

# RACE NAVIGATOR APP

QUICKSTARTER



# RACE NAVIGATOR APP

UPGRADE THE RACE DATA ANALYSIS CAPABILITIES  
OF YOUR RACE NAVIGATOR WITH THE RN ANALYZER  
APP

The **RN Analyzer app** is now available for **free** download from  
the **iTunes App Store**!

Use a QR code reader to access the iTunes App Store and  
download the RN Analyzer app.



Visit the website for more info:

[www.race-navigator.com/rn-app/](http://www.race-navigator.com/rn-app/)

Updated 22-01-20

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### About the RN Analyzer app

The free iPad app **RN Analyzer** is an enhanced analysis tool for the data recording system **Race Navigator**.

Lap comparisons, data analysis and video evaluation made easy – with the RN Analyzer app you can transfer all race data recorded by the Race Navigator to your iPad via WiFi.

Manage all recordings of your race events, stints and laps easily and comfortably on your iPad.

RN Analyzer offers a wide range of analysis options:

- Analyze laps according to different criteria (speed, distance, time, lap times, g-forces, OBD-II/CAN-data),
- Get an aerial perspective of the race track based on Google Maps. Your driving lines are displayed with maximum precision from an overhead view,
- Compare two laps and see exactly where you are gaining or losing time,
- Play videos in the built-in video player,
- Save your laps data in the RN Cloud Storage and share your laps with your friends,
- Share videos on YouTube or Facebook,
- Compare up to 10 laps with four different data channels simultaneously, all synchronized with videos,
- Compare sector timing of selected laps, standard sectors can be used, or new sectors can be created,
- And many more.

## RN Analyzer app layout

The application layout consists of three main parts:

- **The Main Menu** on the left,
- **The Main Dialog** in the middle,
- **The List** on the right.

The version of installed app can be checked on the bottom of the Main Menu.

All laps lists have the same color scheme:

- Full laps are colored **white**,
- Incomplete laps are colored **grey**,
- The best lap of each driver is colored **yellow**.

The main application view is **the Analyzer**, which is vertically divided into three parts: Video area and two Chart/map areas. The height of each part can be changed.

## 2 About the connection between devices

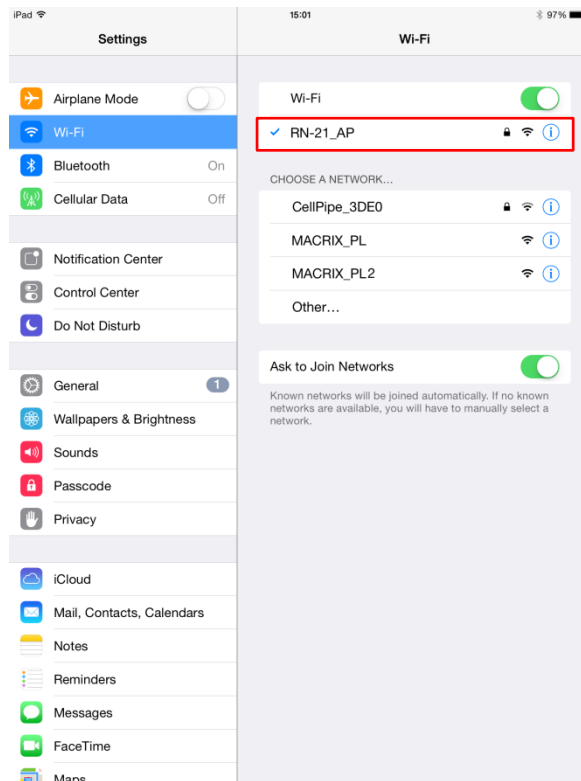
In the first step, the connection between the iPad and Race Navigator ONE should be established by following the instructions below:

1. On the Race Navigator device, go to **SETTINGS > NETWORK > INTERNET** and choose **ANALYZER MODE**. Access point for RN Analyzer devices is created. The name of the network is a **devicename\_AP**.



2. On the iPad, go to **Settings > WiFi** and connect to proper network.

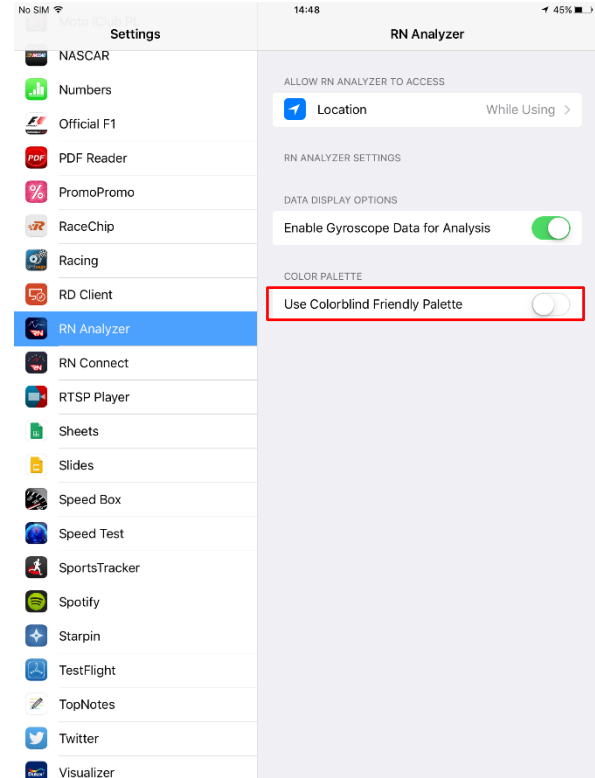
After these steps, the Race Navigator device will be available in the **RN Devices view**.



### 3 Color blind settings

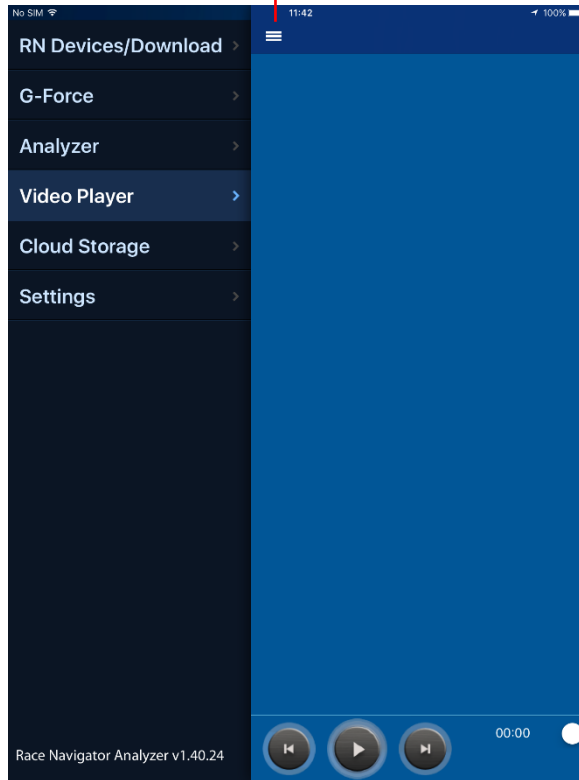
RN Analyzer app is also adjusted for color blind people.

To change the color palette, go to **the iPad Settings > RN Analyzer** and select **“Use Colorblind Friendly Palette”**.





Menu Button



#### 4 MAIN MENU

This is the main application menu. You can display the view in any location by tapping the **Menu button** or just **swiping right**.

##### RN Devices

The button opens the RN Devices view (see 5 DEVICES)

##### G-Force

The button opens the G-force analysis view (see 6 G-FORCE).

##### Analyzer

The button opens the Analyzer view (see 7 ANALYZER)

##### Video Player

The button opens the Video Player view (see 8 VIDEO PLAYER).

##### Cloud Storage

The button opens Cloud Storage view (see 9 CLOUD STORAGE)

##### Settings

The button opens the Settings view (see 10 SETTINGS).

## 5 DEVICES

This view contains the list of all available devices, from which you can transfer the data directly to the iPad. Data are downloaded wirelessly, using WiFi Network or RN Access Point.

### Network name

The name of the network, which the iPad is connected to. You can establish connection between the iPad and Race Navigator device using WiFi Network or RN Access Point.

### Device name

The name of the device, which contains all recorded data.

### Car name

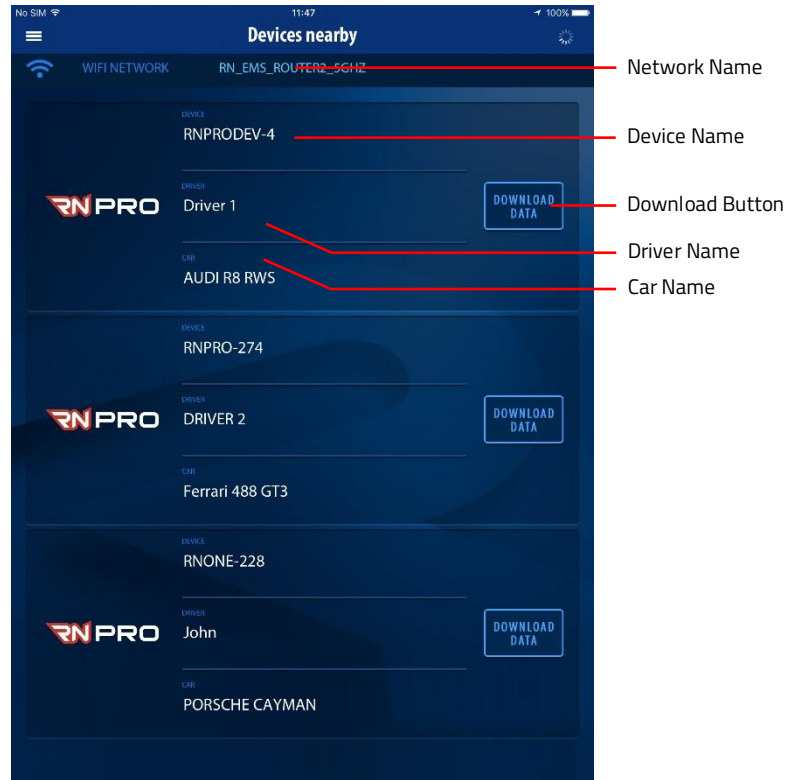
The name of the current car.

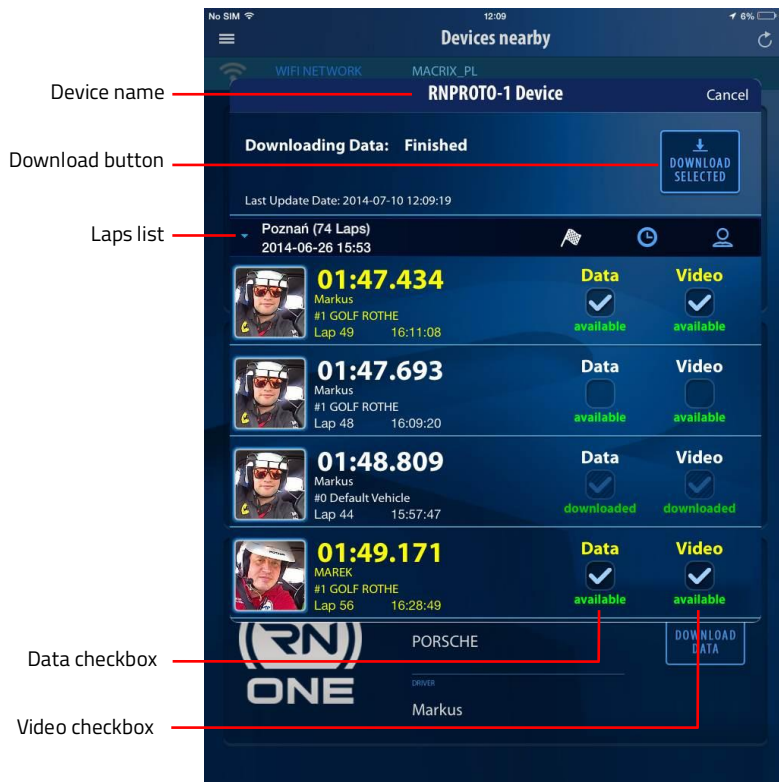
### Driver name

The name of the current driver.

### Download button

Click on the button to open the list of events containing all laps recorded by selected device.





This view contains the list with recorded laps. You can browse the list and select laps to download.

### Device name

The name of the selected device, which contains all recorded data.

### Laps list

The list displays all laps in a selected event. Full laps are colored white while the others are colored grey, except the best laps of each driver which are colored yellow.

Laps can be sorted by **start time**, **driver** or **lap time**.



You can change the sorting method by tapping the proper icon.

### Data/Video checkbox

You can select the videos and data to download.

### Download button

Press the button to start downloading selected data and videos to the iPad.

The progress of downloading is displayed at the bottom of the screen. First, the data is downloaded and then the movie.

**NOTE:** In order to obtain the highest connection quality and download speed, place the devices close to each other.

### Lap details

It contains all details (lap time, driver, car, track, device, start time, lap number) of the downloaded lap.

### Status

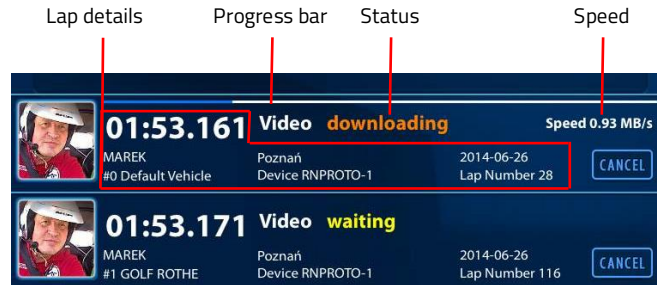
You can check the status of particular laps (downloaded, downloading or waiting).

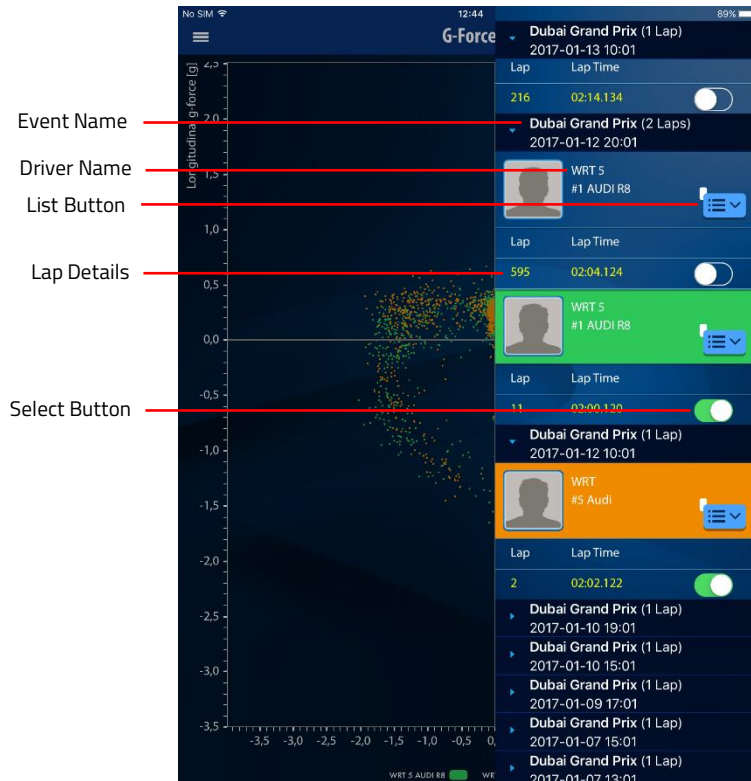
### Progress bar

You can observe the progression of downloading particular laps.

### Speed

It shows current download speed.





## 6 G-FORCE

G-force analysis view allows for comparing G-force values. You can select laps for comparison in the Events list, which can be displayed by tapping the **Event button** or just **swiping left**.

### Event name

It is the name of the selected event.

### Driver name

It is the name of the selected driver. Drivers list of can be displayed by tapping the event name. Tap the driver name to display G-force values for the driver's each lap.

### List button

The button opens the list of laps for each driver.

### Select button

Press the button to display G-force values for selected lap. Color of the scatter plot corresponds to the driver.

### Lap details

Displays details for each lap. Full laps are colored white while the others are colored grey, except the best laps of each driver which are colored yellow.

G-force values for each lap are presented in the form of a **scatter plot**. The plot shows longitudinal g-force values (vertical axis) as well as lateral g-force values horizontal axis). The colors of the scatter plots correspond to particular drivers.

### Event Button

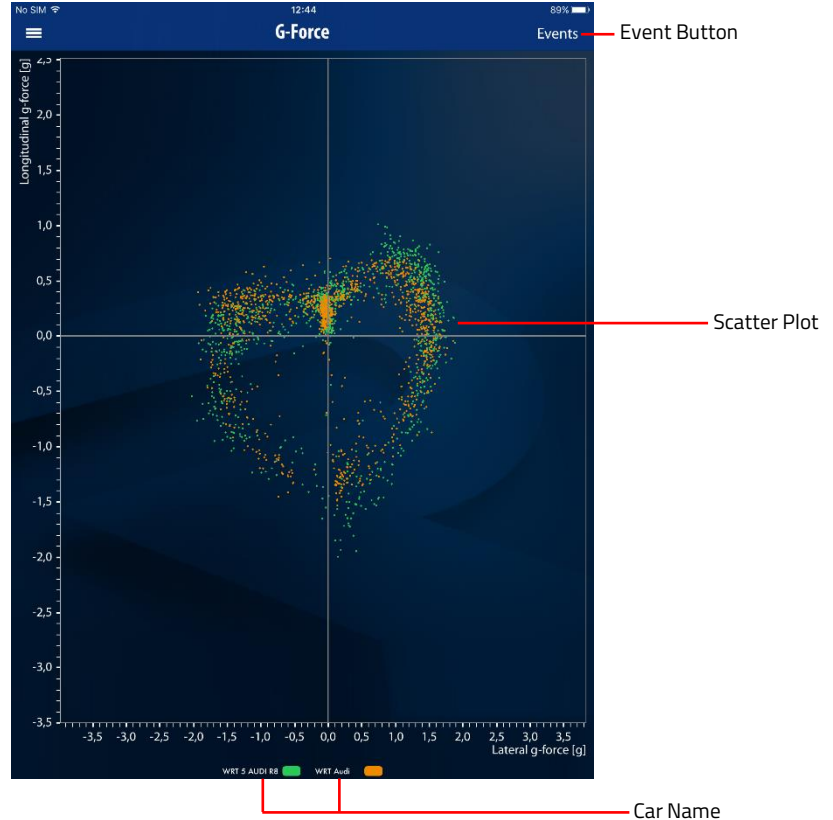
Click on the button to display the Events list.

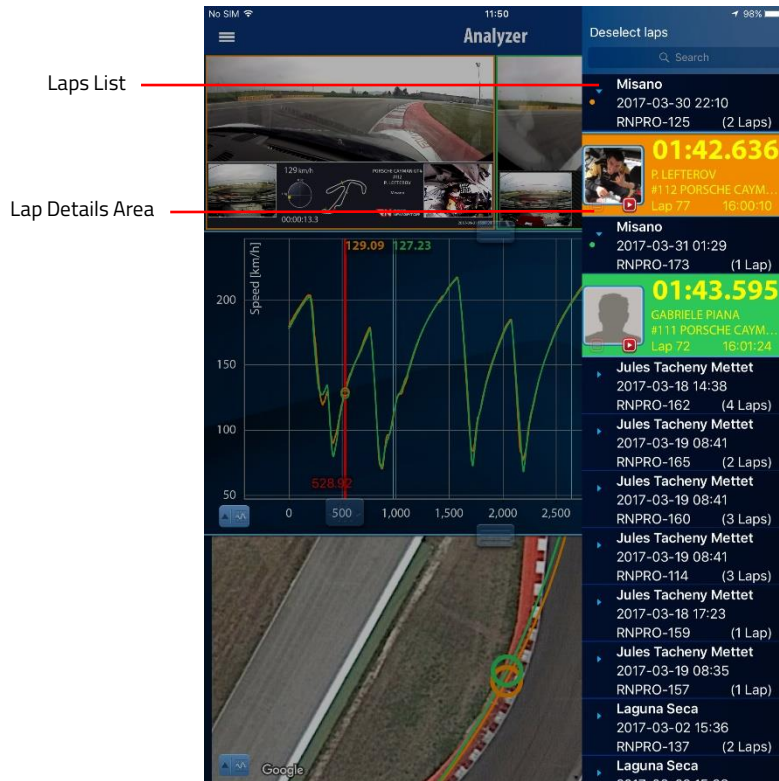
### Scatter Plot

The plot presents longitudinal g-force values (vertical axis) and lateral g-force values (horizontal axis).

### Car Name

It is the name of the selected car.





## 7 ANALYZER

The analyzer view allows for the analysis of laps according to different criteria (speed, distance, time, lap times, g-forces as well as OBD-II-data). You can compare up to 4 laps with videos and 10 laps without videos at the same time (see 7.1 ANALYZER · Lap Analysis). You can select laps for comparison in the Laps list, on the right side of the screen. The Laps list can be displayed by tapping the **Lap button** (Laps) or just **swiping left**.

### Laps List

It displays all laps grouped by events. Tap the Event name to open the Laps list. You can select the lap by tapping the lap details area.

### Lap Details Area

It presents details for each lap (lap time, driver, car, start time, lap number). Full laps are colored white while the others are colored grey, except the best aps of each driver which are colored yellow. Tap the lap details area to display full data for selected lap (chart, video, track).

You can also **Edit**, **Share** or **Delete** particular laps by **swiping** the Lap details area **left** and **tapping** the corresponding button.

### Delete Button

Click on the button to remove the video and the data from the iPad.

### Edit/Note Button

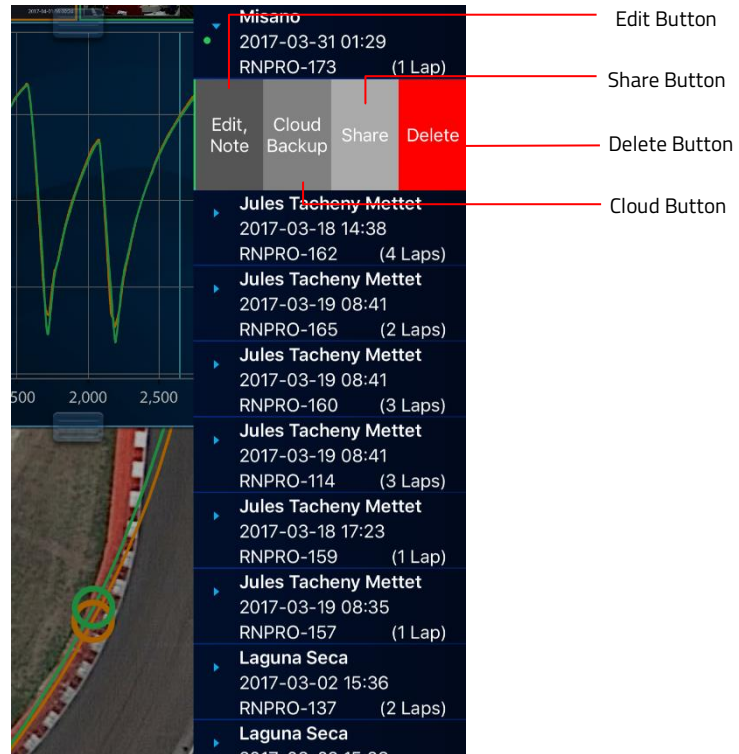
Click on the button to set another driver or car (see 7.10 ANALYZER · Driver · **Edit**). You can also create a single note for each lap.

### Share Button

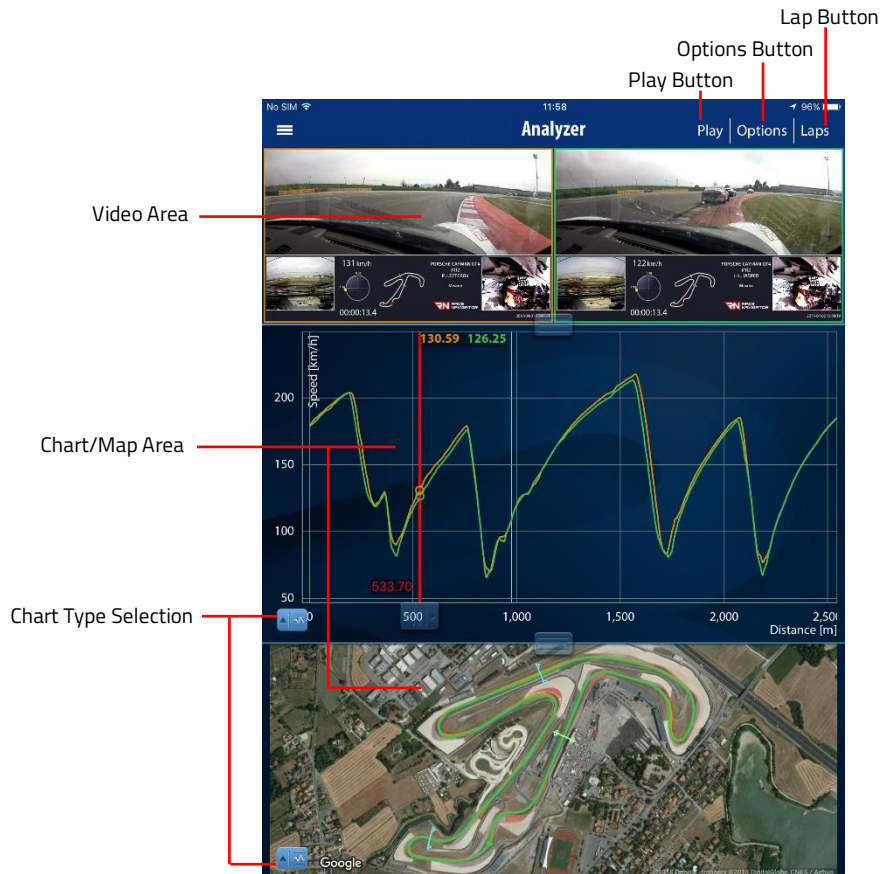
Click on the button to send the video and data directly to the social-networking websites (see 7.11 ANALYZER · Share).

### Cloud Button

Click on the button to upload lap video and data to Race Navigator Cloud.







## 7.1 ANALYZER · Lap Analysis

The **Analyzer view** is vertically divided into three parts: Video Area and two Chart/Map Areas. The height of each part can be changed.

### Lap Button (Laps)

Press the button to display the Laps list. Laps are grouped by event.

### Video Area

Videos from all selected laps are displayed here.

### Chart/Map Area

It presents charts or map from selected laps.

### Options Button

The buttons allow for selecting additional options: synchronizing distance line and synchronizing measurements from different track variants (see 7.2 ANALYZER · Lap Analysis · Options)

### Chart Type Selection

Press the button to open the list with available charts (see 7.4 ANALYZER · Lap Analysis · Data).

### Play Button

Press the button to start playing video; data displayed on chart and position on map will be synchronized with the video

## 7.2 ANALYZER · Lap Analysis · Options

**Synchronize Distance Line** – when you zoom in/out one of the charts, the horizontal axis (distance) of the other one will be automatically synchronized.

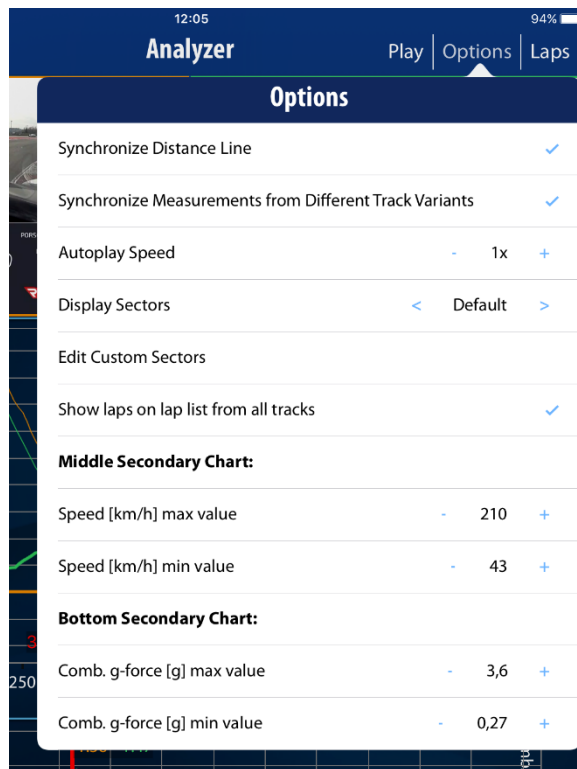
**Synchronize Measurements from Different Track Variants** – it synchronizes measurements from the same track, so that the start lines are on the same position on the track. All track variants are synchronized to the first selected lap.

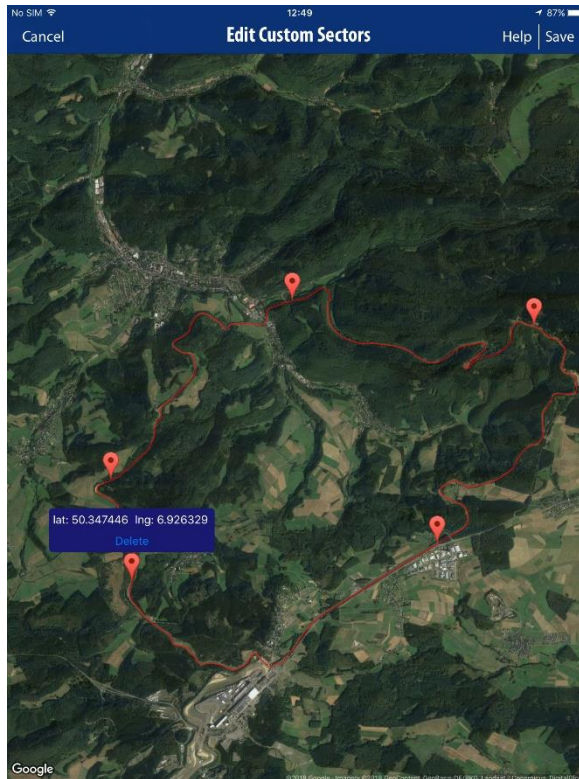
**Autoplay Speed** – you can speed up the auto play function of the video and corresponding data by changing Autoplay Speed multiplier (this function is activated by pressing Play button on the bar).

**Display Sectors** – you can select whether to display default sectors (set by producer), custom sectors (check Edit Custom Sectors) or to hide all sectors on charts (blue line) and on the map.

**Show laps on lap list from all tracks** – enable this option to display laps from all tracks on the lap list.; disable to display laps only from currently selected track.

**Secondary Chart options** – you can change value ranges on the chart. In result, data is repositioned on the chart





### 7.3 ANALYZER · Lap Analysis · Options · Edit Custom Sectors

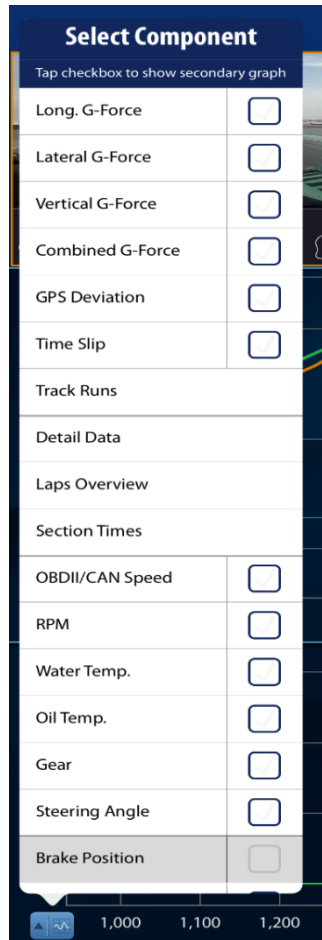
You can create custom sectors by accessing Options in Analyzer view and selecting “Edit Custom Sectors” option.

Sector is created automatically between two pins.

To place a new pin, tap and hold on the desired position.

To delete a pin, tap on it and press delete.

To move a pin, hold on it and move it to desired position.



## 7.4 ANALYZER · Lap Analysis · Data

Here you can choose different data types (channels) to display. You can analyze:

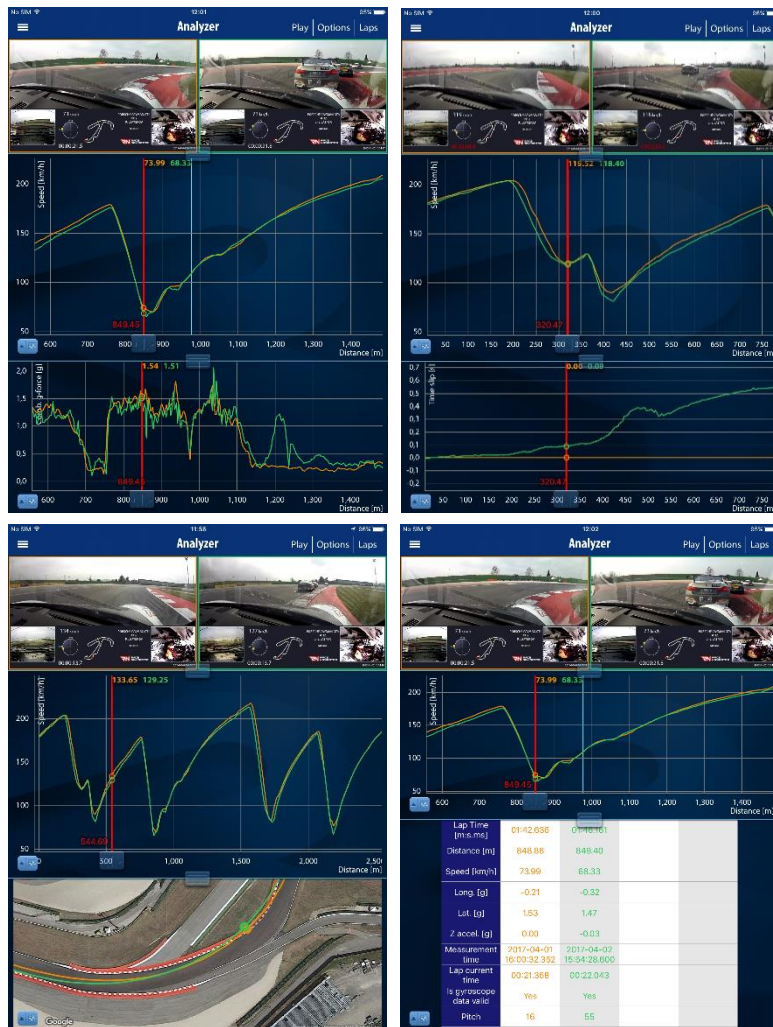
- Speed
- G-force values:
  - Longitudinal
  - Lateral
  - Vertical
  - Combined
- GPS Position Deviation,
- Track Runs,
- Time Slip (satellite map)
- Detail Data
- Lap Overview
- Section Times
- Selected Additional Data Channels from OBD2/CAN bus:
  - Speed
  - RPM Value
  - Water Temperature
  - Throttle Position
  - Oil Temperature
  - Steering Angle
  - Brake Position

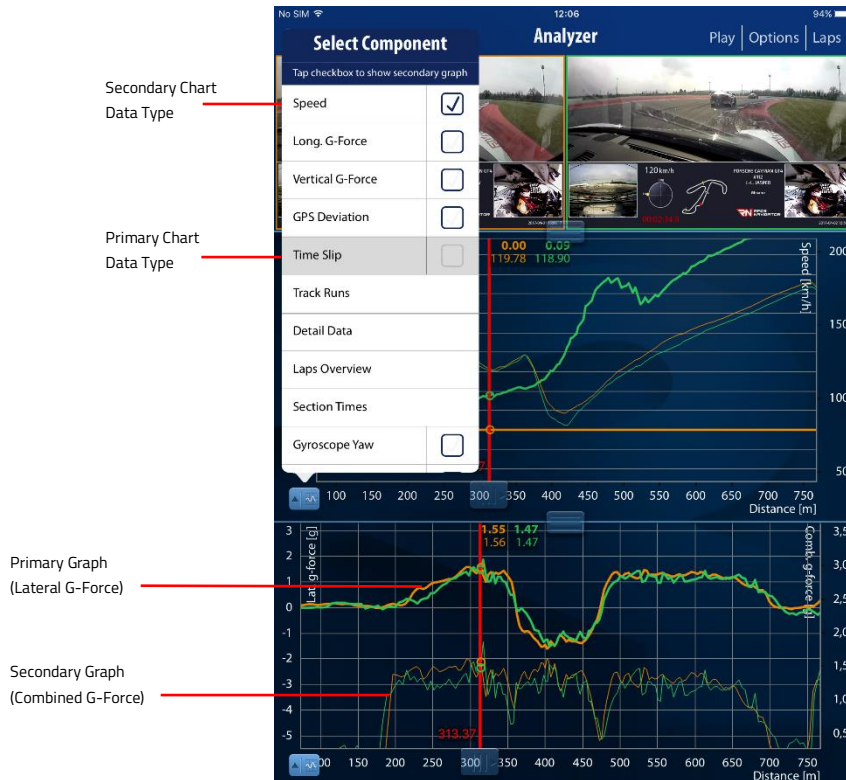
Laps can be analyzed according to different criteria (speed, distance, time, lap times, g-forces as well as OBD-II-data or CAN data).

You can analyze the entire track, comparing selected laps step by step by using **the red slider**.

The videos and the charts are immediately **synchronized** according to the slider's position.

You can choose what to display on lower and middle view. You can either plot some data or display track runs on the map.





## 7.5 ANALYZER · Lap Analysis · Primary and Secondary Graph

You can plot up to two data types on the same chart.

To select primary graph data type, tap on the left side of the data type on the “Select Component” dialog. Primary data type will be highlighted in grey color.

To select secondary graph data type, tap on the check box on the right side of the data type on the “Select Component” dialog.

In order to reposition secondary graph on the chart, you can access “Options” and change data value range (see 7.2 ANALYZER · Lap Analysis · Options).

Primary graph is drawn with thicker line and secondary graph with thinner line.

Lap Time [m:s.ms]	01:49.904	01:50.151	01:51.184	01:49.171
Distance [m]	4.02	4.03	4.02	4.03
Max Speed [km/h]	195.94	197.61	196.50	192.70
Min Speed [km/h]	76.30	72.78	75.37	74.35
Avg Speed [km/h]	133.40	133.06	131.95	134.32
Max Acceleration [g]	0.50	0.36	0.39	0.43
Max Breaking Force [g]	1.26	1.10	0.81	1.32
Max Left Acceleration [g]	1.29	1.30	1.30	1.28
Max Right Acceleration [g]	1.38	1.33	1.41	1.40
Driver	MAREK	MAREK	DAMIAN	MAREK
Vehicle	GOLF ROTHE	GOLF ROTHE	GOLF ROTHE	GOLF ROTHE

## 7.6 ANALYZER · Lap Analysis · Laps

### Overview

Laps overview provides the comparison of maximum and minimum values of the data types gathered by the system. The highest value of each data type is circled.

**NOTE:** If only one lap is selected, the comparison is impossible and values are not circled.

## 7.7 ANALYZER · Lap Analysis · Section Times

Here you can check your **Best Theoretical Lap Time**

**Best Theoretical Lap Time** – the sum of the best times of each sector. The order of sectors is not important.

**Best Continuous Lap Time** – the best possible lap time, composed of the times of consecutive sectors

● Best Theoretical Lap Time: 01:48.936 ● Best Continuous Lap Time: 01:49.171				
Lap Number	Lap Time	Sector 1	Sector 2	Sector 3
54	01:49.904	00:34.683	00:52.019	00:23.200
55	01:50.151	00:34.349	00:52.605	00:23.197
56	01:49.171	00:34.585	00:51.658	00:22.927
136	01:51.184	00:34.357	00:53.686	00:23.141



## 7.8 ANALYZER · Lap Analysis · CAN

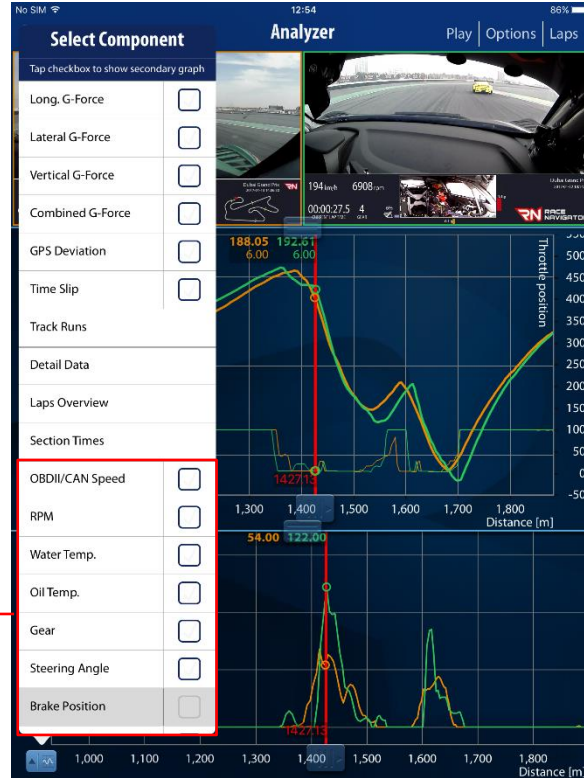
### Data

If additional CAN bus data are recorded on the Race Navigator device, then it is possible to analyze them in the RN Analyzer app.

Note that the Race Navigator device has to be properly configured and connected to a car's CAN bus. Detailed instructions how to configure CAN bus can be found in the Race Navigator device manual (available on the Race Navigator website).

This CAN channel list is only visible if data were recorded on the device and a lap with them is downloaded.

Data acquired  
from CAN  
channels







## 7.9 ANALYZER · Lap Analysis · Custom CAN Data

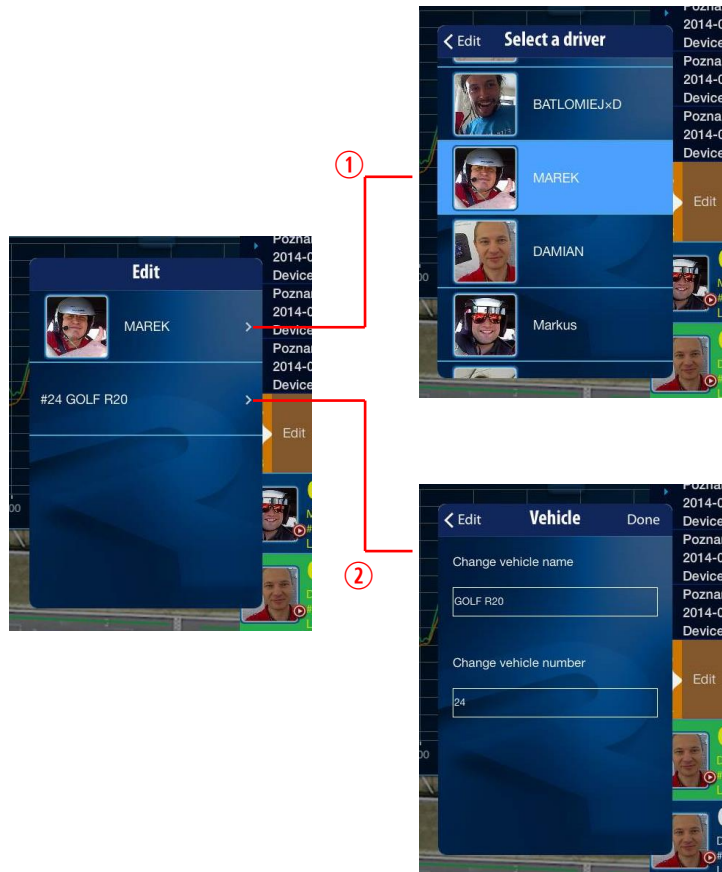
If custom CAN bus channels (user defined) are recorded on the Race Navigator device, then it is possible to analyze them by selecting from the Custom CAN channel list. That list is only visible when data is available.

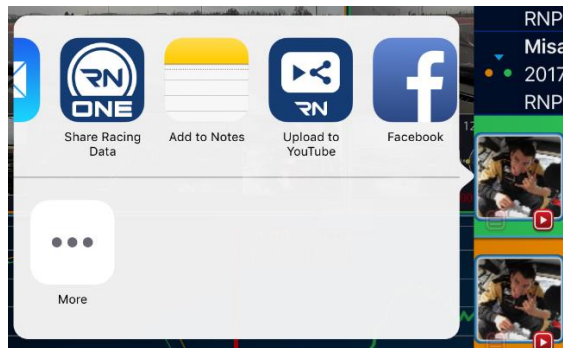
## 7.10 ANALYZER · Driver · Edit

Here you can set another driver or car.

① In order to choose another driver, you should click on the driver name and then select proper driver from the list. Only previously configured drivers can be selected. New drivers cannot be created here.

② To choose another car, you should click on the car name and then enter the car's details.





### 7.11 ANALYZER · Share

Here you can send videos or lap data directly to the **social-networking websites** such as YouTube or Facebook or attach them in message or e-mail.



### 7.12 ANALYZER · Share · Facebook

You can publish a **Facebook post**, which contains **short editable description with lap details** (lap time, start time, driver name, car name) **and currently displayed frame of the movie.**

**NOTE:** This option is available only when you are logged into Facebook via iPad's settings.

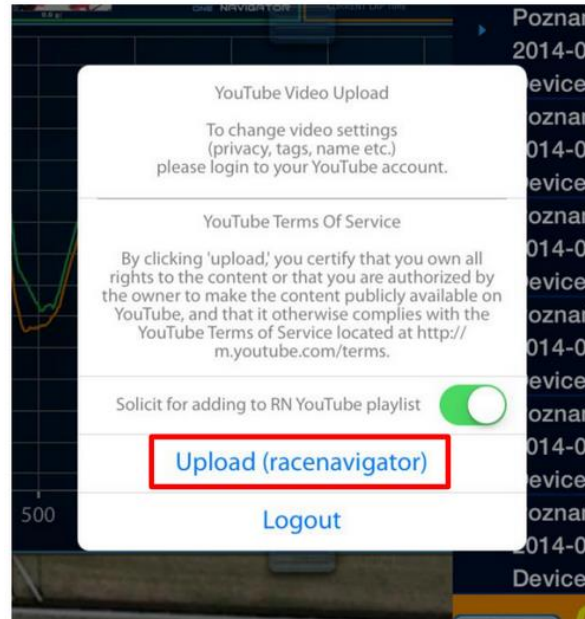
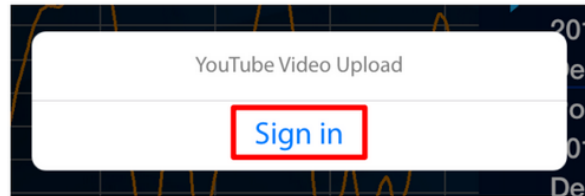
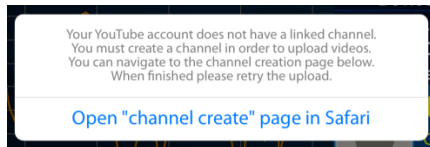
### 7.13 ANALYZER · Share · YouTube

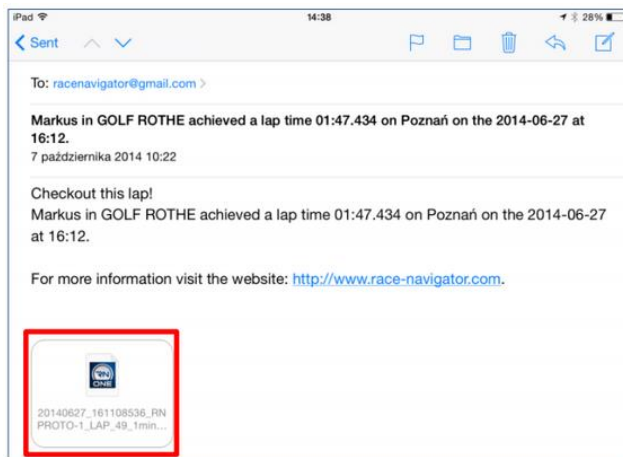
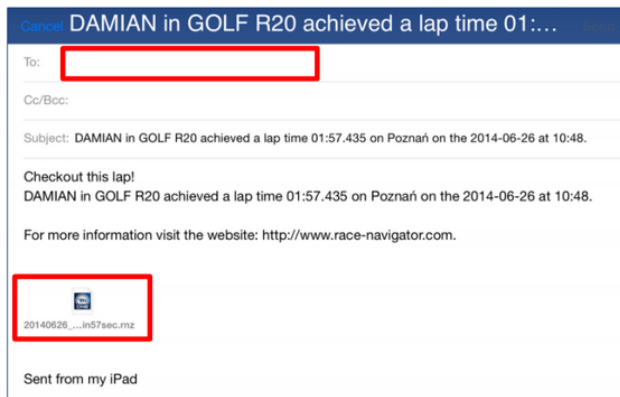
You can upload any recorded video to **YouTube**.

In the first step, tap the **Sign in** button and sign into your **YouTube (Google)** account.

Now, the uploading is available. Tap the **Upload** button to start the process.

**NOTE:** Your YouTube account need to have a linked channel. You can use the channel creation page to create a channel.



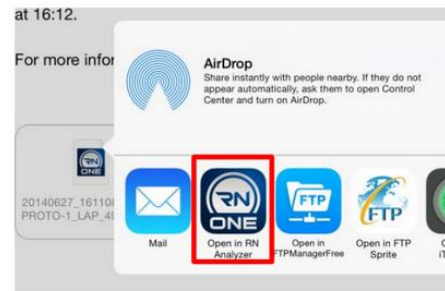


## 7.14 ANALYZER · Share · E-mail

There is also the possibility to **share Racing Data between many iPads** via e-mail.

**To send the Lap Data to another iPad**, click on the **Share Racing Data** button. The e-mail message with attached file is automatically created. You just need to enter the e-mail address and send the message.

**To import the Lap Data**, open the message with attached file. Click on the attachment and choose **"Open in RN Analyzer"**. The lap will be automatically imported to the RN Analyzer APP and visible on the Laps list.



## 8 VIDEO PLAYER

The Video Player view allows for displaying recorded movies. You can select the lap to display in the Laps list, on the right side of the screen. The Laps list can be displayed by tapping the **Lap button** (Laps) or just **swiping left**.

### Laps List

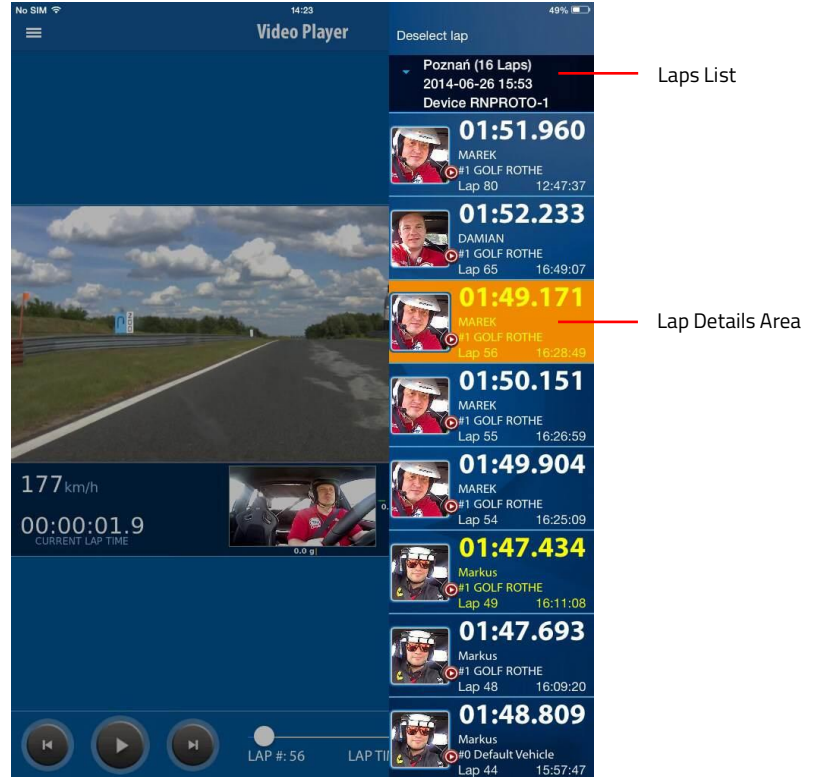
The list displays all laps grouped by events. Tapping the Event name opens the Laps list. You can select the lap by tapping the lap details area.

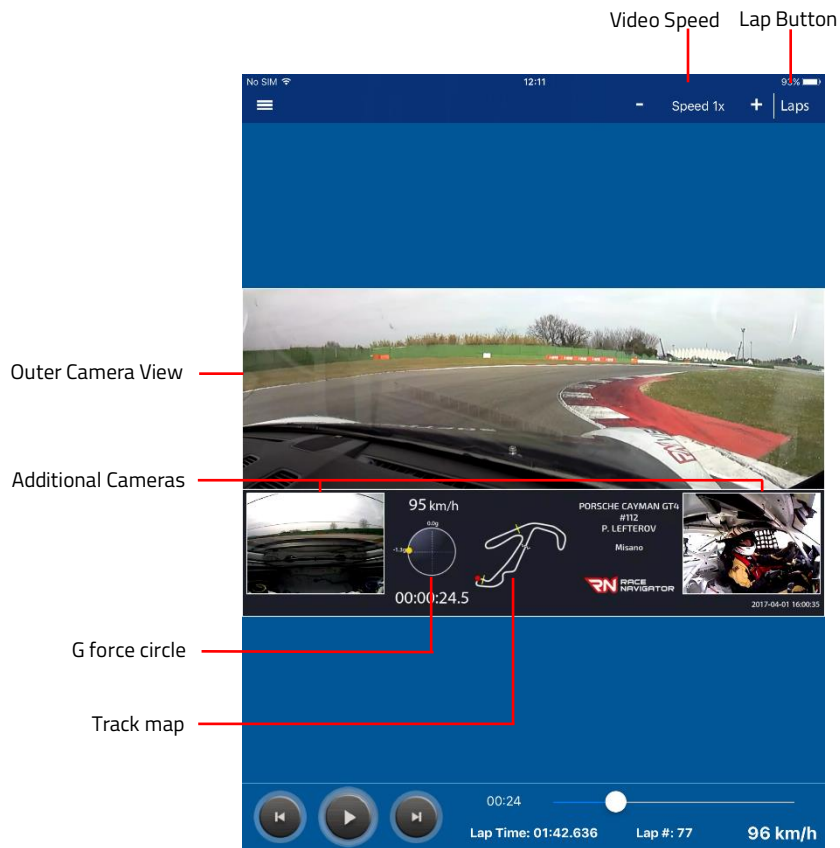
### Lap Details Area

It presents details for each lap (lap time, driver, car, start time, lap number). Full laps are colored white while the others are grey, except the best laps of each driver which are yellow. Tapping the lap details area displays the movie of selected lap.

### Lap Button (Laps)

Press the button to display the Laps list. Laps are grouped by event.





Recorded videos consist of camera views (up to 4 cameras in RN ONE and RN PRO devices) combined with additional data overlay.

Data types presented on the overlay depend on the selected layout.

You can speed up (or slow down) the video by changing the "Speed" value in the upper part of the screen.

Note:

Only the RN ONE and RN PRO devices offer recordings of videos in the picture in picture mode with additional data. RN LITE device records a single camera video without additional data.

Each application view can be displayed in **landscape** or **portrait orientation**.

To change the orientation, just rotate your iPad.





The screenshot shows the Race Navigator app interface. At the top, the status bar displays 'No SIM', signal strength, time '12:16', and battery '92%'. The app header shows 'racenavigator@gmail.com', a cloud icon, a question mark, and a 'Log out' button. Below the header is a search bar. The main content area lists several race events:

- BMW TRAINING** (2018-07-08 10:59:48, RNPRO-312) with 2 laps.
- Poznań** (2018-06-29 09:12:46, RNONE-14) with 1 lap.
- Poznań** (2018-06-29 09:12:26, RNONE-34) with 4 laps, showing a 'Downloading/Uploading' status.
- KONRAD** (#1 M) Lap 5 at 11:56:15, with a time of 02:48.706.
- KONRAD** (#1 M) Lap 9 at 12:20:40, with a time of 01:52.832.
- KONRAD** (#1 M) Lap 10 at 12:22:33, with a time of 01:46.856 and a speed of 3.93 MB/s.
- KONRAD** (#1 M) Lap 18 at 13:14:06, with a time of 01:47.947.
- Poznań** (2018-06-29 09:10:23, RNONE-54) with 1 lap.
- PETER** (#1 AUDI R8) Lap 9 at 12:55:47, with a time of 01:57.279.
- Poznań** (2018-06-28 15:29:37, RNONE-14) with 2 laps.
- Poznań** (2018-06-28 13:41:28) with 3 laps.

Red lines connect specific data points to explanatory text on the left:

- A line from the '02:48.706' time connects to the text: 'Lap data and video available on iPad and on Cloud'.
- A line from the '01:52.832' time connects to the text: 'Only lap data available on iPad'.
- A line from the '01:46.856' time connects to the text: 'Lap data and video available on iPad, uploading to Cloud'.
- A line from the '01:47.947' time connects to the text: 'Lap data and video not available on iPad, uploaded to Cloud'.

## 9 CLOUD STORAGE

Cloud storage allows you to upload your lap data and videos to the Race Navigator Cloud. You can also manage your local data.

The RN Cloud access is authorized by the Google account. Please create a new Google account first to log in or use an existing account. Every user can upload up to 4 GB of data for free. To get more space for your laps, please contact the Race Navigator support.

You can check whether the data (or video) is uploaded to the cloud or whether it is downloaded to the device running RN Analyzer by tapping on specific event. Light-blue color of an icon indicates, that the lap data is available on iPad or on Cloud.

To download or upload data tap either on tablet icon or cloud icon. You can delete data the same way if it already is downloaded (or uploaded).

If the video is available there is a red video symbol in the bottom right corner of the corresponding icon.

## 9.1 CLOUD STORAGE · Share

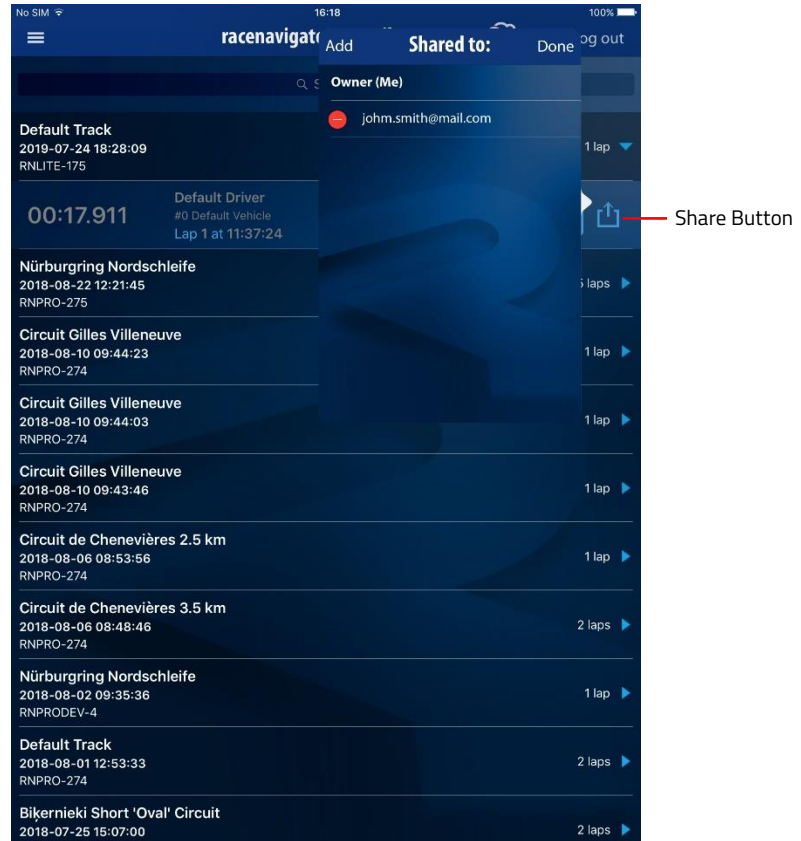
You can share laps that have been uploaded to the Race Navigator Cloud Storage to any e-mail address. In order to share specific lap, tap the "Share" button on the right side of the lap bar.

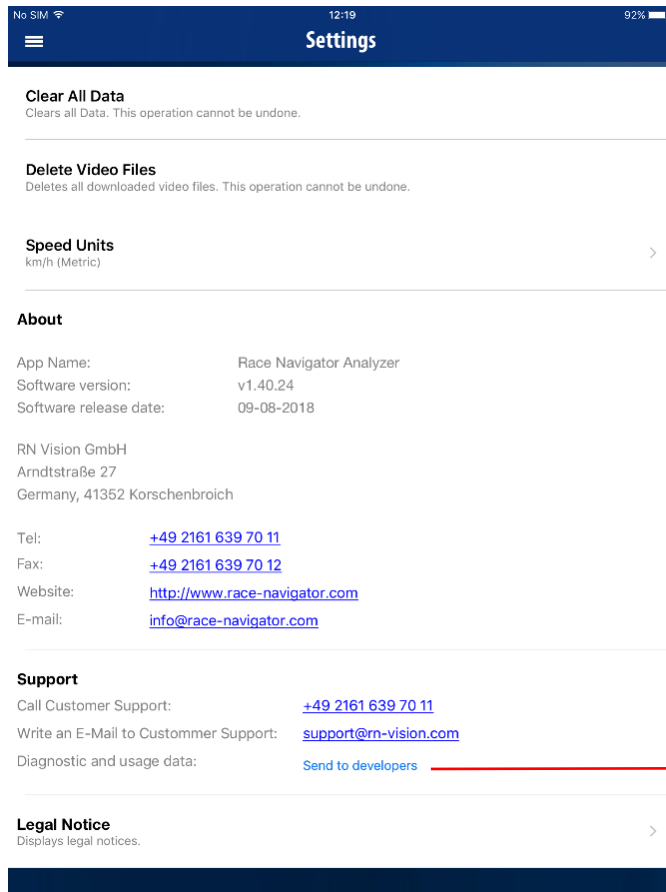
You need to add the e-mail you want to share the data to by tapping "Add". After entering the e-mail address and confirming it you can share the data by tapping "Done".

An email is sent to the receiver with links to lap data file and video after sharing.

If the lap is shared to another Google account, a new user can download this lap to another iPad using that Google account.

The RN Cloud Storage can be also used to move laps to a new iPad by uploading to the cloud and downloading laps to the new iPad.





## 10 SETTINGS

The Settings view contains **address for correspondence, contact phone and fax numbers, official website address, e-mail address** as well as information about **software version and software release date**.

You can also **clear all data** or **delete all downloaded video files** from the iPad. These operations cannot be undone.

In case of any issues, you can send diagnostic and usage data in e-mail directly to developers by clicking on **"Send to developers"** button.

## 10.1 **SETTINGS · SPEED UNITS**

You can change speed units by accessing “Speed Units” in Settings. You can choose between metric system and imperial system.



## TIPS & TRICKS

①

You can send lap data to your iPad via e-mail. Follow these steps:

1. On the Race Navigator device, go to **SETTINGS > EXPORT VIDEO** and transfer selected laps to the memory stick. Then on the memory stick, you can find **.rnz file** for each transferred lap.
2. Send this file attached to an email.
3. On the iPad, just **click on the file** in the email to import it to the RN Analyzer APP (as described in 7.14 ANALYZER · Share · E-mail).

②

You can choose **landscape** or **portrait** orientation – just rotate your iPad.

③

You can set the colorblind friendly palette – go to **the iPad Settings > RN Analyzer** and select **“Use Colorblind Friendly Palette”**.

