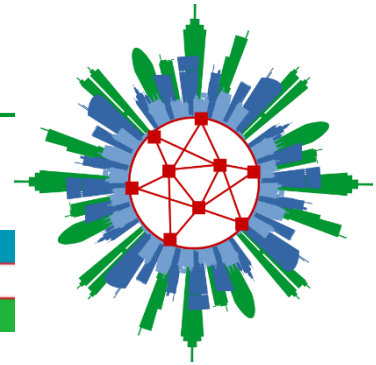




SuMoCoS

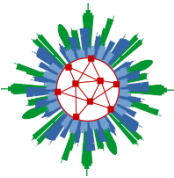
Sustainability and Mobility
in the Context of Smart Cities



Smart mobility solutions

Dr. Fatih Özel

oezel@oecon-line.de



Key business segments of OECON



We are one of the world's leading providers of cutting-edge testing and location-based smart mobility solutions for manufacturers in the automotive industry and associated industries.

eCall & TPSP



eCall test systems for the automotive industry and eCall decoders for emergency response centers and TPSP

Connected & automated driving



Test- and Simulation systems for V2X cars
Location-based smart mobility solutions

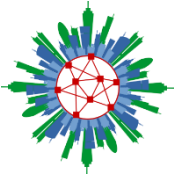
UAV Management



DaaS - "Drone as a Service"
Management software Platform for Drone flights beyond Line of sight (BVLOS)

OECON is the world market leader in this environment

TPSP: Third party service provider
V2X: Vehicle-to-everything



1. Ecall test systems

- Test and development server
- Simulator
- Router



2. UAV management

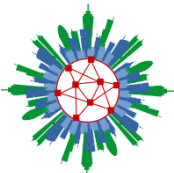
- OECON Hawk core platform
- OECON Hawk product family
- Hawk core platform features



3. Location-based smart mobility solutions

- Examples of our projects



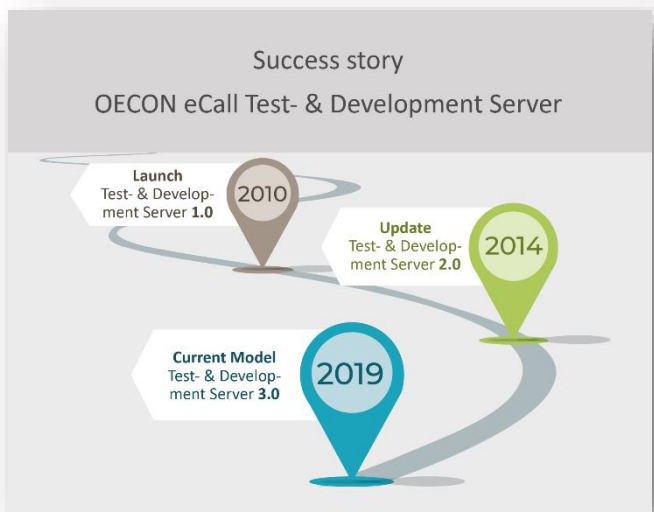


1. Ecall test systems



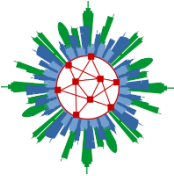
OECON is global market leader in eCall test systems and key partner for EU-funded eCall projects since 2010
 (i.e. HeERO, HeERO2, I_HeERO and sAFE Projects)

- Our products **support**:
 - eCall and location data development
 - upgrading 112 centers and third party service (TPS) providers with eCall and location data
- Our eCall **product range**:
 - Test and development server
 - Simulator
 - Router



Some of our customers





1. Ecall test systems



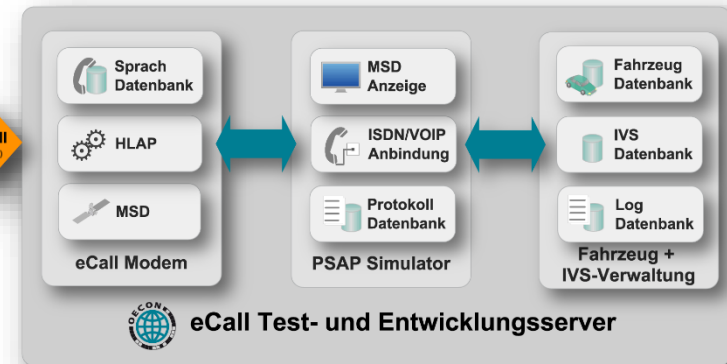
eCall test and development server

Certified service centre for receiving eCalls in compliance with EU and ERA-GLONASS specifications.

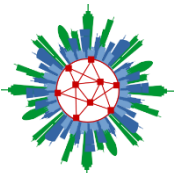
- Reference Test platform for **OEMs and suppliers**
- Supports **In-Vehicle System (IVS)** developers for eCall component development
- Complete, easy-to-use application for **PSAP simulation**
- Supports up to **100 simultaneous calls**
- Supports **next generation eCall (eCallNG)**
- Detailed process logs with reproducible test results



112 eCall
(MSD+Sprache)



PSAP: Public safety answering point



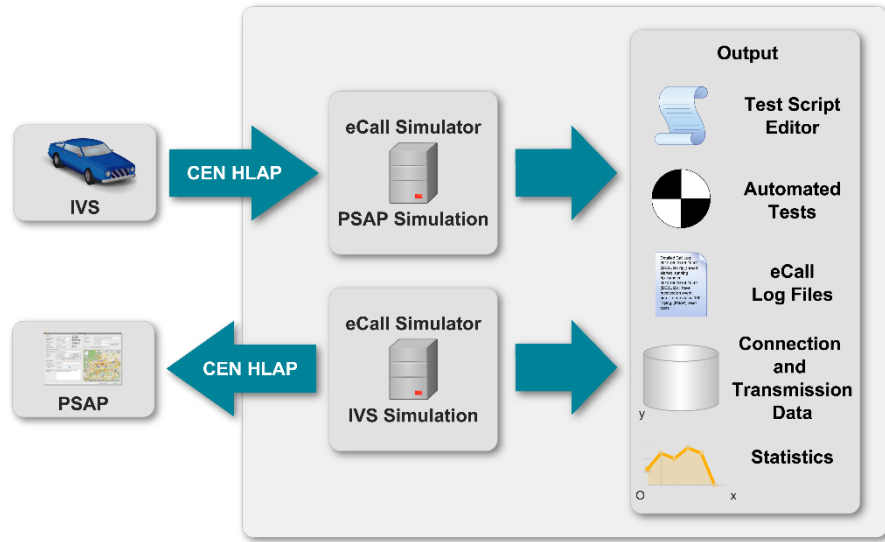
1. Ecall test systems

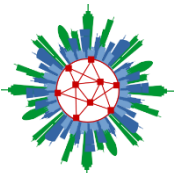


eCall simulator

Platform for validation and certification of IVS and 112 center components

- **Certified** system (TÜV Süd Germany) with **compliance** to all relevant **eCall standards**
- **Automated testing** with TTWorkbench and TTCN/3 test script language
- Test and data **reports** with **statistics**





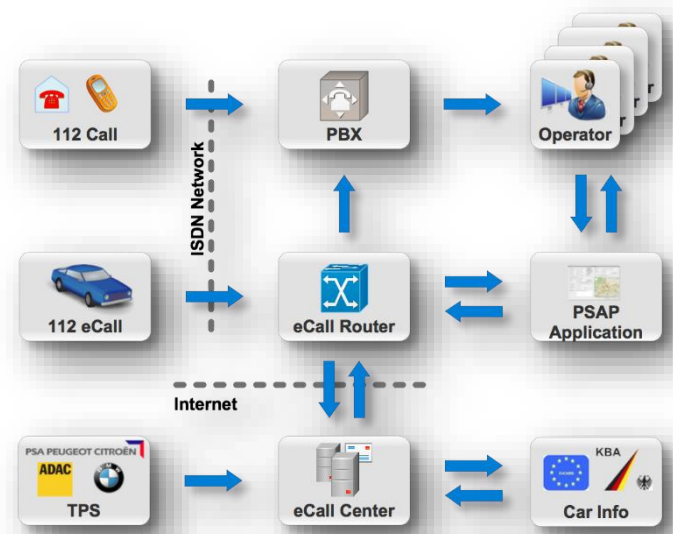
1. Ecall test systems



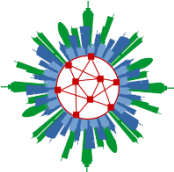
eCall router

Platform for upgrading PSAPs with minimum effort and investment

- An add-on to existing PBX and PSAP applications
- Uses unified XML interfaces to communicate with the PSAP software and standard ISDN features to communicate with the PBX
- **Certified** system by TÜV Süd Germany
- Up to 100 simultaneous calls
- Used for **over 300.000 eCalls** since 2011
- Supports both pan-European and TPS eCalls
- Used by several **TPS providers** since 2014



ISDN: Integrated services digital network
 PBX: Private branch exchange



1. Ecall test systems



PSAPs with our eCall router

- Fire brigade and police departments in Denmark
- eCall Pilot Filtering Instance PSAP in Belgium

- **PSAPs in:**

Portugal

Bulgaria

Netherlands

Latvia

Iceland

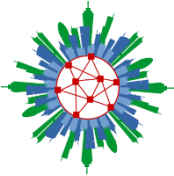
Central eCall PSAP in France

Finland

Cyprus

Germany



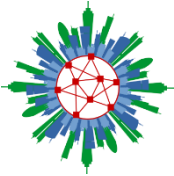


1. Ecall test systems



Our worldwide eCall business





2. UAV management

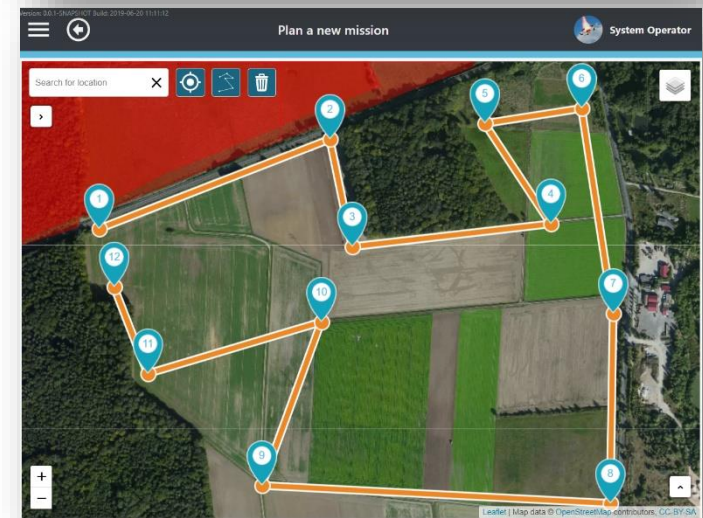


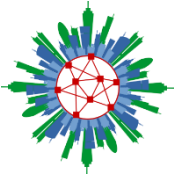
OECON Hawk Core Platform

Integrate aerial data into your day-to-day operations and improve business workflows.

- **Plan** sophisticated commercial drone operations
- **Manage** missions, users, drones and airspace conditions
- **Configure** and **customize** your settings
- **Strategize** and tactically collaborate

We offer **tailor-made solutions** for a variety of tasks.



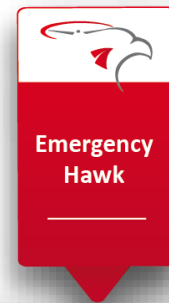
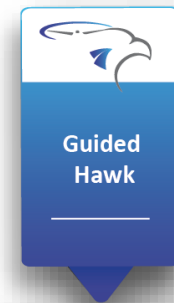


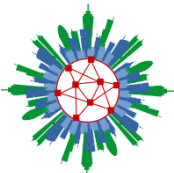
2. UAV management



OECON Hawk Product Family

- **Guided Hawk:**
Site monitoring with scheduled, recurring surveillance missions and delivery of video streams and high-resolution images
- **Emergency Hawk:**
Ad-hoc drone missions for rescue services and police forces with the ability to share the video stream with those involved and to control the drone on-site
- **Environment Hawk:**
Advanced missions for environmental protection, i.e. taking water samples for quality determination or dropping tree seeds for reforestation.





2. UAV management



Hawk Core Platform: Plan sophisticated drone operations

Plan missions instantly by drawing on a map

Adjust mission parameters easily based on specific requirements

Version: 0.0.1-SNAPSHOT Build: 2019-06-20 11:11:12

Plan a new mission System Operator

Search for location

Map controls:

Leaflet | Map data © OpenStreetMap contributors, CC-BY-SA

Version: 0.0.1-SNAPSHOT Build: 2019-06-20 11:11:12

Plan a new mission System Operator

Name

Start

Drone

Action upon completion

Flight information:
 Total distance: 5.44 km
 Estimated duration: 18m 7s

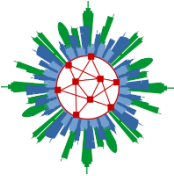
Weather information:
 Temperature forecast: 11.8 °C (Min: 11.6, Max: 20.7)
 Wind speed forecast: 1.5 m/s
 Wind direction: 289.0 °
 Pressure: 1026.4 hPa
 Total precipitation: 0.0
 Precipitation duration: 0.0

Waypoint information

Address	Height (m)	Speed (m/s)	Turn mode
Höseweg, 38104 Braunschweig, Germany	20	5	Stop and turn
K 141, 38104 Braunschweig, Germany	20	5	Stop and turn
K 141, 38104 Braunschweig, Germany	20	5	Stop and turn
K 141, 38162 Cremlingen, Germany	20	5	Stop and turn
K 141, 38162 Cremlingen, Germany	20	5	Stop and turn
K 141, 38162 Cremlingen, Germany	20	5	Stop and turn

Map controls:

Leaflet | Map data © OpenStreetMap contributors



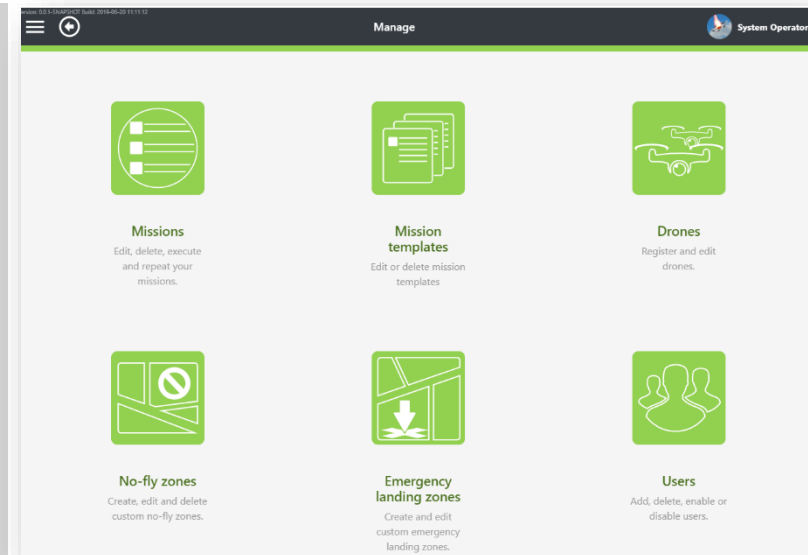
2. UAV management

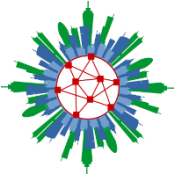


Hawk Core Platform: Manage your team, equipment and processes

Missions, flight crews, equipment, and operational procedures are in one integrated place

- **Manage** past and upcoming missions with required details
- **Command** unmanned aircraft for their assigned tasks remotely
- **Simulate** your missions before actual operations
- **Monitor** flight parameters, and **analyze** the summary of missions with required details
- **View** and edit your mission templates
- **Create** no-fly zones and emergency landing zones for safer operations
- **Assign** defined roles to users across your organization
- **Register, identify** and **manage** your drones easily





2. UAV management



Hawk Core Platform: Configure and customize your settings

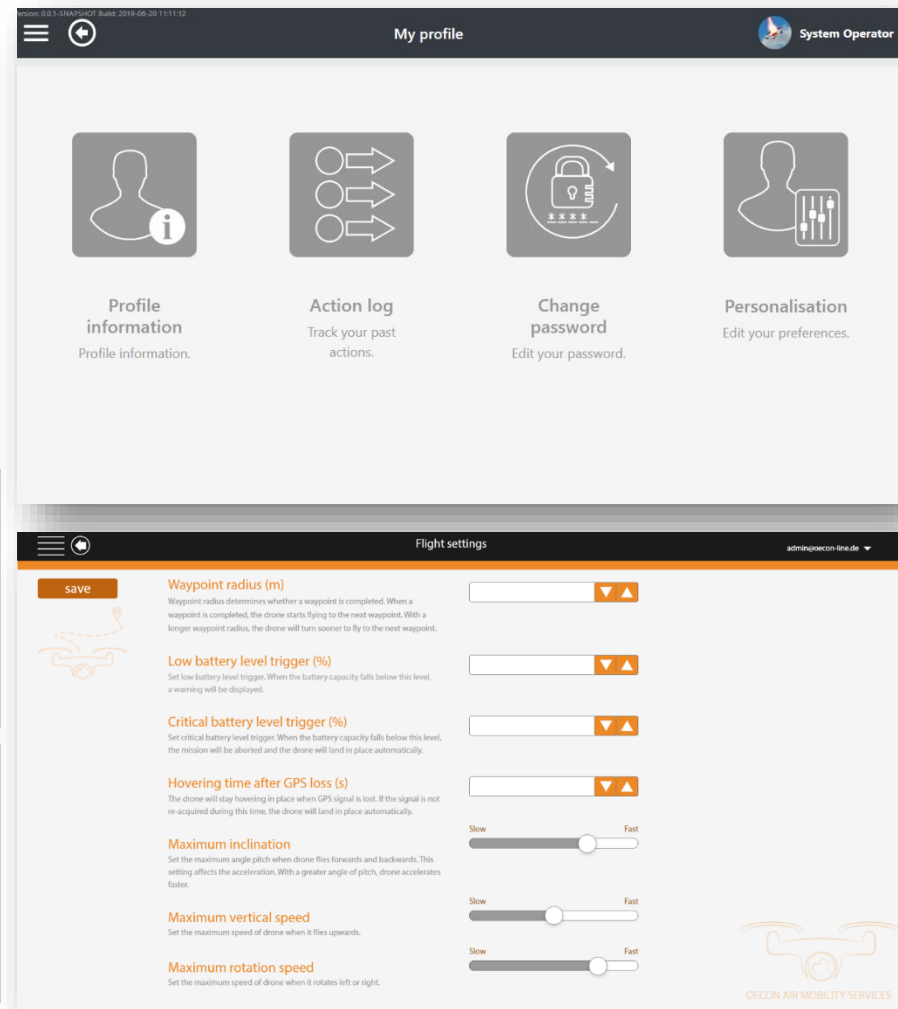
Select your personal and mission related settings for desired usability

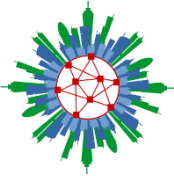
Customize your user profile:

- **Edit** your profile information password & preferences
- **Track** your past actions

Configure your flight settings:

- **Edit** and **set** specific flight parameter





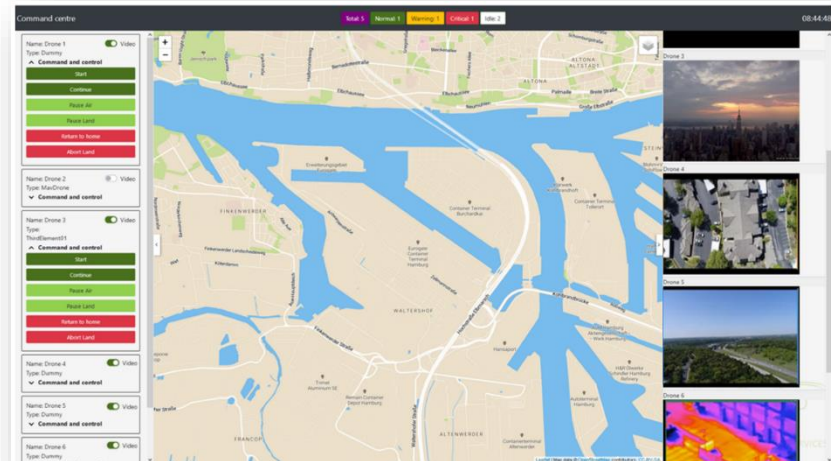
2. UAV management

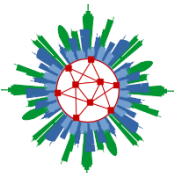


Hawk Core Platform: Coordinate your missions with command centre

Deploy, strategize and tactically cooperate by receiving real-time views of a scene with minimal latency

- **Monitor** the status and the real time location of the drones in-field
- **Generate** instant aerial insights in seconds with live video streaming
- **Take manual control** over camera
- **Mark points** of interest on the map to indicate locations for detailed inspection
- **Secure** telemetry and network connectivity
- **Store** flight logs, video and data usage





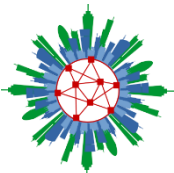
3. Location-based smart mobility solutions

We are reliable partner in numerous projects with its cutting-edge location-based products and services, especially in the transportation domain

Example domains of location based services



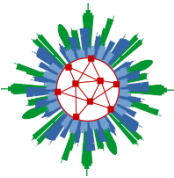
Figure reference: https://www.researchgate.net/publication/327256471_Location_based_services_ongoing_evolution_and_research_agenda



3. Location-based smart mobility solutions



Examples of our projects			
Projects	Start Date	Area	Description
Logiloc	2009	Logistics	Product development for container management
Sichere Schiene	2009	Logistics	Secure rail traffic through intelligently interconnected location-based telematics systems
Simba	2012	Personal Mobility	"Safe and mobile by means of accompanying assistance systems"
IKTS	2013	e-Mobility	Project 3.2 in the electric mobility showcase of Lower Saxony - "Mapping and Positioning Service"
InMoBS	2013	Personal Mobility	Urban mobility support for the blind and visually impaired at signalised junctions
ANIKA	2014	Automotive	Upgrade of emergency call pillars on motorways with V2I (Vehicle to Infrastructure) communication
Parkplatzortung via RFID	2015	Automotive	RFID based smart parking system
C-Roads	2017	Automotive	Development of uniform standards & communication solutions for C-ITS applications in Europe
Digitaler Knoten	2017	Automotive	Development of digital solutions for supporting vulnerable road users in the context of connected and automated driving in intra urban areas
Testfeld Niedersachsen	2017	Automotive	Connected and automated driving testbed in Lower Saxony



Contact us for more information and possible collaborations!



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