

Positioning

Development and marketing of "mobile satellite-based navigation, communication, information and security systems" for the use of regional GEO multimedia information systems and the associated services. Cooperation with international research, development and technology partners as well as the excellent production and sales concept guarantee a successful positioning in Europe's largest growth market for the next 10 to 15 years.

Product e / Business areas

1. security processors:

Universal, modular security processors, which are developed, produced and marketed as a manufacturer-independent "safety chip set" for smartphones (upgrading of existing devices is possible according to specifications). This adds many functions to a smartphone, in particular to enable a worldwide emergency call or precise location, independent of the cell phone / mobile network. Proprietary firmware and property rights secure the unique selling proposition.

2. MobyScout:

Based on the above-mentioned security processor, "MobyScout" was also developed as an "add-on". This is a "Multifunctional Mobile System", which is used in the areas of satellite navigation (GPS / EGNOS, Galileo, Glonass, Beidou), communication (LTE, satellite communication), as well as a multimedia information and security system (upgrade of existing devices is possible according to specifications). At its core is the proprietary security microprocessor. The product is primarily intended as an extension of existing devices or in combination with new devices. Own firmware as well as property rights lead to many unique selling points.

3. GEO multimedia tourism information systems

Flexible use of GEO-multimedia information systems such as Google Earth / Google Maps as well as applications and products of other providers in the field of satellite navigation & communication. A flexible "data management tool" as a basis for the development and maintenance of regional GEO-multimedia tourism information systems with the products as online, offline and mobile versions. Also ideally suited as a theme / city / museum / event guide, etc.

4. location-based services (LBS)

Use of available services as location-based services (content/contacts/queries/bookings, etc.) to ensure the highest possible utility and added value for all target and user groups.

Target groups and market

The main focus of the MobyScout development is the use in social and humanitarian areas (safety and mobility for elderly and disabled people) as well as in the leisure and business area on water and land. disabled people), as well as in the area of leisure and business on water and land, especially for users such as hikers, mountaineers, climbers, cyclists, mountain bikers, skiers but also mountain rescue, Red Cross, cable cars, adventure travel (desert areas), water sports such as boaters / sailors / canoeists, care and logistics services, tourism regions / tourist centers (cities & towns) and hotels, museums, etc. can provide your guests and visitors this system as an information, navigation, risk management and security system. By minor modifications further new target groups can be addressed (e.g. guard companies, nursing homes, etc.) - basically all people with an increased need for security / positioning / orientation / communication (professional and private). Multiple requests from the military sector (international) have not yet been considered. In addition, drone development for security-related organizations such as fire departments, police and ambulance services will become a weighty priority.

The market for satellite navigation in general and that for mobile devices, based on 4G, 5G, GPS / EGNOS / Galileo / Glonass / Beidou as well as corresponding content and location-based services, is one of the strongest growing strategic business areas in the field of "New Technologies ". According to a study commissioned by the ESA (European Space Agency), the global market for the civil use of satellite navigation is forecast to exceed 250 billion euros by 2025.

MobyScout Safety Chip-Set and MobyScout Add-On

Power resource management - constant control & management

"Power resource management" of the system constantly monitors the power consumption and charging status of the device. When the battery of the mobile device has reached a "critical" level (can be defined by input), the user automatically receives a 1st warning / notice to recharge / replace the battery. If this is not fulfilled within a further defined consumption period, the user receives a 2nd warning with the note that now all power-intensive functions (display / camera etc.) are switched off, but the emergency call function is available for another 48 to 72 hrs.

Alert system - warning in case of / against local / regional hazards Potentials

Regional warnings (severe weather / avalanches / closures / potential hazards / accident & search messages etc.) broadcast via satellite radio are recorded and automatically processed (GPS / EGNOS / Galileo etc.). If a user enters a corresponding danger zone, this is detected and processed by the system and the user receives a clear warning (risk zone alarm) as well as supplementary information.

Emergency call management - "Emergency Calls" even with poor or non-existent mobile networks (worldwide)

Combination of mobile phone systems / networks (LTE/GNSS, etc.) with satellite radio; satellite telecommunication and satellite navigation. This means: If a user / affected person wants to make an "emergency call" via his mobile device and does not get a connection (missing or limited mobile phone connection), the system / device automatically switches to satellite communication and sends the emergency call to the appropriate control center. Due to the bi-directional satellite communication, this is possible both via data (including position and stored individual data) and via voice.

Comrade rescue (communication with "partner devices")

This means that users within a group can "locate / search / find and communicate" with each other (even without the availability of a mobile network. Especially important for people buried by avalanches (max. snow depth 1 to 1.5 meters).

Cross-functionality - use of available apps / networks / systems

All current navigation and communication standards as well as apps can be used. The MobyScout Safety Chip-Set is designed as a multifunctional system, its use not only in alpine regions, but everywhere on land and water useful.

Unique selling proposition

- Worldwide unique safety and emergency call concept
- Open design; universal and flexible component model
- Requirement- and situation-controlled "risk management" with current warnings (satellite radio / Internet, etc.) and recommendations / notices
- Guarantee for emergency functions such as emergency call; location / direction finding and identification by bi-directional satellite communication AND combination with mobile networks (automatic control)
- Dual microprocessor concept with power resource management - functional reliability for emergency functions even with empty batteries.
- Continuous function monitoring and automatic updating
- Combination of satellite navigation / satellite telephone and telecommunications with satellite radio, integrated direction finder and mobile communications



MobyScout – UAV segment

Unmanned aerial vehicle
Unmanned aircraft



Product segment UAV / Business areas

Unmanned aerial vehicles - in particular drones technology

1. Drones

1.1. Definition and description of the focus of MobyScout

The term "drone" was transferred from male honeybees to unmanned aerial vehicles. This usage is said to go back to the "Queen Bee" of the British aircraft designer Geoffrey de Havilland. De Havilland had a great interest in entomology and named many of his designs after flying insects, e.g. Mosquito, Dragonfly, Tiger Moth. The Queen Bee was the first unmanned tow plane produced in large numbers. A demonstration is said to have impressed an American admiral so much that he commissioned naval officer Delmar S. Fahrney to build similar flying objects, which the latter named "drone" in reference to De Havilland's name in 1936. This name stuck in military parlance and was eventually applied to civilian flying objects as well. *MobyScout focuses on the construction of drones for the safety and rescue of the environment and living beings from and in emergency situations (without direct transport of people and animals) as well as the explicit protection and support of the security forces of the respective units of police, fire and ambulance.*

1.2 Drone energy systems

The basis of today's energy systems is basically high-performance batteries in every respect. MobyScout goes further with the use of hybrid systems (battery / hydrogen) and possibly even pure hydrogen drives (fuel cells).

While the drone can fly horizontally for hours on hydrogen, it needs a runway for takeoff and landing, which is not conducive to use over water or in rough terrain. Hence the hybrid system (battery/fuel cell) approach. During takeoff, the electric motors are powered by the on-board batteries. The fuel cell takes over the power supply during the (horizontal) flight and recharges the batteries if it produces more than the flight needs. In this process, the only emission is pure water vapor - 100% exhaust-free and environmentally friendly. In this respect, MobyScout's focus in the field of energy systems is on hybrid propulsion (battery/hydrogen).

Target groups and market: drones

The market for drone developments, especially in the application area of security needs in general, is growing rapidly, as the corresponding sensitization of people (also fear culture) has reached an unprecedented level and the previous logistical requirements can no longer meet the need for security (resource consumption, speed, costs).

In DE alone, the share of commercially used drones has increased by around 140% since 2019 to currently more than 45,000 drones - with a strong upward trend especially in light of the developments of the last two years.

The main focus of the MobyScout - drone development is the use in social & humanitarian areas as well as and primarily in the commercial area of Search and Rescue for police, fire department and ambulance. Early detection and, if necessary, extinguishing of (forest) fires, among other things in terrain that is difficult to access, in the mountains, in cities, factories, high-rise buildings and also over all bodies of water (rivers, lakes, seas) regardless of the respective weather conditions and time of day or night for an unlimited duration (practically 24/7).

- Safety and mobility for humans and animals in case of emergency. No designs for classic transport package drones nor for personal transport drones.
- Rescue and extinguishing material (up to approx. 400Kg) quickly and without danger to safety forces on the spot.
- Investigation, prosecution and prevention of (violent) crimes, quickly and without additional danger to humans and animals.
- Targeted interception and, if necessary, rendering drones harmless
- Use of professional 3D printing technology for drone construction as well as for individual customer projects such as boats, etc.

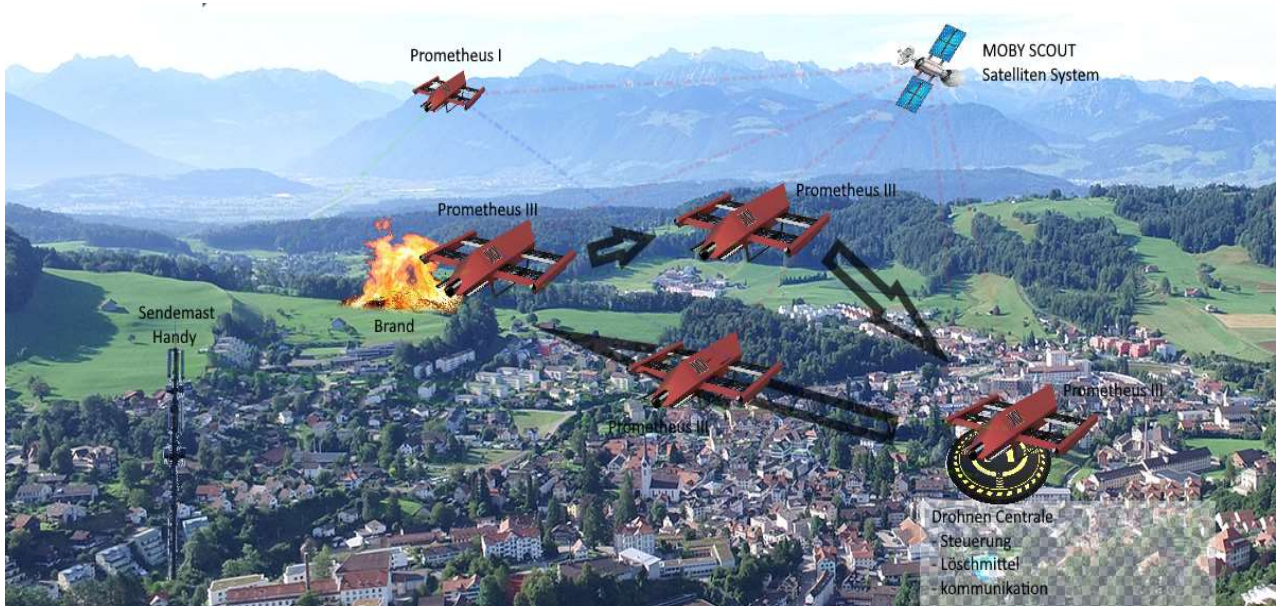
Example of use

Prometheus is the first active drone in the fight against fire.

Unlike other drones that only have camera & thermal imaging, Prometheus can intervene and extinguish the fire through a variety of different extinguishing agents or slow the fire down until responders arrive on scene to intervene.

The drone can move into danger zones where it becomes too dangerous for human emergency personnel. The Prometheus system for firefighters is an interaction of a network of drones. The goal is to analyze the terrain and the hazard and identify threats. After this process, the procedure for combating the hazards is discussed with local security forces.

The drone provides various information such as fire size (live images), wind strength & direction, temperatures and also terrain conditions.



Animation System Prometheus in use

For large-scale operations, 4 Prometheus P3 drones plus one P1 drone will be deployed. The latter is capable of providing hours of reconnaissance over the scene. In cooperation with the local security forces, it is thus able to provide various options of image & geo-information. The team is composed of a drone pilot, a coordinator and a drone mechanic. The four drones (coordinated by the pilot and the P1 drone) together form a firefighting chain; one drone is on a firefighting mission, a second is on its way back, a third is being prepared at the base for redeployment, and a fourth is on its way to the firefighting mission. The drone basically flies independently along the predefined route to the scene of the fire. Supported by GPS, cell phone network, HSDPA, HSPA+, G4, G5, radio (including MobyScout system), it independently avoids any obstacles. Shortly before the scene, the pilot switches to manual flight mode, he is able to fly the drone precisely and fight the fire efficiently.

Possible applications

The Prometheus drone is primarily there to fight fires.

Through its various cameras, it has the ability to provide air to ground coordination.

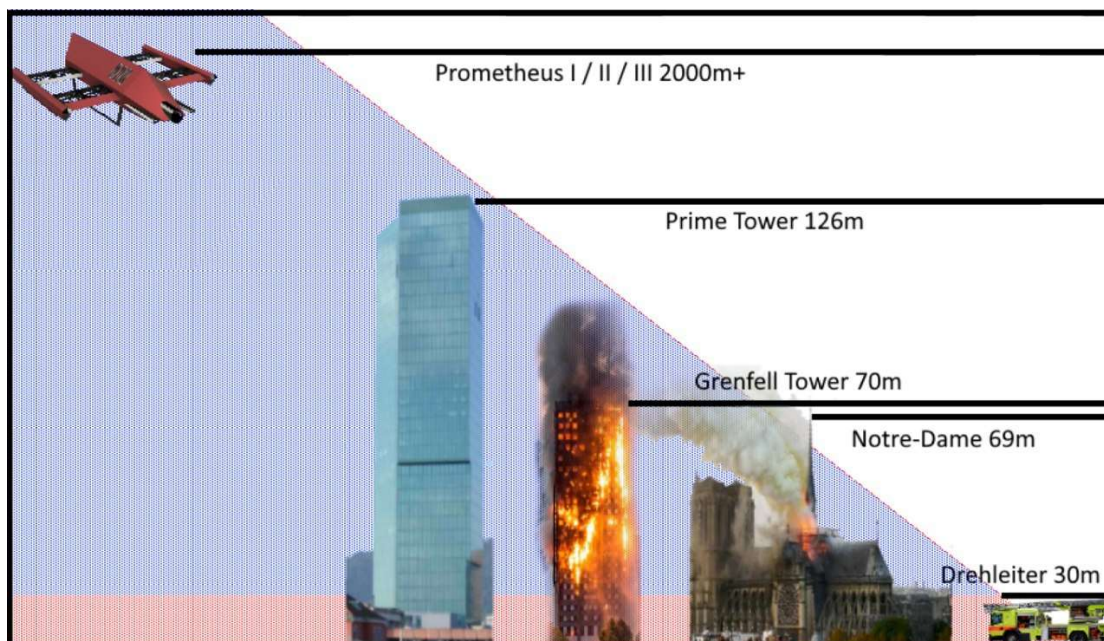
By guiding security forces to injured people or informing security forces about danger zones, it can save lives quickly and effectively. Thermal imaging and infrared supported with AI (artificial intelligence) allow it to distinguish between people and animals; thus, the coordinator can have the right information. Through the built-in speakers and microphones, the drone can make contact with people. Accordingly, uninvited bystanders in the immediate vicinity can be alerted to a hazard and, if necessary, turned away. Persons who are in a dangerous situation can be escorted to a safe zone. If escape routes are not available, the drone is able to deliver protective goods to the endangered persons. At the same time, the drone can use its extinguishing agents to protect these persons.

These different approaches can save human and animal lives without putting other people and/or security forces in harm's way.

A landed drone can maintain audio and video contact for up to 12h while standing on the ground due to its hybrid energy system. After 12h on the ground, the drone still has enough energy to fly back to base.

The drone is equipped with powerful LED headlights/night vision cameras, which not only makes it highly visible at night, but also allows it to provide light over a wide area. Night missions are thus possible at any time.

Well-tuned flight sensors and the corresponding software help the pilot to focus on the essentials; the drone automatically avoids collisions with objects of at least 10mm in diameter (depending on the speed, even less). Thus, the pilot can focus on extinguishing the fire.



Prometheus deployment range

With 400kg of lifting power, it is capable of flying goods into hazardous areas. These can be dropped or delivered by landing. The range, size, flight time, type of extinguishing agent, etc. can be changed by appropriate modifications.