial or metric.

- **Energy mode:**

Here you can manage the consumption of the application: You can choose between: Automatic (by default), High performance and Energy saving. When the Automatic option is activated, the application will go to energy saving mode when necessary.

Lastly, there is the return button, which will take you back to the previous screen.



## 2) **Display Mode Button:**

Here you can choose the way in which you want the tabs read to be displayed on the screen. You can choose between the following options:

- **Recent tags**

In this mode, only the tags viewed at that time will be displayed. You can select the tag to see information on it: Open attached hyperlinks, read the description, etc.

- **Past mode:**

In this mode you can see information on tags consulted to date in the application. You can view: Description of the tag, attached hyperlinks, the time since you saw the tag the last time, if it is visible, etc.

Note: In both the previous modes, you can select the tag, so that if the system detects several tags at the same time, it will only verbalize the one selected.

- **Filtered mode:**

In this mode you can filter a tag by text, in order to find a tag with the alphanumeric chain you introduce. E.g. “room 403”, just by writing “403”, “room 403” tag will be detected.

- **Developer mode:**

In this mode NaviLens verbalizes the single Code of the tag (only used by installers and developers)

### 3) Zoom (switch on/off):

When on, the detection distance will be increased by about 40%, but the viewing angle will be reduced.

### 4) Quick Login menu button

This is the same menu that appears for the first time on login of the application, and you can always return to it to check the help of the application, request generic tags or contact information of NaviLens.

### 5) Guided through sounds (advanced mode):

By pressing the first button of the lower menu (Configuration), in the location mode section, you can choose the sound option. This option replaces the vocal instructions of forward, up, left, etc... by a series of user-friendly sounds, which give you the same guiding instructions in a faster, more flexible way. The sound mode requires greater experience in handling the application, and hence it is recommended when NaviLens has been used previously and the user is familiar with the technology.

The App has a *beep* and click sound system panned in 3D to identify the location of a tag. The sounds and functionalities of this system are detailed below:

- **Height:**

.Tag upwards: Sound *beep* (high-pitched).

.Tag downwards: Sound *beep* (deep-pitched).

.Centered tag: Sound *beep* (medium-pitched).



- **Position:**

.Tag on the left: Two *beep sounds* (upward).

.Tag on the right: Two *beep sounds* (downward).

.Centerd tag: Two *beep sounds* (equal).

Note: If you want to center the tag, you should search for the sound of two equal beeps. This will indicate that the tag is centered. If you also want to center the height of the tag, search for the intermediate tone of the counterfoil of 3D tones.

- **New centred tag:**

In an area with different tags, as the user points the device at a new tag, which is hence more centered than the rest, a "click" will sound indicating that the focus has changed. By making a *shake* movement at that time, the tag can be read to know its contents and the distance from it.

- **Orientation:**

If you have previously activated the "Orientation" in the "Warning Configuration" of NaviLens, you will hear 4 sounds apart from those described above. These sounds are upward or downward ramps, which indicate the angle of the tag with regard to your mobile device.

These sounds are described below:

- **Tag tilted to the right:** Ascending whistling ramp.
- **Tag very tilted to the right:** Ascending whistling ramp (high-pitched).
- **Tag tilted to the left:** Descending whistling ramp.
- **Tag very tilted to the left:** Descending whistling ramp (high-pitched).

When you are less than 50 cm from the tag, a metallic tone will be given indicating that it is within reach of your hand.