FE Tracking App

FE Data

Feb 17, 2023

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CHAPTER

ONE

GETTING STARTED

The *FE Tracking* App can be used as an addition to the Fast Events WordPress plugin. *FE Tracking* allows participants to view a route with points of interest and checkpoints along the way. The App records the date and time of passing the checkpoints and automatically uploads them to to the event organisation's server.

CHAPTER

TWO

TYPICAL USE

Use the App to scan a printed ticket or a downloaded PDF ticket. Turn recording on at the start of the route, turn off the screen and put it in a bracelet, for example. Stop recording at the end of the track and show the finish/Exit qrcode to the organisation in order to receive, for example, a medal or any other form of proof of participation.

- **Install the *FE Tracking* App**: *Installation*
- **Overview**: *Usage overview*
- **Global Settings**: *Settings*
- **Changelog**: *Changelog*

2.1 Installation

The *FE Tracking* App is available for Android 9.0 and later and IOS 13.0 and later.

2.1.1 Battery optimization

Unfortunately, some **Android device manufacturers** have made a sport of optimising battery usage by forcing apps running in the background (such as (such as *FE Tracking* when it is recording) are forcibly shut down. Alarm Apps, Health Apps and Location Apps are then the victims of this policy, while the standard version ofAndroid usually handles this well. Also, the use of battery optimisation Apps are used (Android and IOS) it can have a negative impact on *FE Tracking*. If such Apps are used make sure that *FE Tracking* is excluded from optimisation if possible.

If this happens to you, remember that this is not a problem with the App, but with the device manufacturer.

Check this site to find out if your phone uses device-specific optimisations. The general rule is to exclude the *FE Tracking* App from battery optimisation rules, if possible. These settings are often buried deep in the phone's settings.

2.1.2 Further optimizations

FE Tracking is very battery-conscious. When track recording is enabled it will automatically start recording a location according to the configured distanceFilter (meters). When the device is detected to be stationary, *FE Tracking* will automatically turn off location-services to conserve energy.

Nevertheless, further optimisations are certainly possible in order to use the battery as efficiently as possible.

1. As mentioned earlier, make sure that *FE Tracking* is excluded from battery optimisations.
2. Do not run any other Apps in the background. Ensure that *FE Tracking* is the only App running in the background.
3. Avoid using social media and streaming Apps. They are known to be notorious battery drains. Search on the Internet for `social media App battery usage` and you will find good suggestions.
4. If you stop walking, cycling, etc. for more than 5 minutes, temporarily switch off track recording and switch it on again when you resume.
5. The amount of data that *FE Tracking* uses for checkpoints updates is very limited and in most situations is not more than a few 10-kilobytes. For very long routes it might be a few megabytes. This data is almost always sent over the mobile data network. Check your mobile operator's coverage map to see which type of network (`3G, 4G or 5G`) has the best coverage. Most phones constantly scan all networks for the best possible coverage, which drains the battery. You can prevent this scanning by locking the phone to one type of network (one with good coverage for the whole route) in the phone settings.
6. If you are out walking, cycling, … with a group of colleagues or friends, you can also create a personal WiFi hotspot on one of the devices. Turn off cellular data on all other devices and connect to the hotspot using Wi-Fi. These devices will save a lot of battery power.
7. Of course, you can also buy a small power bank and connect it to your phone. This way you will always have enough power available. This is especially recommended for long tracks or tracks that take all day.
8. While recording the route, you can use the App to check where you are on the track and see how far you are from the next checkpoint, first aid post, etc… At this point, map data is downloaded over the cellular data network, draining the battery and possibly your cellular data plan. The App uses a map cache, so once a map segment has been downloaded, the next time it is used, the segment is retrieved from the cache. This saves time and money. So if you are at home and have a WiFi connection, you can already explore the track and scroll through it at different zoom levels to fill the map cache. A great time and cost saver for your mobile data bundle and your battery.

2.1.3 Languages

FE Tracking supports standard two languages: English and Dutch. You can add your own language by following the next steps:

1. Make sure you have a Github account.
2. Check the `languages` folder of https://github.com/fe-data/fe-tracking-languages if your language is supported.
3. If not, login with the Github account at https://gitlocalize.com/repo/6402.
4. Create a new issue in https://github.com/fe-data/fe-tracking-languages/issues requesting the new language code. We will give you the role of moderator for the new language. Use the two letter codes from this source. Only LTR-languages are supported.

As a moderator you may receive review requests from other translators. Process them and when you are happy with the update create a pull request. Mind you:

1. We will only process pull requests that originate from Gitlocalize, and will not process pull requests from private forks.
2. For initial translations, we will only accept a full translation of the entire file. Partial translations will be rejected.
3. Once we have processed the pull request, the translation will be available in the next release of the App.
4. There is only 1 moderator per language.

2.2 Overview

2.2.1 First time use

The first time the *FE Tracking* App is launched, a warning is shown that the App uses location data to determine where the phone is in order to check whether a checkpoint has been passed. When using different parts of the App, you will be asked for permission to use e.g. the camera or location data.

2.2.2 Permissions

Permissions are required to use certain parts of the App. Permission is only asked for when the respective component is used.

Camera If a ticket is scanned with the camera to add a track to the tracks overview, it is necessary to give permission to the App to use the camera when the App is in use.

Location As soon as a map of the track is shown or live recording is turned on, permission is needed for the App to use location data. This is done in two steps. First, permission must be given to use location data when the App is in use and, as a final step, permission must be given to use it all the time. This is show as `Always` (IOS) or `Allow all the time` (Android). So even when the App is closed or running in the background, location data will be used.

Motion & Fitness / Physical activity This permission is requested at the same time as the location permission. The App samples the accelerometer periodically while tracking in order to power-down the GPS as soon as the device is determined to be stationary, while stopped for a break, for example.

Files and media If a track is added to the tracks overview by scanning a PDF containing the etickets, permission is required.

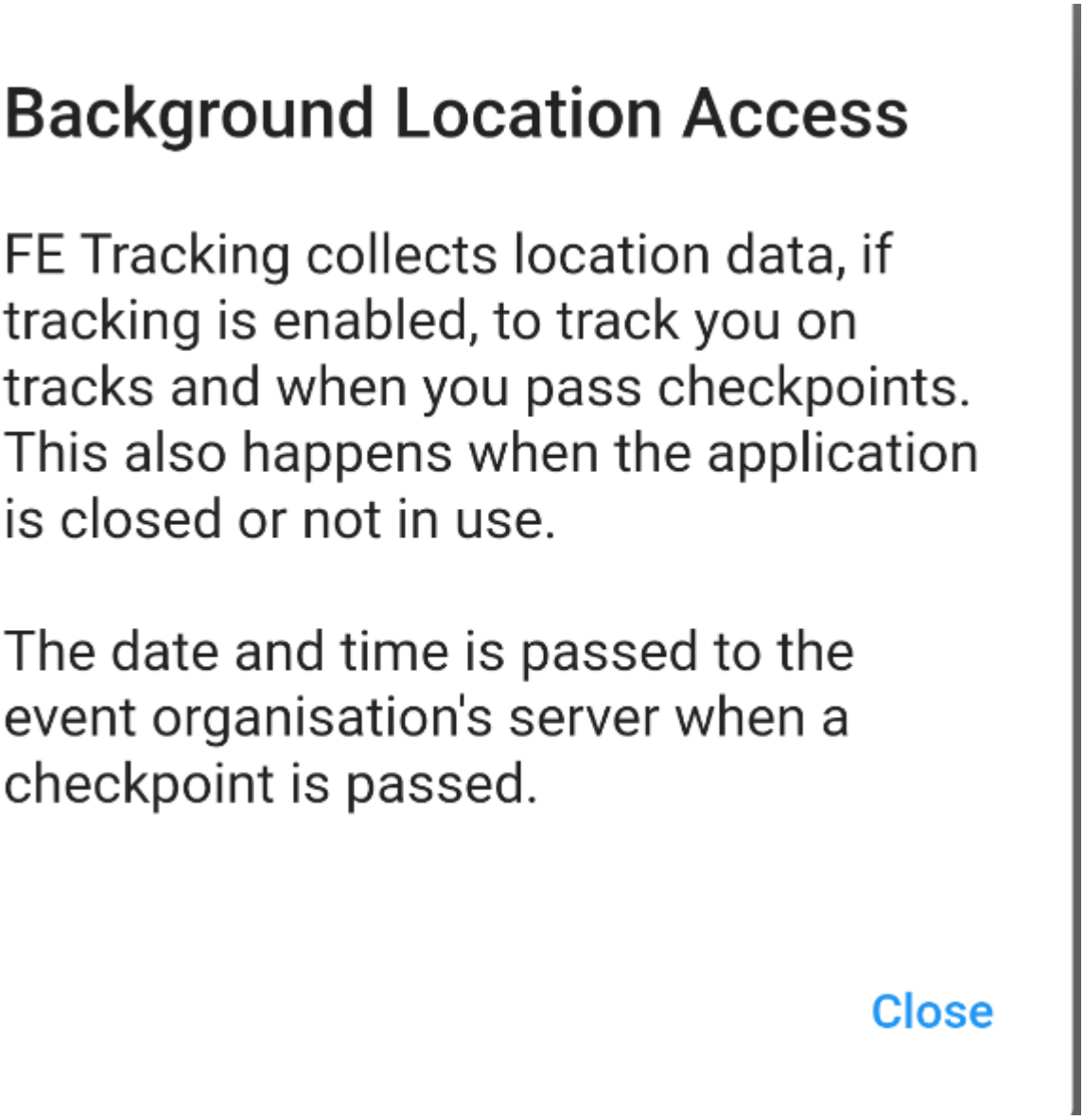

Fig. 1: Warning screen

Background App Refresh (IOS only) This permission is requested at the same time as the location permission. This is necessary in order for the App to continue to operate in the background.

2.2.3 Permission overview

Warning: Periodically, both IOS and Android will show reminders that the App can always request location data and if the App is not used for a long time, this permission will be withdrawn. So if the App has not been used for a long time and it is restarted again, make sure that the location permission is set to `Always` for IOS or `Allow all the time` for Android.

2.3 Settings

2.3.1 Checkpoint settings

Sound Make a sound when you approach a checkpoint, if this setting is switched on.

Text-to-speech A spoken text is played when you approach a checkpoint, if this setting is switched on. See also the next setting.

Text-to-speech format This is the sentence that is spoken when you approach a checkpoint. The **{}** part is the name of the checkpoint.

2.3.2 Map settings

Disable checkpoint circles The checkpoints on the track are shown as light grey circles and light green circles when a checkpoint is passed. Disabling this option has no effect on the indication of whether a checkpoint has been passed or not. If uploading is selected, the date and time of passing the checkpoint is still sent to the event organisation's server.

Centre location position Centring the current position on the map.

Track color The colour of the track on the map. Click on the coloured circle to change its colour.

Track line width The line width (1 - 10) of the track.

Location color The colour of the current location and direction on the map. Click on the coloured circle to change its colour.

Live tracking color The colour of the line of the track travelled. Click on the coloured circle to change its colour.

Live tracking line width The line width (1 - 10) of the track travelled.

Export file type The file format (GPX or KML) used in the map part of the App to share the travelled track with another App.

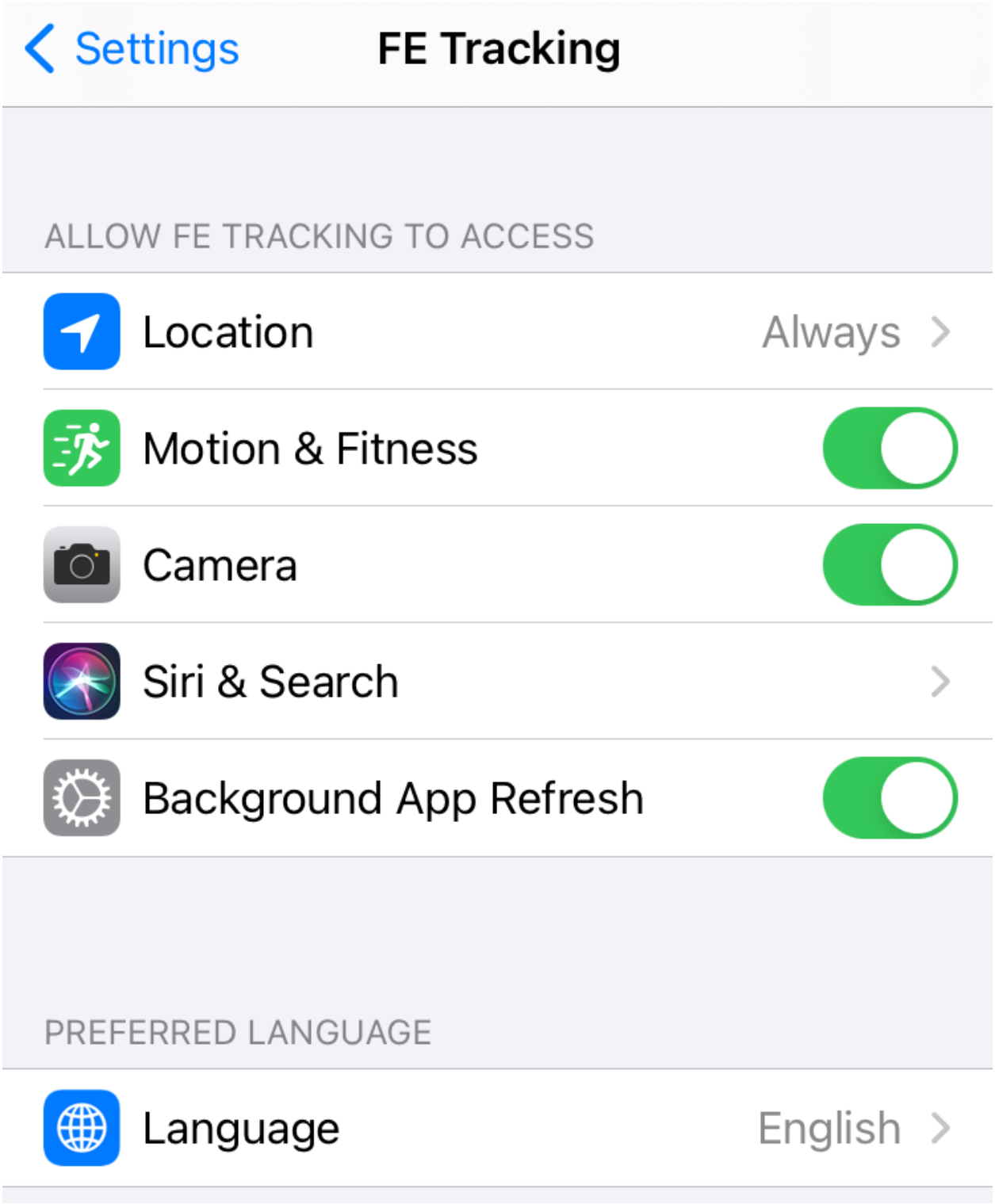

Fig. 2: Overview IOS permissions

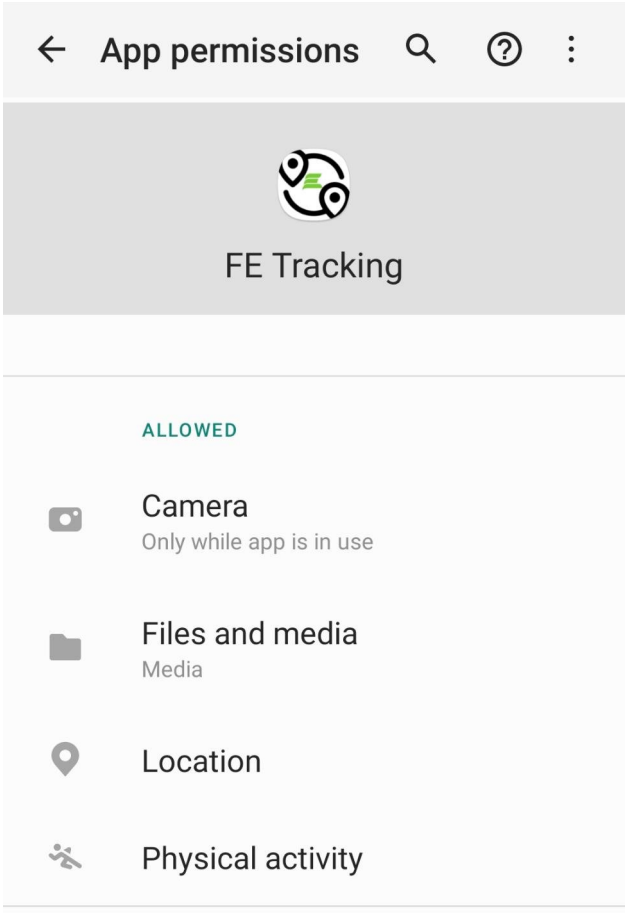

Fig. 3: Overview Android permissions

2.3.3 General settings

Audio silence period Android only. If the sound output is set to bluetooth, some phones may skip the first part of the spoken text. This is because it can take some time for the bluetooth connection to be established. Use this parameter to delay the text by a few milliseconds.

2.3.4 Reset App

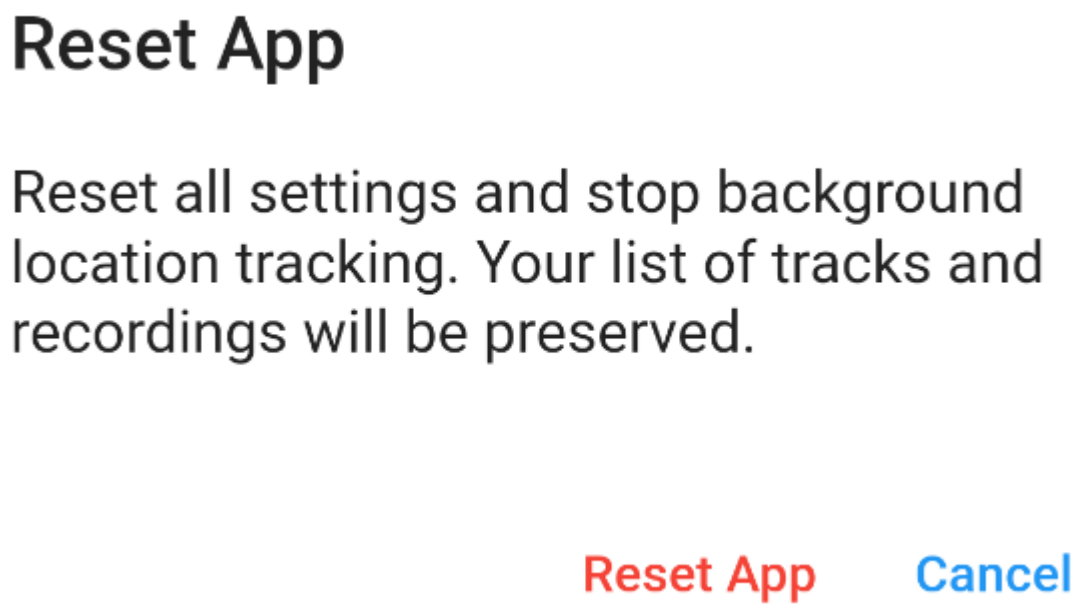

Fig. 4: Reset App screen

Reset all settings to their default values. This does not affect existing tracks that have been or will be travelled.

2.4 Changelog

2.4.1 v1.5.0 (18 February 2023)

- New: Update internal libraries.

CHAPTER

THREE

USAGE

How to use the different menu choices.

- **Tracks overview**: *Tracks*
- **FAQ**: *FAQ*
- **Donate**: *Donate*

3.1 Tracks

3.1.1 Overview

This is the default start screen of the App. It gives an overview of all the tracks that have been or still need to be covered. Tapping on a track displays a context-menu.

By swiping a track from left to right, or vice versa, a track can be deleted.

Use the button on the bottom right to add a route.

Context menu

Show the Map screen with the track, checkpoints and points of interest. If recording is enabled your travelled track is live updated.

Change the *event title* in the event overview

or or When all checkpoints are passed **and** uploaded to the event organisation's server, the qrcode will turn green and the *Finish/exit qrcode* can be shown if the organisation requests it. This is only possible within the tracking window. See the *Information screen*. Outside the tracking window, the icon is grey or transparent green when all checkpoints have been passed.

This icon shows the information screen with emergency numbers, event information, order data and when checkpoints are passed. At the top right of the icon is a badge showing the number of checkpoints passed. By default, this badge is red, but when all checkpoints are passed, it turns green.

or or The event can only be recorded in the tracking window. You can find the tracking window timeslots in the *Information screen*. Outside this window the icon is grey. Once recording has started, the icon changes to a pause button.

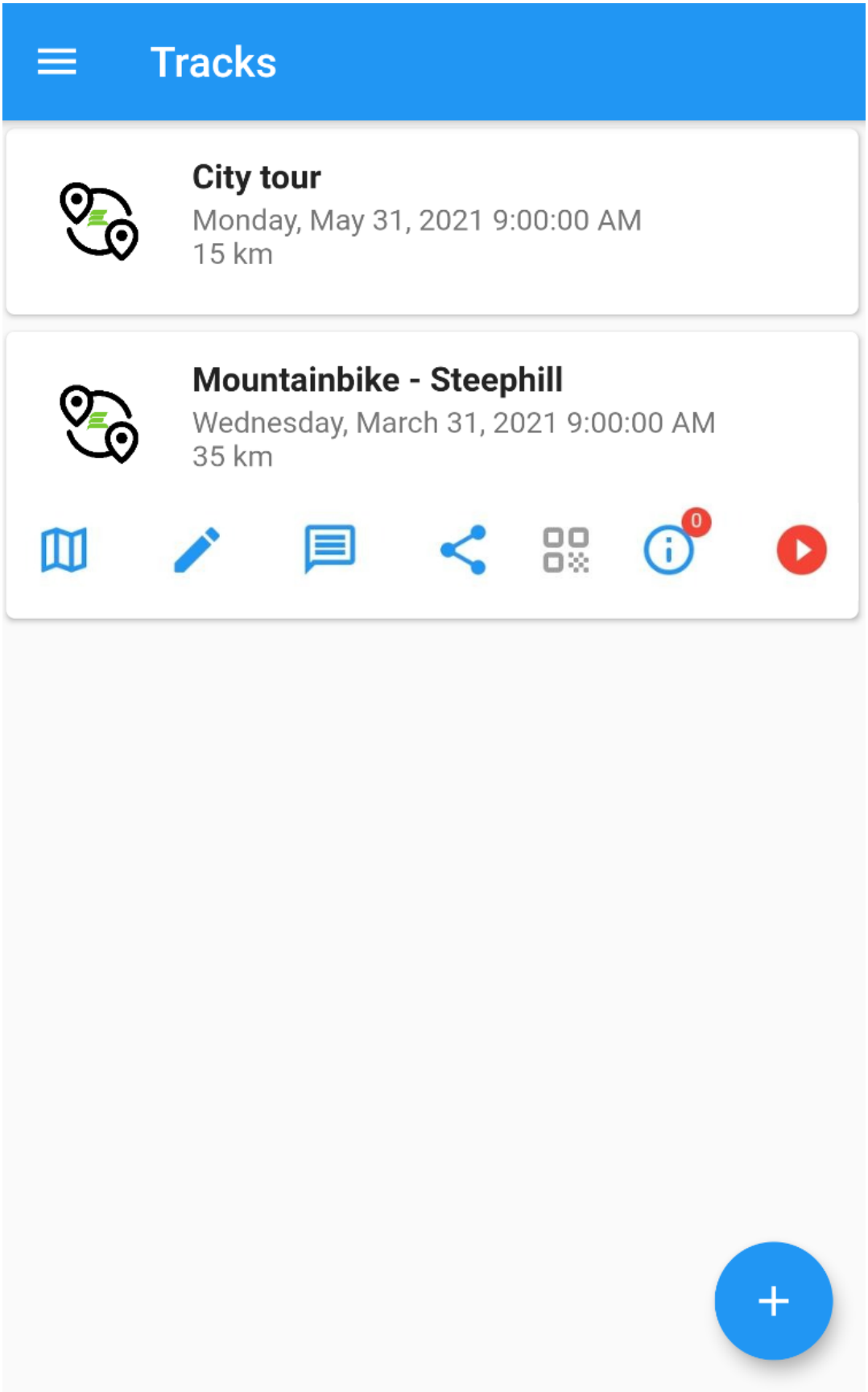

Fig. 1: Overview tracks

3.1.2 Add tracks

After a ticket has been purchased from the event organiser and the eticket has been downloaded, the track can easily be added by scanning the PDF file that has been downloaded for a valid eticket.

If the PDF file contains more than 1 ticket, the App will ask which page is to be scanned. If there is only 1 ticket, this step is skipped.

If the event offers several tracks with for example different distances, the App offers the possibility to choose a track. If there is only one track, this step is skipped.

Warning: Tickets can be downloaded several times. If this happens on different phones, the one who has downloaded last is the '**owner**' of the ticket. All actions to have the ticket scanned or passing a checkpoint uploaded to the event organisation's server will fail for the one who downloaded the ticket earlier.

So be careful not to distribute the ticket but to keep it for yourself.

If you want to download the track again, you will have to delete it first.

Note: For example, if an event offers several tracks of different distances, they can all be downloaded one by one. However, only one track can be recorded at a time.

3.1.3 Recording

A live recording of a track can only be done during the event. The tracking window can be found in the *information screen*. Before and after the event, no recordings can be made. The icon is grey and inactive.

When a live recording is started, the icon will change to a pause button and the background of the recorded track will turn transparent red, so that you can clearly see in the overview which track is being recorded.

You can pause recording and restart it. For example, if you take a break on your route, it is a good idea to stop recording in order to save the battery.

Warning: Only one track can be recorded at a time.

3.1.4 Screens

- *Map*
- *Change*
- *Finish*
- *Information*
- *Record*

Maps

Overview

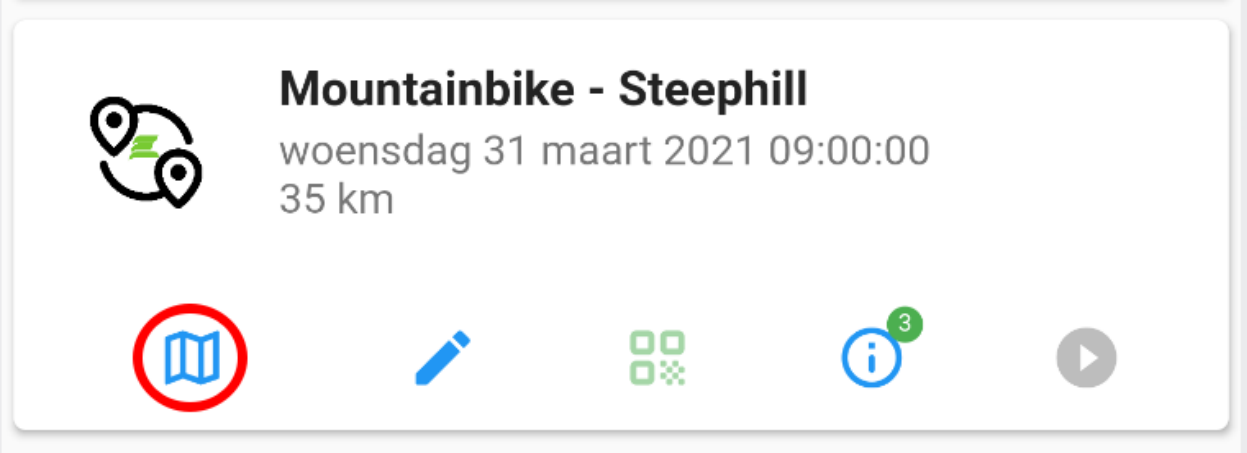

Fig. 2: Tap “Map” button

Stopped

Before the track is recorded, the standard track is just visible and you can see for example which POIs are available on the track and what the track looks like. All checkpoints are also visible on the track as transparent black circles.

Recording

When the track is recorded, the tracked track is visible (blue line) and the distance and speed are displayed at the top of the screen. As soon as a checkpoint is passed, the colour of the circle changes to transparent green. And the date and time are transmitted to the event organiser’s server.

Recording can be paused when you take a break to rest, for example. Pausing the recording is a good way to save the phone’s battery life.

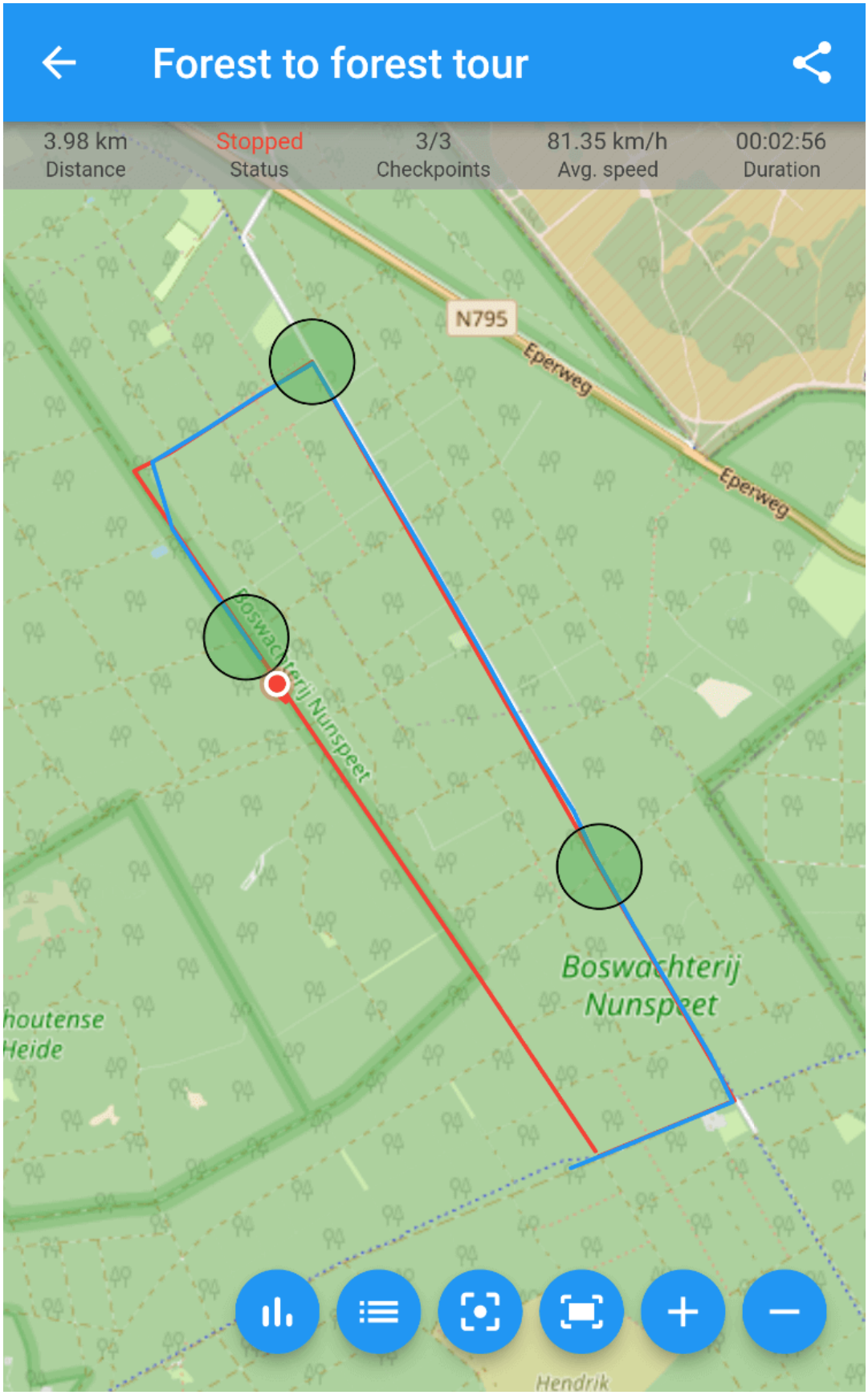

Fig. 3: Recorded Map

You can of course still view the recorded track in pause mode and, for example, *Share* the track by pressing the icon in the top right of the screen.

Graphs

Press the icon to show the speed graph and altitude graph. Touch the line graph to show the intermediate data.

Change

In the current version of the App, only the name of the event can be changed.

Finish

When all checkpoints are passed **and** uploaded to the event organisation's server, the qrcode icon turns green and can be shown to the organisation at the end of the track if requested. It can be used, for example, as proof that the entire track has been covered and that a medal or other form of proof of participation will be issued.

Information

The information screen gives an overview of all kinds of information such as emergency numbers, additional information about the event, order data and when checkpoints have been passed. The badge at the top right of the information icon is only green if all checkpoints have been passed. If not, it will be red.

"Help" screen By clicking on the information URL you can view additional information that the organisation provides. You can think of how to drive to the event, parking facilities, etc … An emergency number is also visible that can be called in emergencies. Always read carefully beforehand the conditions under which the number can be called.

"Information" screen The information screen shows the order data, but also when the event is active, the so-called tracking-window. Only when the event is active, the track can be recorded and the `Finish/exit` qrcode can be shown to the organisation when requested.

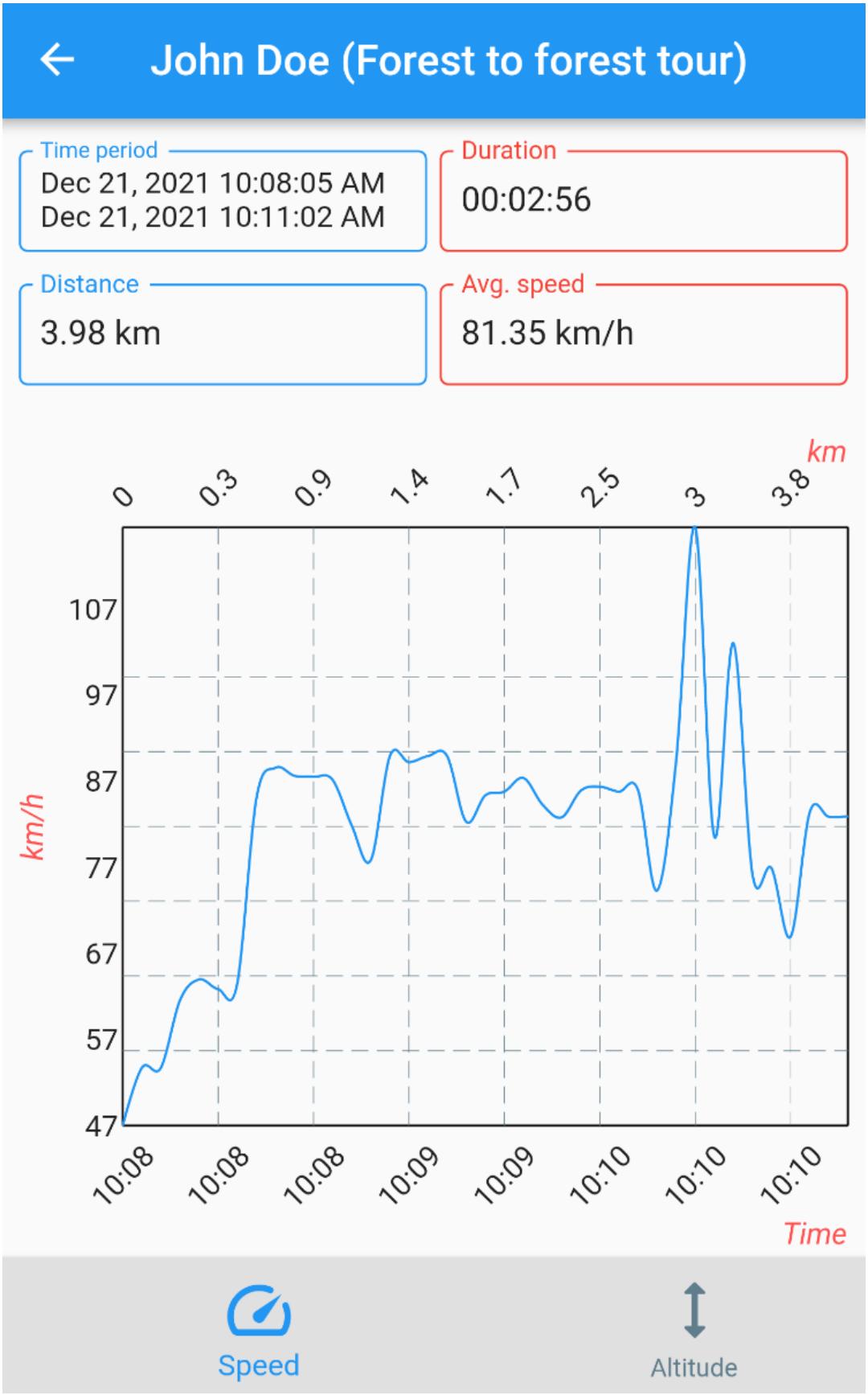

Fig. 4: Speed graph

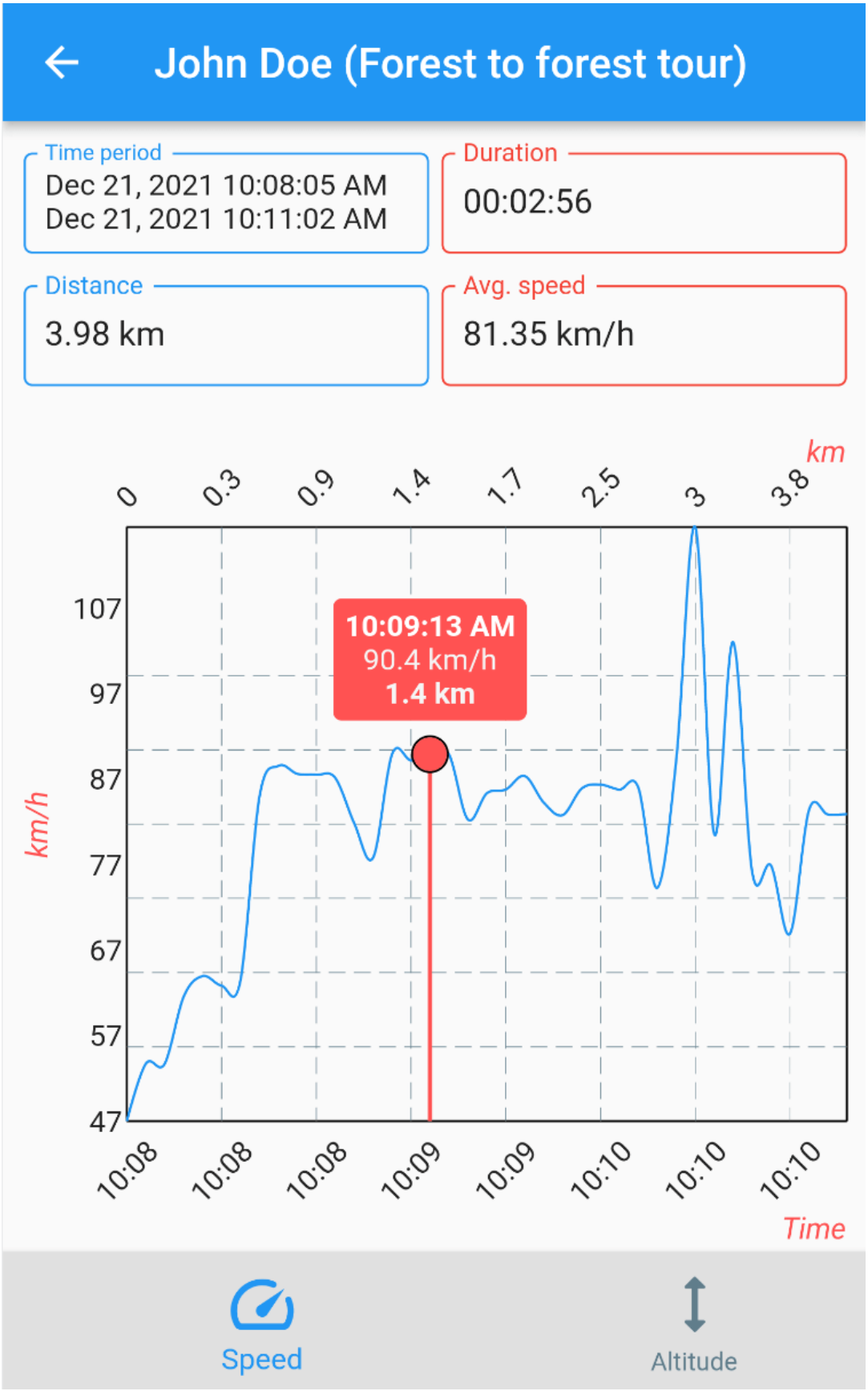

Fig. 5: Speed graph (touch line)

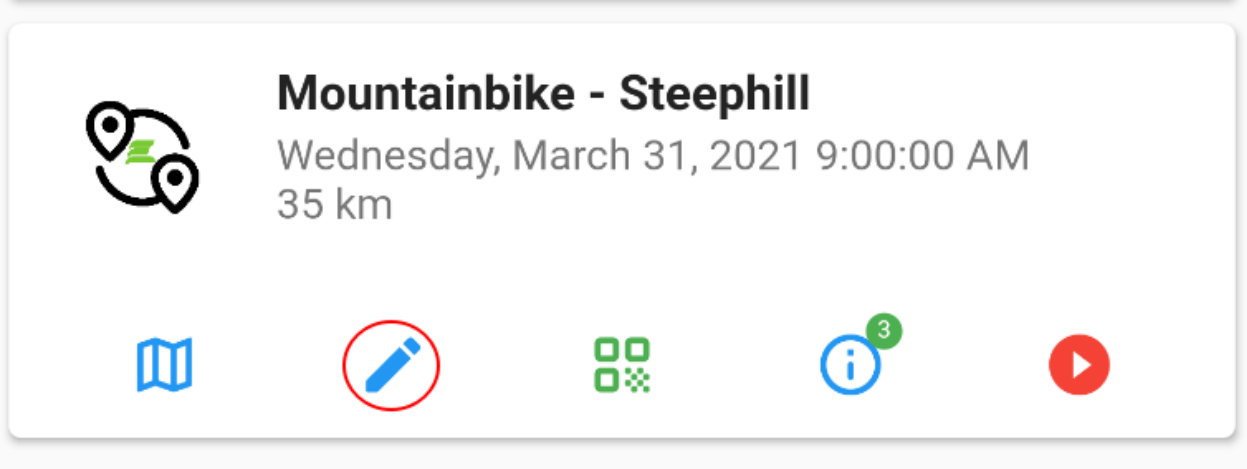

Fig. 6: Tap “Pencil” icon

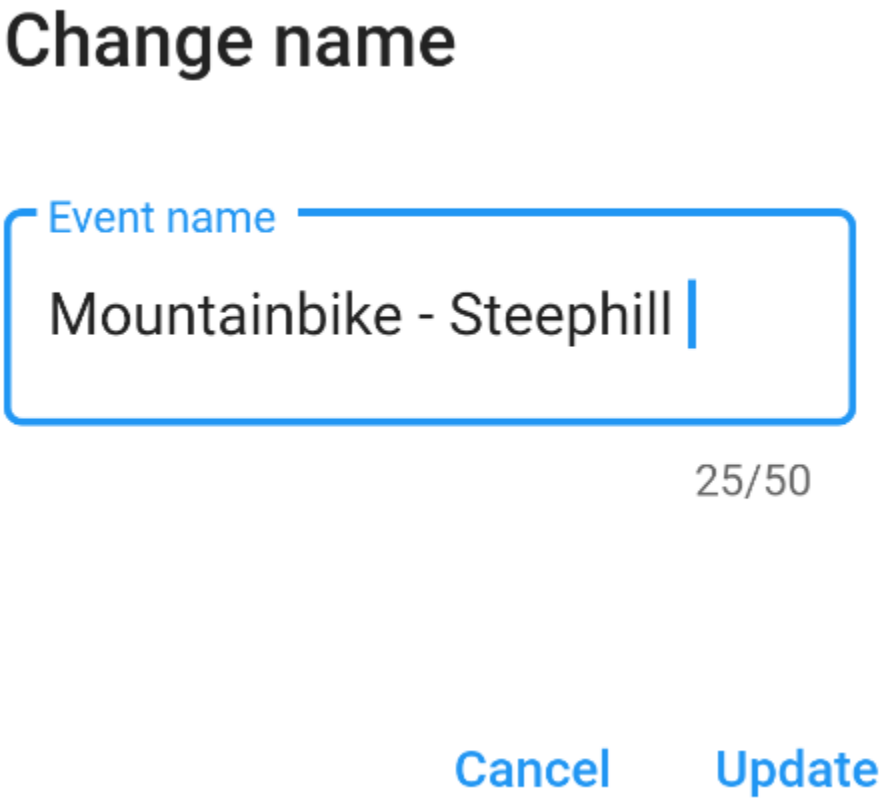

Fig. 7: Change dialog screen

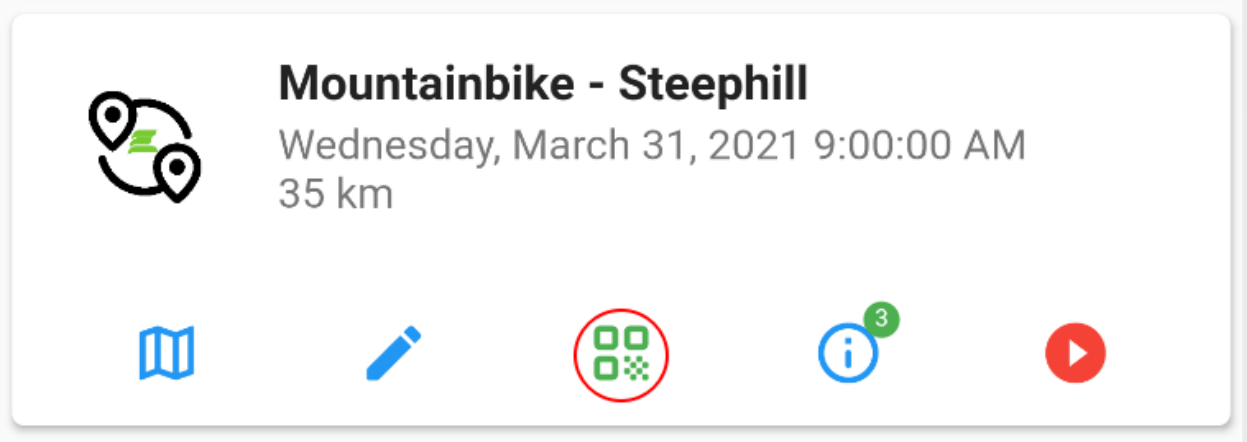

Fig. 8: Tap "Qrcode" icon

"Checkpoints" screen This screen shows an overview when checkpoints have been passed and when this information has been uploaded to the event organisation's server.

It can happen that due to a bad network connection, the upload to the event organisation's server did not take place. Or, for example, because there is no network connection at all and mobile data and WiFi are switched off. All passages of checkpoints must be uploaded to the event organisation's server, otherwise the finish/exit qrcode cannot be displayed. If the Internet connection is restored, the button can be pressed to perform the upload manually.

"Qrcode" screen This qrcode can be shown, for example, if the organisation does not use "automatic" checkpoints on the route, but instead performs the scans manually.

Record

If the current event is active, it means that the current date falls within the tracking window. See *Information* screen. Once this is the case, the recording icon will turn `red` instead of `grey`. Clicking on it will start recording the event; it will record the track travelled and check whether any checkpoints are passed. The background of the event will become transparent red, so that in the overview it is clear which event is being recorded.

Whenever a checkpoint is passed, the counter next to the information icon will increase. The counter remains `red` until all checkpoints are passed and then it turns `green`. At the same time, the "Finish/exit" qrcode will also turn `green`.

Note: Only 1 event can be recorded at a time.

Warning: After recording is turned on, the phone's screen can simply be turned off. However, do not tuck the phone away deep into a bag as this may result in poor GPS reception. Preferably put the phone in a sport armband.

Fig. 9: Finish/exit qrcode

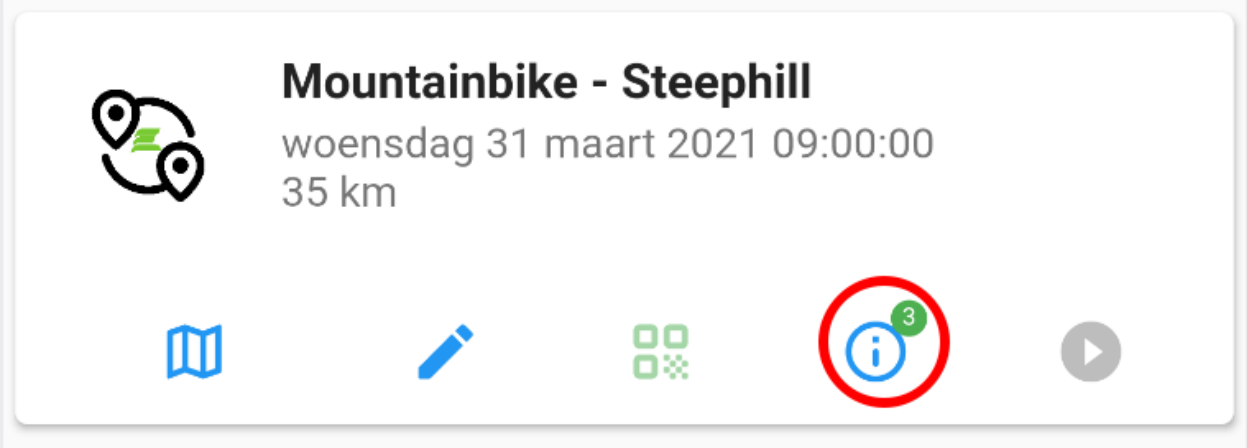

Fig. 10: Tap “Information” icon

3.2 FAQ

The recording icon is greyed out

Check the information screen to see between which times the track can be recorded. You cannot record before or after these times.

The finish/exit icon is greyed out

Check in the information screen to see between which times the track can be recorded. The finish/exit icon button can only be clicked in the recording window.

Track is not recorded if the screen is switched off

Check that all the required permissions are enabled. See Permission overview. Double check if the location permission is set to `Always` for IOS or `Allow all the time` for Android.

FE Tracking is silently killed in the background

Check that all the required permissions are enabled. See Permission overview. Your device may also be the victim of aggressive battery optimisation policies enforced by some Android device manufacturers. See Battery optimization.

Does *FE Tracking* demand a lot from the battery?

See Further optimizations.

Is *FE Tracking* available for my language?

See Languages.

How accurate is the distance in the Map screen

> It depends on the length of the track, whether there are many sharp bends in the track and most importantly, the distance filter defined by the event organisation. The App is optimized for battery-efficiency. It samples the accelerometer periodically while tracking in order to power-down the GPS as soon as the device is determined to be stationary. It uses the distance filter to query for the GPS location. But the filter itself is elastic; the faster you go, the larger the distance filter becomes. And ofcourse the other way around. Typically, the organisation sets this filter to at least 10 metres for a walking route and at least 20 metres for cycling, for example. So yes, the measured distance may be slightly less than the actual distance due to cutting corners.

You have passed all checkpoints, but the finish/exit QRcode is not green.

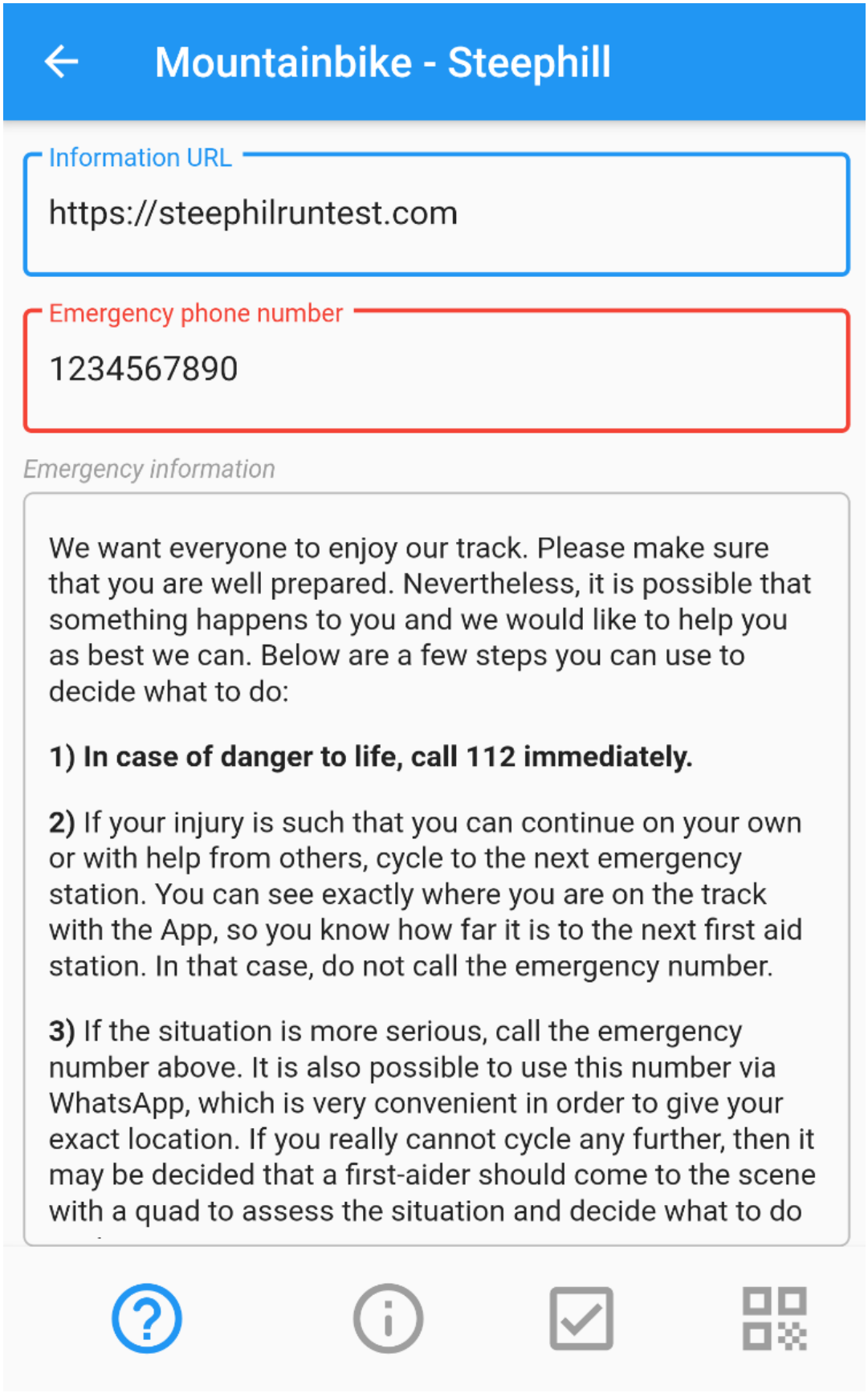

Fig. 11: "Help" screen

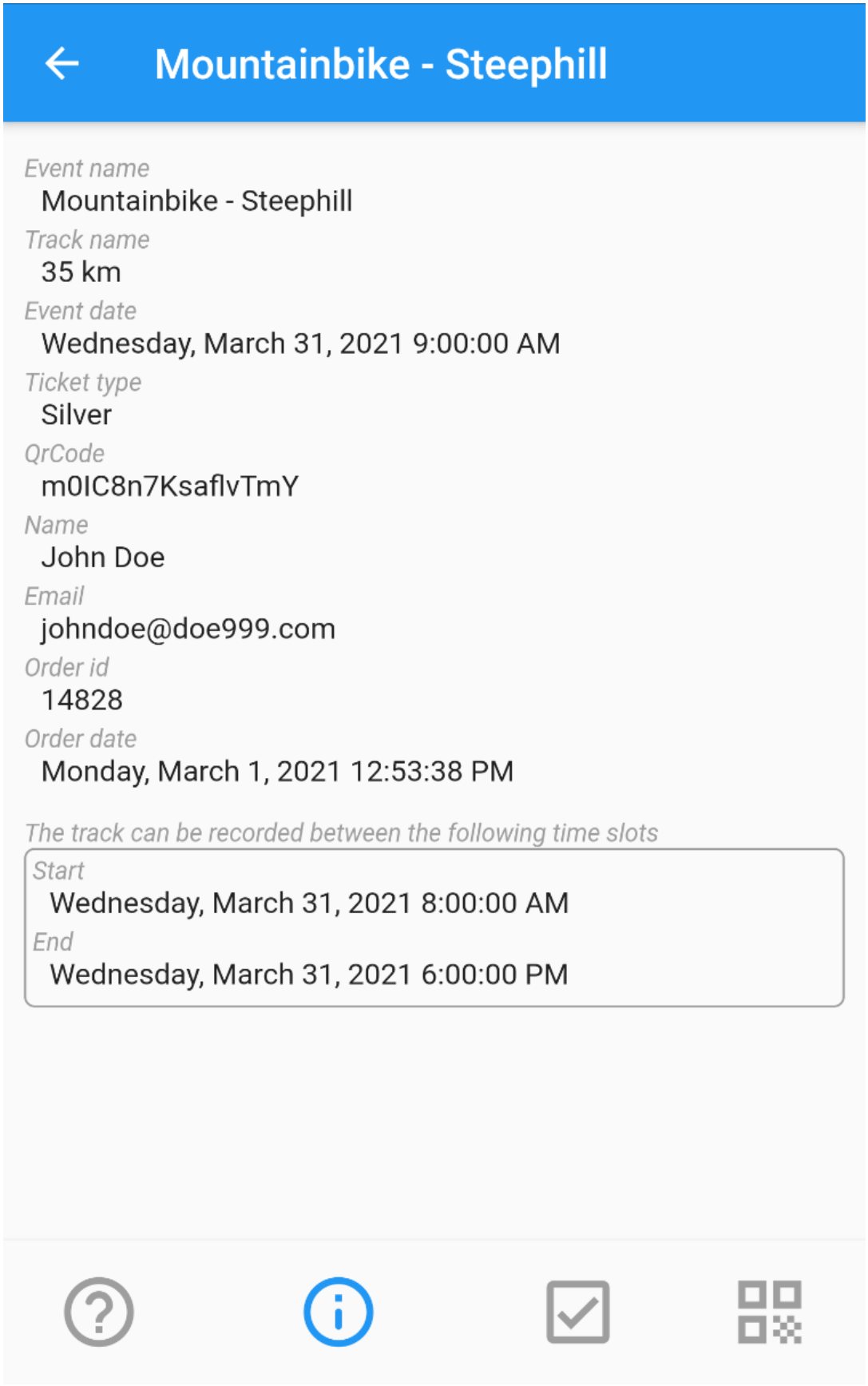

Fig. 12: "Information" screen

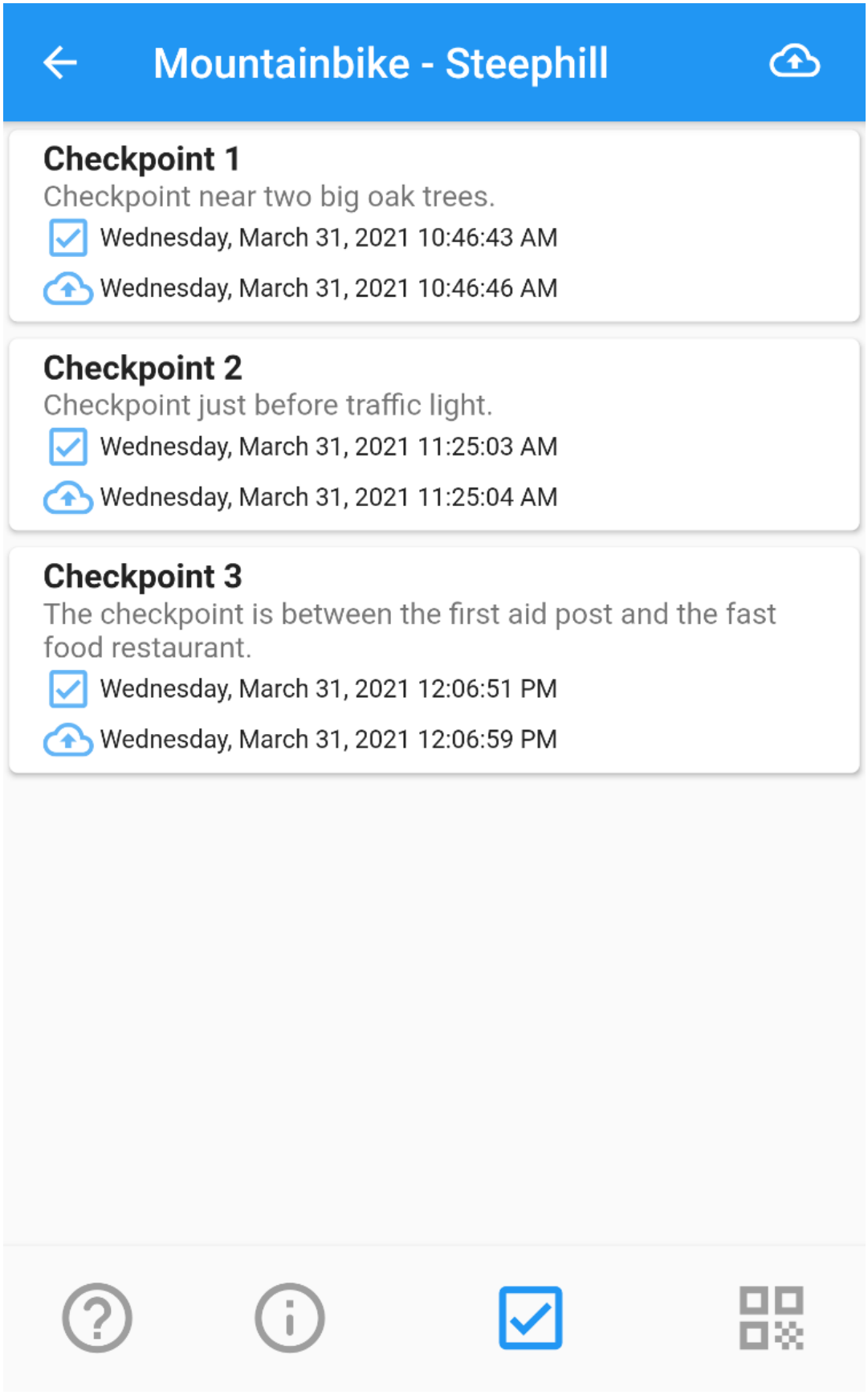

Fig. 13: “Checkpoints” screen

Fig. 14: “Qrcode” screen

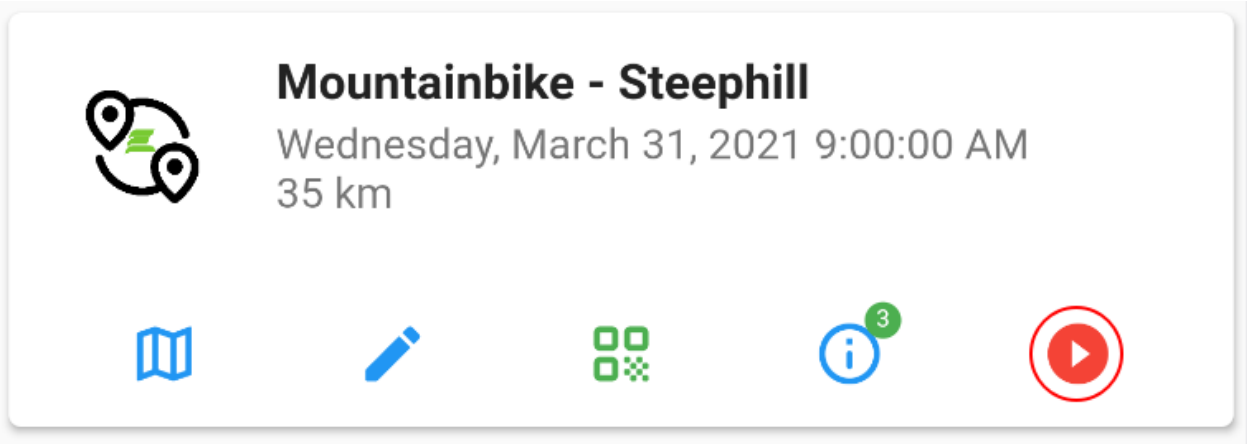

Fig. 15: Tap “Record” icon

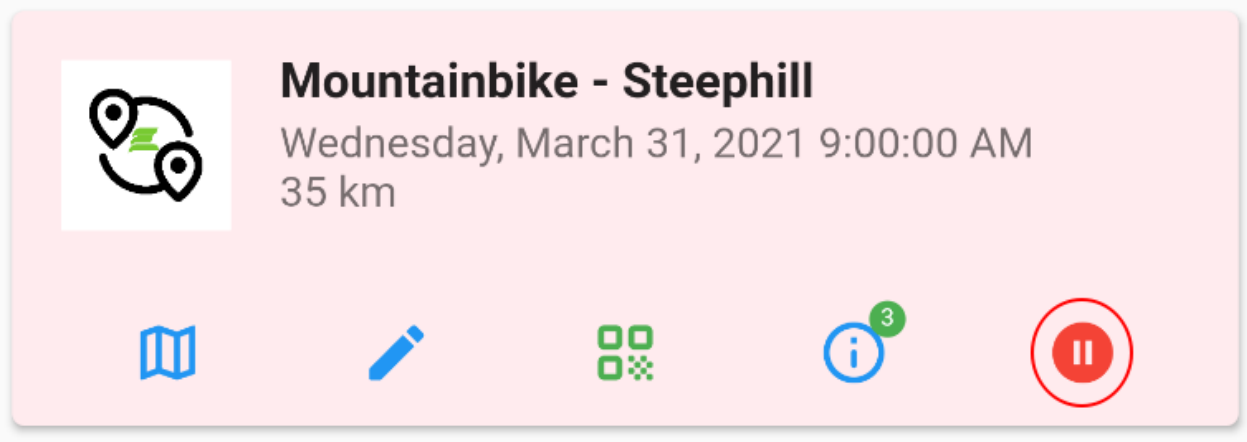

Fig. 16: Pauze recording

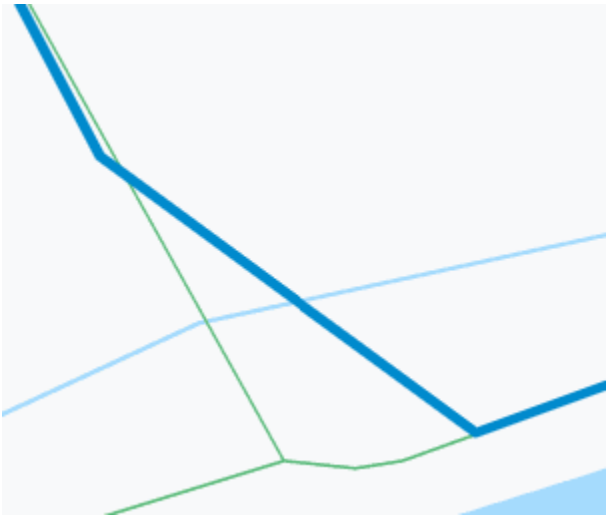

Fig. 17: Cutting a corner

See the checkpoints tab in the *Information screen*. It is possible that the upload to the event organiser's server may have failed due to a poor network connection. Or because there is no network connection at all and mobile data and WiFi are switched off. All checkpoint passages must be uploaded to the event organiser's server, otherwise the finish/ex QRcode cannot be displayed. If the Internet connection is restored, the button can be pressed to perform the upload manually.

3.3 Donate

Developing, improving and maintaining an App like *FE Tracking* for Android and IOS takes a lot of time. Please consider sponsoring the development of this App or making a one-off donation if you enjoy this App.

You can use iDEAL, Apple Pay, Credit card, Bancontact or Giropay.

3.3.1 Choose your amount

Choose your own amount and description