

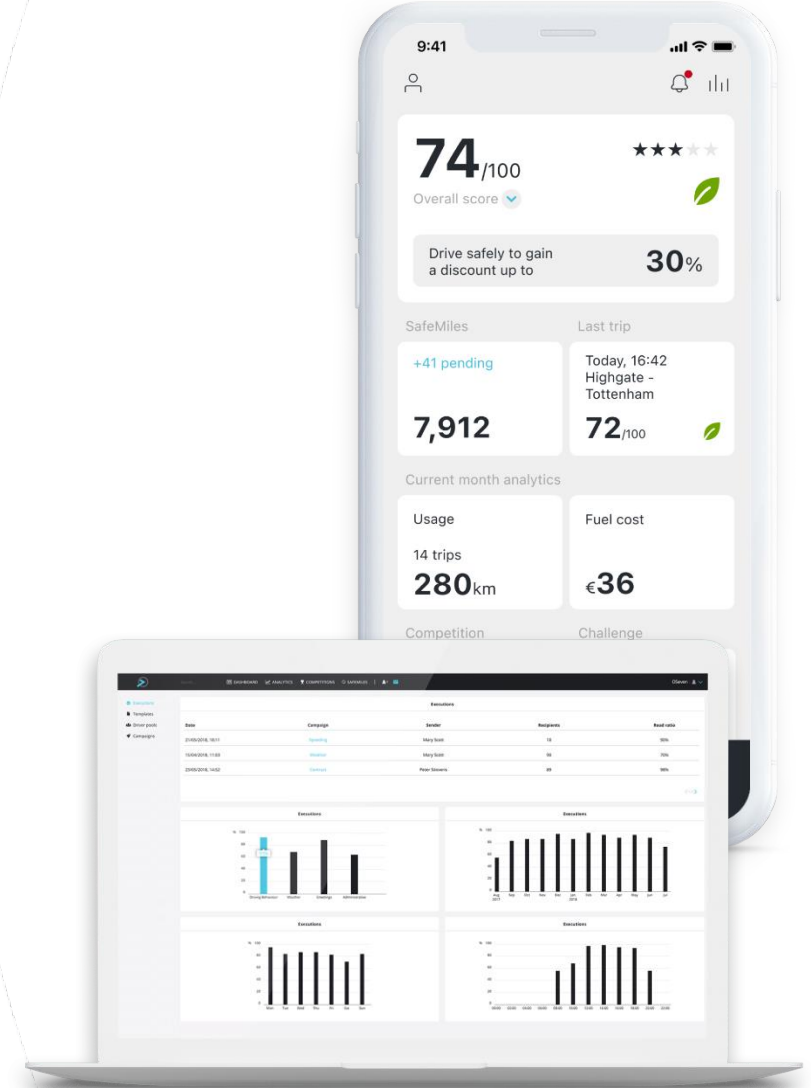


Improving driving behaviour through OSeven's telematics application

Alexis Aivaliotis
Project Manager

OSeven

- Founded in **2015** (GR & UK)
- Driving behaviour analysis, Telematics-based insurance, Fleet management, Mobility
- Customers in **>20** countries
- Member of **Endeavor** Global Network
- Member of **Elevate** Greece
- O7Platform combines **telematics** and a rewarding solution to **incentivise safe driving behaviour**



Road safety data

- According to the [WHO](#) (2022) road accidents worldwide cause:

1.3M

Deaths

20 – 50M

Injuries

Greece

- 22nd place in the EU ranking
- 57 deaths/million inhabitants (EU average 44 deaths/million inhabitants - [2021 data](#))
- 10.454 road accidents (15,1% more compared to 2020) with: 624 deaths, 610 heavy injured and 11.746 lightly injured ([ELSTAT, 2021](#)).



Accident factors

The three main factors causing road accidents:

- the **road network**
- the **vehicle**
- the **driving behaviour**



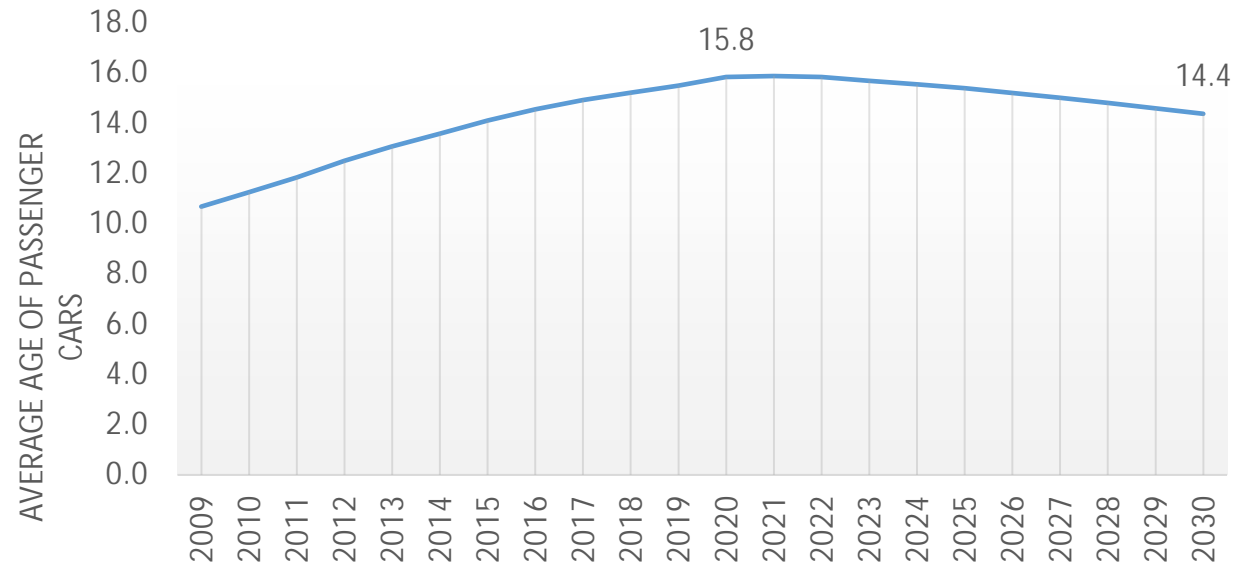
Road network

Public investment in infrastructure has made a significant contribution to improving road safety, but with limited potential for further improvement and at a high cost.



Vehicles

- Cause in **8.5%** of road accidents.
- The Greek fleet is the **4th oldest** in Europe, with an average fleet age of 15.8 years.
- The **renewal rate** of vehicles in Greece is **slow**, and the average age of the vehicle fleet is estimated to decrease to 14.4 years by 2030.
- The benefit to road safety from fleet improvement is therefore expected to be **limited** for the next few years.



Autonomous vehicles

«Let me be clear: nobody is even close»

Dr. James Kuffner, CEO of the Toyota Research Institute, 10/2019

«Generalized self-driving is a hard problem, as it requires solving a large part of real-world AI. Didn't expect it to be so hard, but the difficulty is obvious in retrospect»

Elon Mask, Διευθύνων Σύμβουλος της Tesla, 07/ 2021



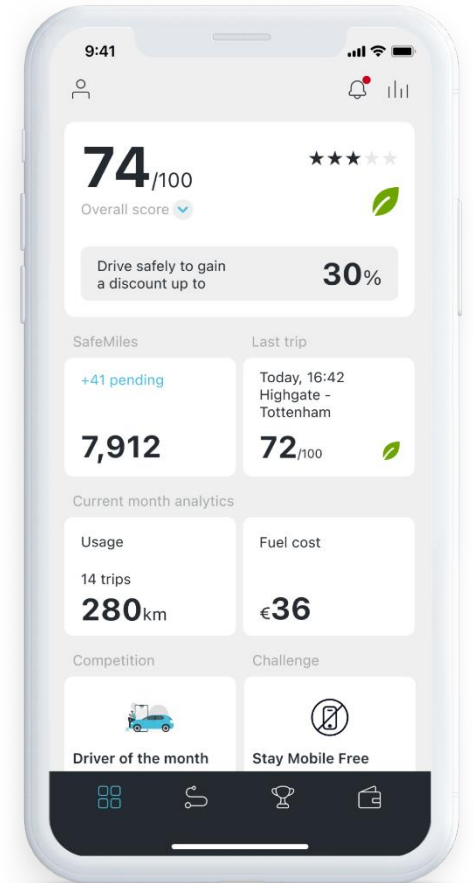
Driving behavior

- Driving behaviour is **the most important factor** of a road accident, at **>90%**
- Improved driving behaviour: **high impact** & comparatively the **lowest cost** in terms of improving road safety
- Improving driving behaviour: **reducing environmental impact** (reduction of fuel consumption / pollutant emissions / noise pollution up to 30%)



Driving behaviour and telematics

- Telematics can improve driving behaviour by:
 - ❖ recording and evaluating driving behaviour
 - ❖ personalized feedback to the driver and training
 - ❖ gamification & motivation
- The goal when providing feedback to drivers is to activate the learning process and self-assessment, thus allowing them to gradually improve their performance.
- Insurance companies are the most expedient industry to implement telematics.
- The use of telematics can lead to an improvement in driving behaviour of up to 65% and a reduction in the frequency of accidents by up to 70%

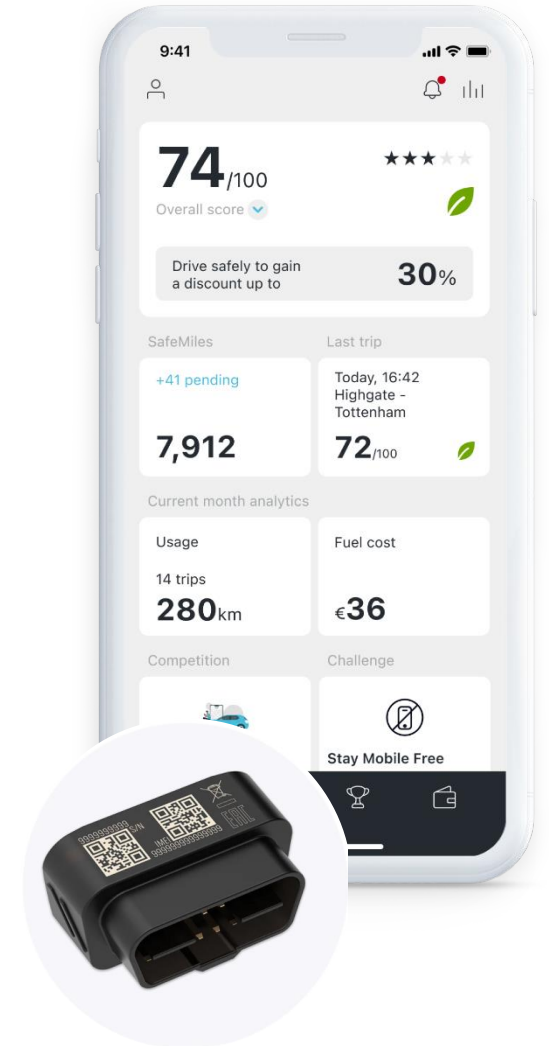


Telematics in driving and insurance

Telematics can be applied using the following methods:

- By installing an additional device (**OBD: On Board Diagnostics**) in the user's vehicle.
- Using data from drivers' **smartphone sensors**.
- Using data from **connected vehicles**.

OSeven has developed an infrastructure that can process data from **all sources** of driving behaviour data.



Recording driving using smartphone

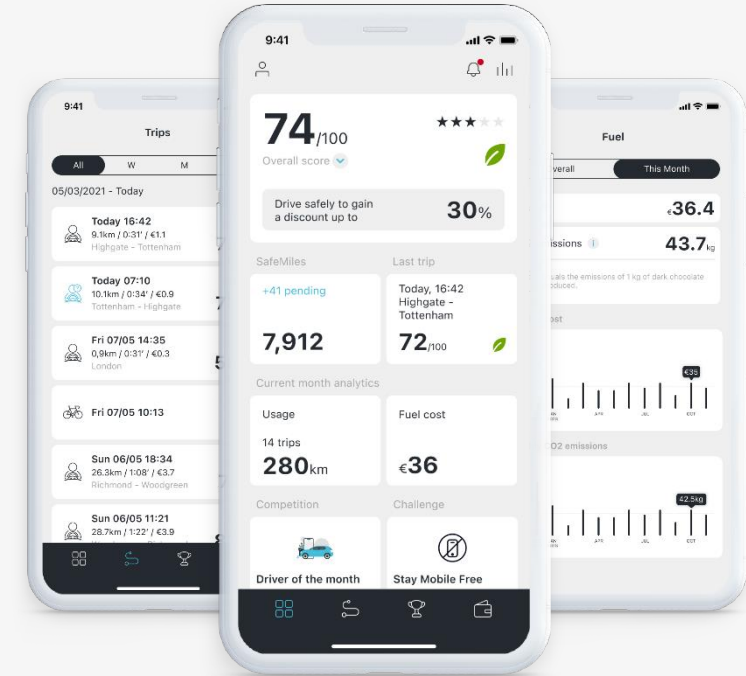
- **No hardware** required.
- **Automatic** start/end of **recording**.
- An optimal combination of **recording accuracy** and **battery consumption** is required.
- **Only GPS**/location services must be enabled.
- WiFi and 3G/4G/5G are not required, but improve recording accuracy.



Data collected from smartphone sensors

The primary data collected are indicatively the following:

- **Date, time**
- **GPS data** (longitude, latitude, altitude, speed, horizontal accuracy)
- **Accelerometer data**
- **Gyroscope data**
- **Smartphone orientation data**
- **Activity data** (e.g. walking, driving, stopping)
- **Screen status** (no access to screen content)



Scoring model

Pioneering AI-enabled driving behaviour analytics and scoring platform



Speeding

Reason of
30%
of fatal
accidents



Mobile use

Cause of
50%
of accidents.
Leading cause
of death for
young ages



Braking &
accelerating

Harsh events
• 3 Levels of
Intensity
• Aggressiveness



Risky hours

Low visibility,
alcohol
consumption,
increased
fatigue



Time & Mileage

Fatigue is an
important factor in
10-20%
of road accidents



Road type

Included in other
parameters



Weather
conditions

Weather
conditions
affect the
driving risk

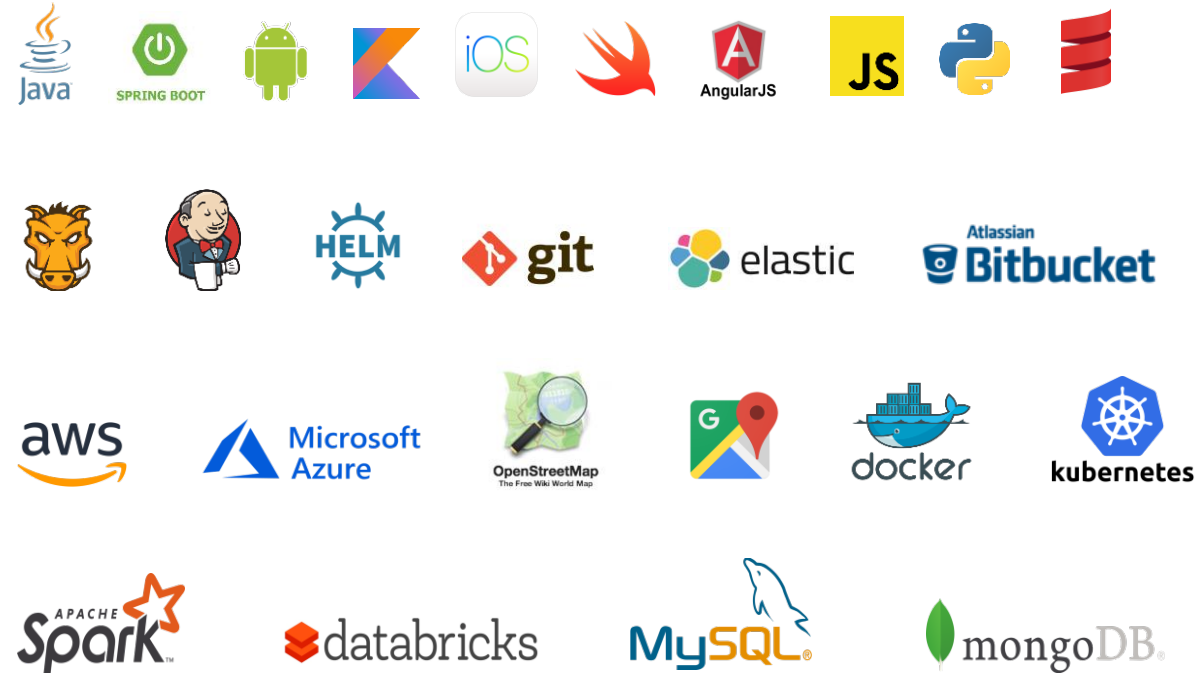
Driver/Passenger & Transportation Mode
recognition



O7PLATFORM

An IoT Platform

- O7PLATFORM spans across the two of world's most advanced cloud providers, **Amazon AWS** & **Microsoft Azure**
- O7PLATFORM has been developed using advanced **machine learning** algorithms and **Big Data** architecture.
- **Encryption, pseudonymization, anonymization** of data.
- **GDPR compliant** (European Data Protection Board: «Guidelines 1/2020 on processing personal data in the context of connected vehicles and mobility related applications»).
- **ISO 27001** certification



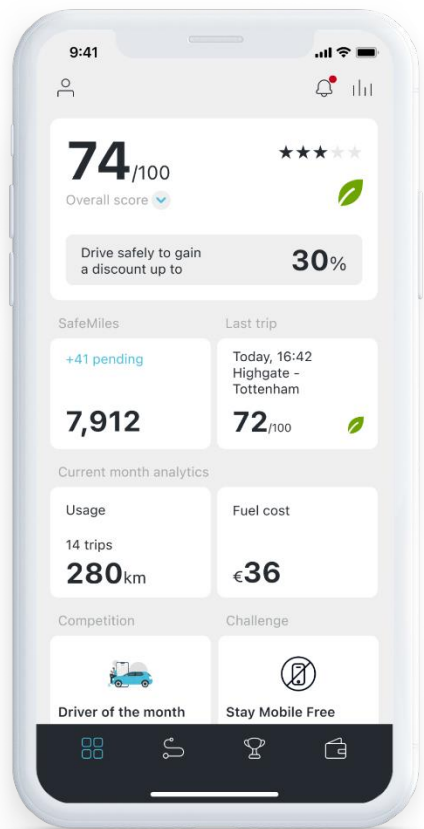
O7PLATFORM STACK



O7 Solution – Training features

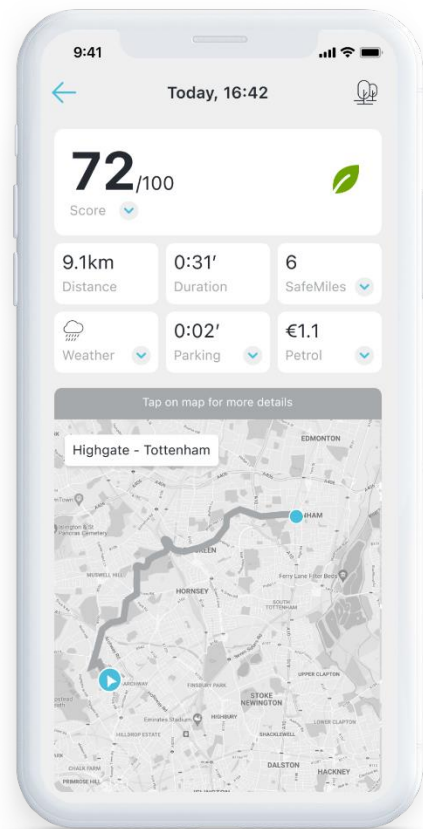
Helping drivers understand their weak points in order to improve

Scorecard



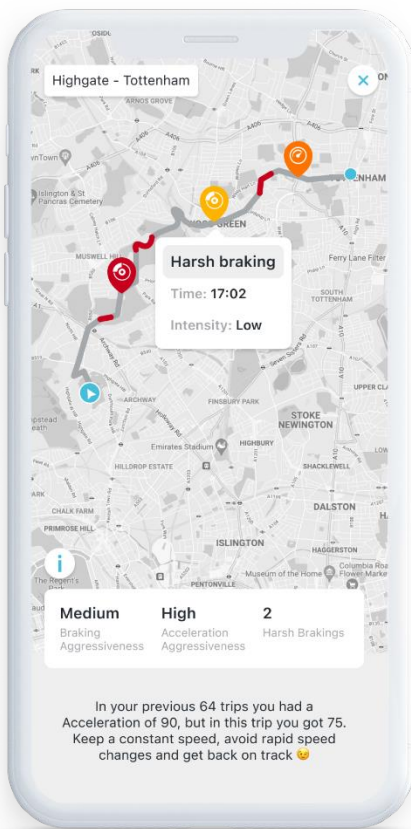
Driving behaviour
Scores, SafeMiles, Badges,
all at a glance

Trip



Trip details
& highlights that affected the
most the trip's score

Trip Map

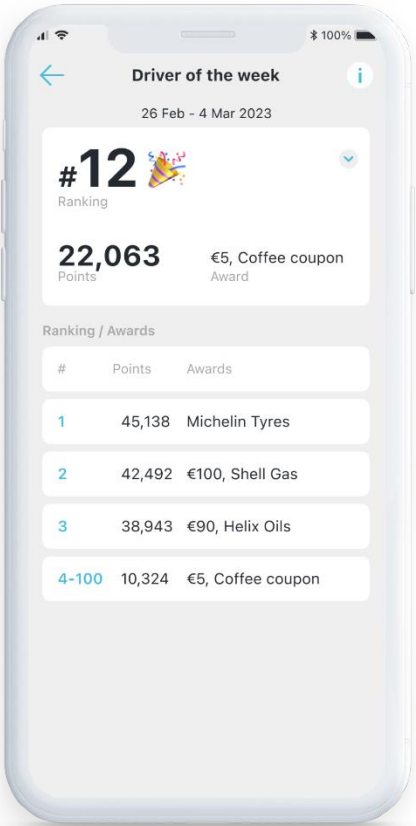


Trips events
spotted on the map for better
understanding

O7 Solution – Loyalty & Reward

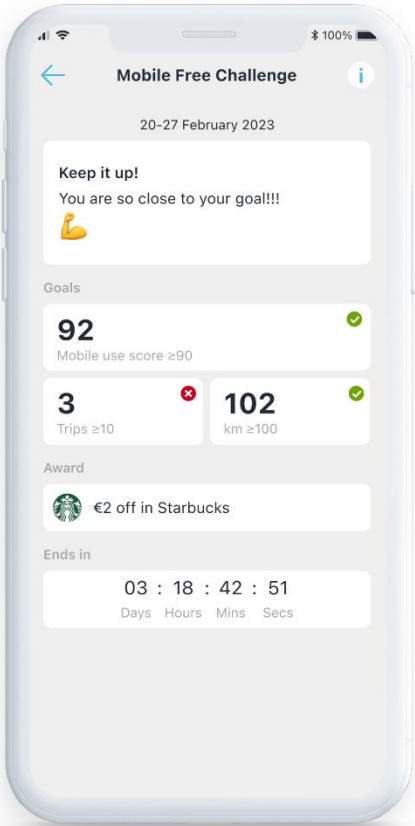
Rewarding safe drivers

Competition



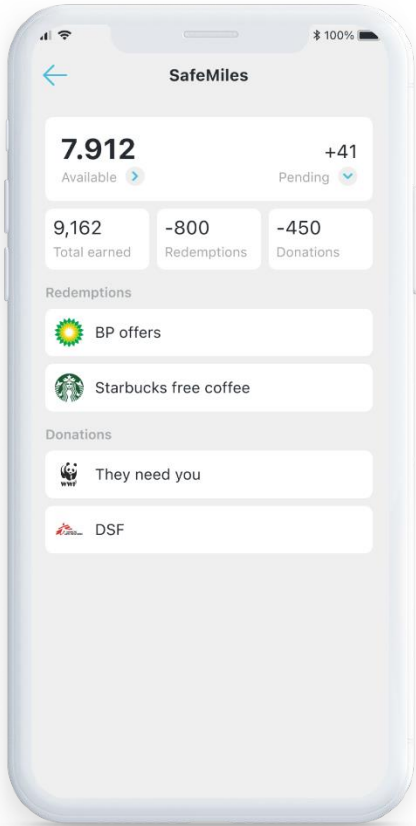
Reward the best
x drivers every month

Challenges



Daily incentives
Short-term goals & rewards

SafeMiles

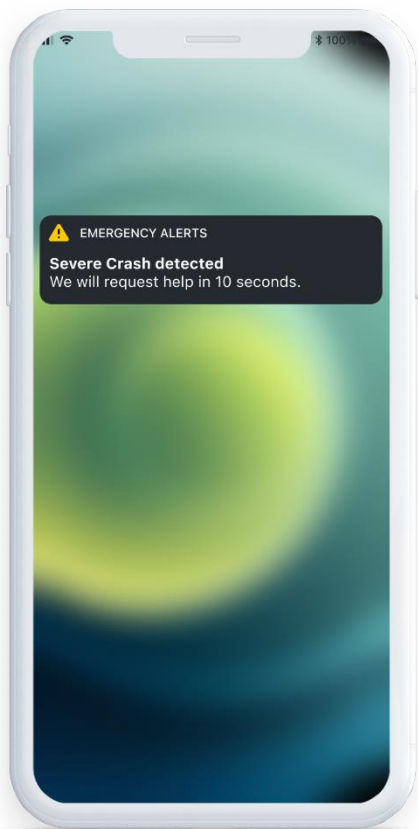


Global trademark
Drive safe, collect SafeMiles,
Redeem or Donate

O7 Solution – Crash Detection

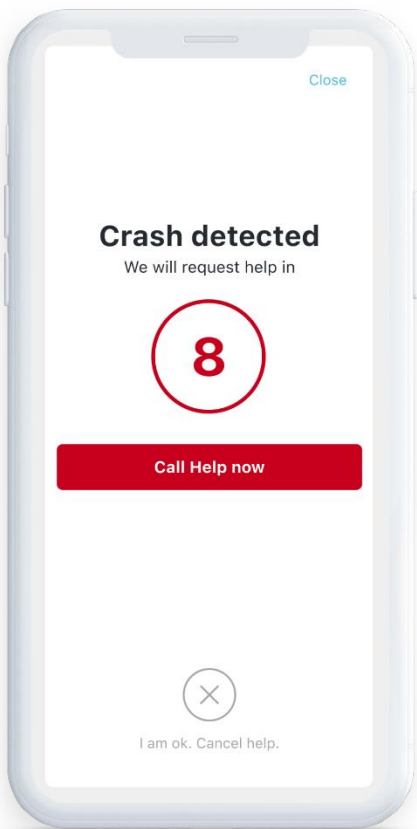
Automatic severe crash detection

Notification



Crash detected automatically

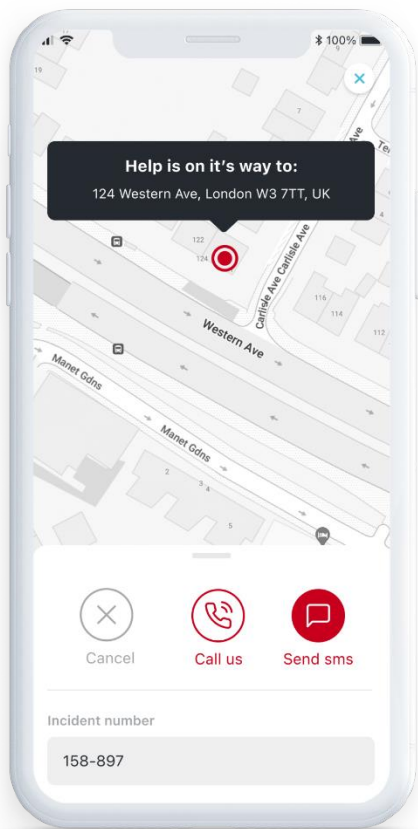
Countdown



Help

Provision of medical care and or roadside assistance

Map



Map

Driver can cancel help if not needed

R&D projects – Greece



Personalized Service for Eco Driving

www.ecodrive-project.com

BESMART

Multi-modal driver behaviour and safety support system on the basis of smartphone applications

www.besmart-project.gr



International Comparative Analyses of Road Traffic Safety Statistics and Safety Modeling

www.nrso.ntua.gr/i-safemodells/



Smart city mapping for safer and eco driver behaviour through smartphone sensor big data

www.smart-maps.gr



R&D projects – H2020 & Innovation Norway



Safety tolerance zone calculation and interventions for driver-vehicle-environment interactions under challenging conditions
www.idreamsproject.eu



5G Intelligent Automotive Network Applications
www.5g-iana.eu



Distributed Intelligence & Technology for Traffic & Mobility Management
www.dit4tram.eu



The first fintech mobility platform incentivizing safe & eco driving
<https://o7fintech.com/>



Predictive Approaches for Safer Urban Environments
<https://phoebe-project.eu/>



An innovative connected vehicles platform for safe and eco mobility

EcoDrive

- **Research team:** NTUA Department of Transportation Planning & Engineering (www.transport.ntua.gr), NTUA Laboratory of General Geodesy (www.survey.ntua.gr), NEA ODOS (www.neaodos.gr), OSeven (www.oseven.io)
- **Duration:** 37 months (May 2020 – June 2023)
- **Website:** ecodrive-project.com
- **Scope:** The development of an ecosystem of mechanisms and tools capable of promoting the adoption of eco and safe driving



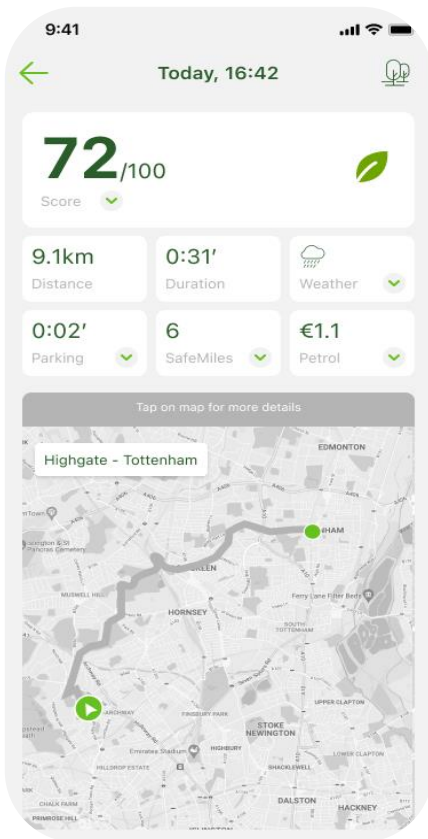
EcoDrive - App screens



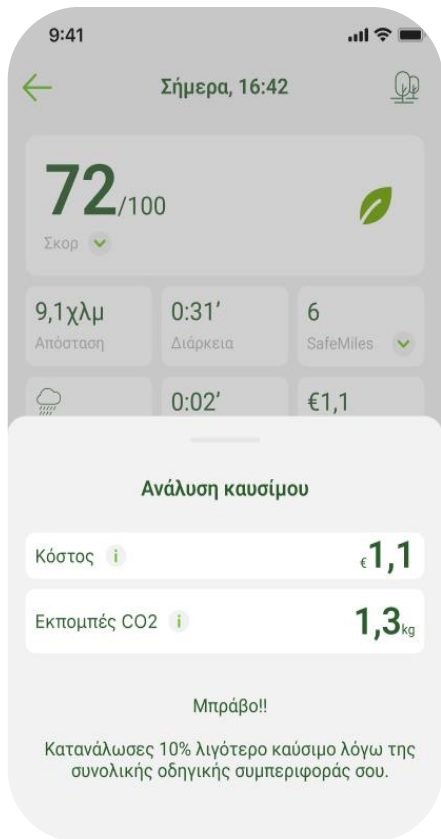
Fuel information form
Consumption, fuel cost



Driving behaviour & Eco Badge
Score, SafeMiles, Badge



Trip details
Trip score, duration, events, map



Feedback
Fuel cost per trip, CO2 emissions, highlights



Benefits from the application of telematics

- Improved driving behaviour
- Reduction of road accidents, deaths and injuries related to road accidents (est. 30%)
- Reduction of the environmental impact related to transportation (reduction of fuel consumption / pollutant emissions / noise pollution up to 30%)
- Streamlining the process of calculating vehicle insurance premiums
- Reduction of uninsured vehicles
- Opportunity for the state to use anonymous, aggregated statistical driving behaviour data, to identify road segments with increased driving risk and take corrective measures to prevent road accidents





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