OFRO

OFRO

OFRO
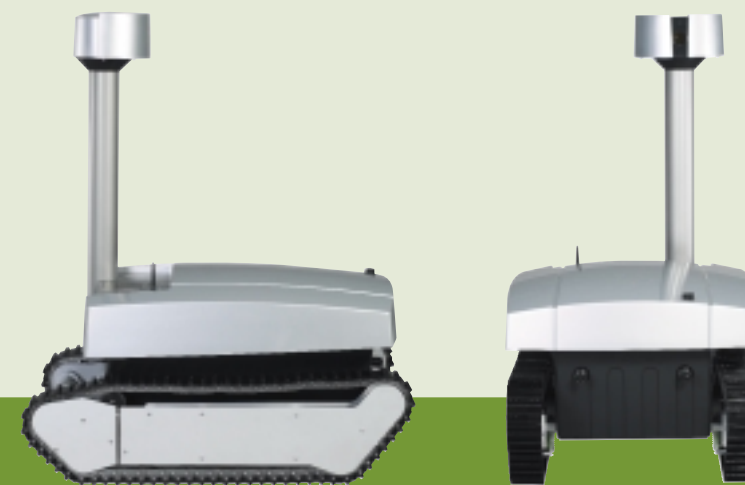# Security outdoors

Test safety in its new
dimension. It will convince
you. Call, email or fax us
this very day.

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ROBOWATCH
TECHNOLOGIES

**First
in
Safety**

OFRO
Outdoor surveillance at the highest level

OFRO
Quality by Robowatch Technologies

OFRO the first mobile security robot worldwide for outdoor surveillance. Deployed in large outdoor areas, **OFRO** protects humans, goods and facilities around the clock regardless of the weather.

Application areas

- Airports
- Penitentiaries
- Nuclear plants
- Government buildings
- Private villas
- Military facilities
- Industrial plants
- Utilities

OFRO reliably keeps an eye on everything

Being able to determine the actual cause of an alarm, evaluate the situation and take counter measures, is a prerequisite in today's modern security concepts.

This applies especially to remote sites, where interventions of security personnel or police involve great expenses. By means of its highly sensitive sensor technology potential perpetrators are already recognised before entering the premises.

Counter measures may be initiated even before the perpetrator finds

access to the secured object or before he is able to approach vulnerable persons. In doing so, **OFRO** reaches a high level of detection and keeps the rate of unwanted messages as low as possible. **OFRO** reacts independent of extreme temperatures, rain, snow, different area conditions and unforeseeable movements, i.e. animals. Thus, **OFRO** is a milestone in outdoor safety technology.

Thus, OFRO is a milestone in outdoor security.

Communication
Early detection of danger is critical. Via GSM and WLAN, **OFRO** reliably transmits all data to the control room. Permanent video surveillance and data archiving are a standard option.

Navigation
OFRO independently moves through its terrain. At a speed of 7.2 km/h it can patrol up to 12 hours – in any weather. An impact resistant body protects its premium technology from snow, rain. The operating temperature of the **OFRO** is between -15°C and 50°C. Its caterpillar drive chain allows it to patrol rough uneven terrain.

Technology
Cutting edge technology: a sensor head automatically 360° rotatable with integrated thermo camera, two ultrasonic distance sensors, GSM module and WLAN as well as DGPS receiver with a receiver for correctional data (EPS).

Dimensions
Weight: ca. 50 kg
Height: ca. 1.20 m
Width: 0.50 m

The advantages compared to stationary security technology at a glance:

- Mobile outdoor security
- Sensors independent of the weather and autonomous navigation of the area
- Improvement of the possibilities of reaction, more time for counter measures
- Increased man-machine reliability
- No costly and obtrusive installations
- Favourable cost/performance ratio

Robowatch Technologies develops and distributes service and surveillance robots, which meets individual needs in terms of modern security. The company caters to one of the most important requirements of our times: security.
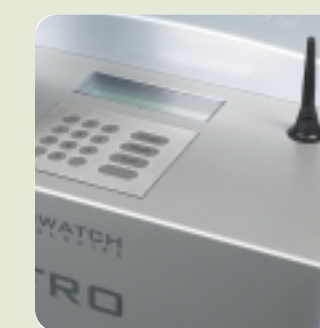
The Berlin corporation was founded in 2000. Currently, the company has 25 highly qualified employees.

Both Managing Directors and the senior staff provide the company with the experience of many years in the
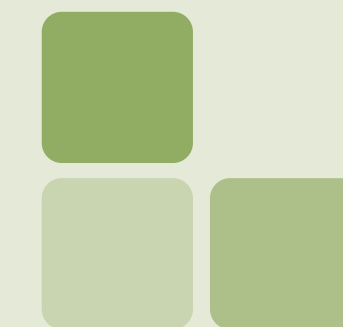
security sector and robotics. Companies from all sectors have an increasing demand for reliable security in buildings and outdoor areas. Decision makers in industrial, trade and the service sector are increasingly recognising the security of their customers, staff, suppliers and partners as being a deciding competitive factor.

Robowatch Technologies offers High-Tech solutions and sets new standards of quality. In terms of serial mobile surveillance systems, the company is worldwide the number one.
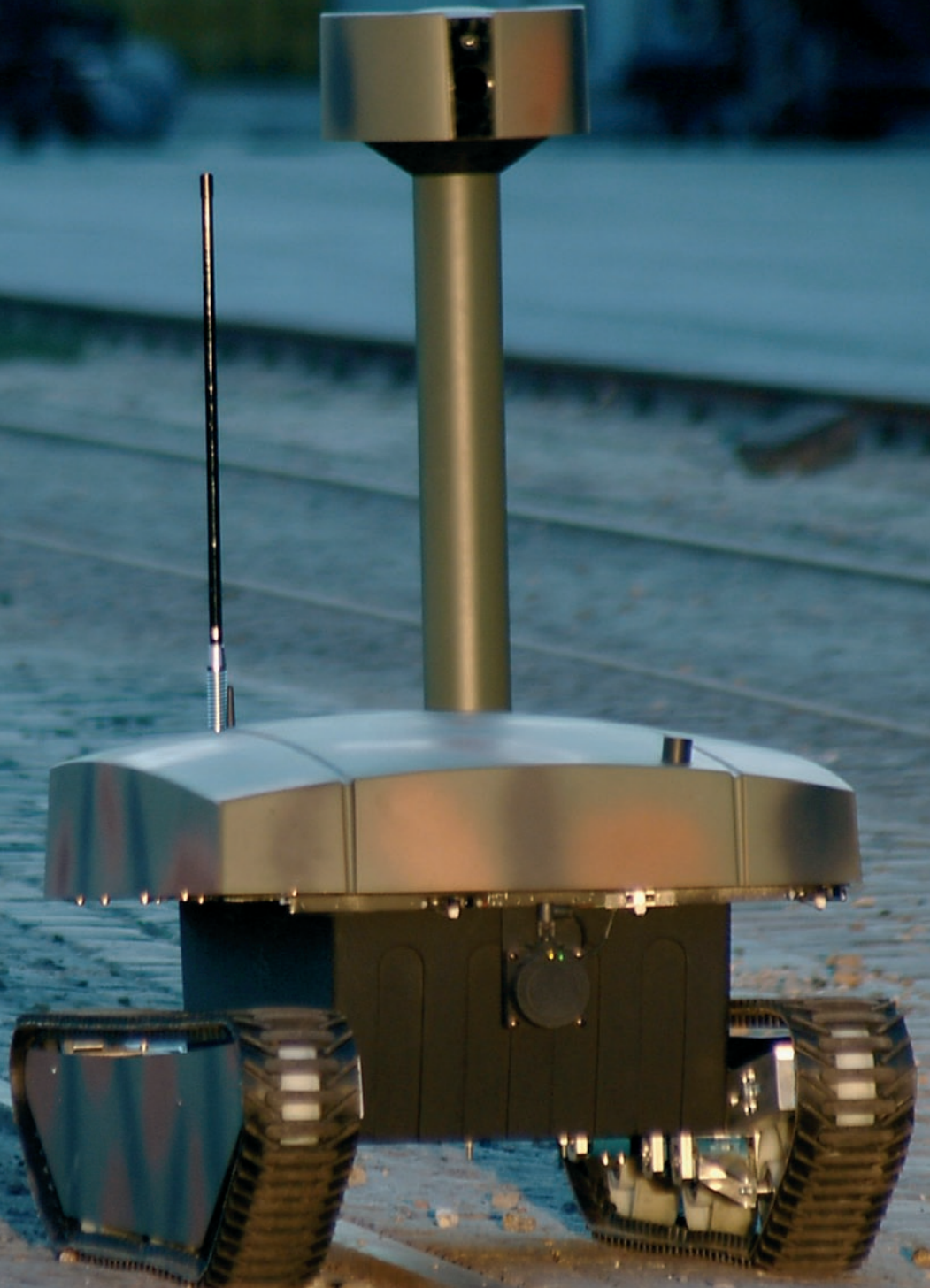
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OFRO +detect
MOBILE RECONNAISSANCE

The importance of immediately operational mobile gas detection systems is steadily increasing – not only in regard to danger by terrorist attacks with toxic substances, but also in chemical factories or traffic accidents involving the transport of hazardous substances. In most cases, humans still have to assume the difficult and risky task of estimating the hazard on site and within the briefest possible time. It is not unusual that they risk their own lives.

ROBOWATCH TECHNOLOGIES

OFRO +detect
MOBILE RECONNAISSANCE

TIME TO RETHINK

The tread-drive reconnaissance robot **OFRO⁺detect** is based on the basic model of the mobile security robot **OFRO**. The system is equipped with tried and tested gas-measuring technology and detects all current tactical gases as well as toxic industrial gases.

Independent of weather, **OFRO⁺detect** – by means of its integrated thermal camera system, which rotates 360 degrees – reliably recognises human heat sources. Just like the **OFRO**, the robot transmits data continuously using the radio standards GPRS, UMTS and WLAN.

OFRO⁺detect not only transmits type and concentration of the detected gas, but also simultaneously delivers video recordings of the location of the accident to the control unit. The control unit can also be mobile if control is effected by tablet-PC. The flexible employment of the mobile reconnaissance robot guarantees the fast deployment of well-aimed measures to protect humans and assets in emergency situations.

TECHNICAL DATA

Physical Characteristics	
Length	112 cm
Width	70 cm
Height	140 cm
Weight	65 kg
Payload	40 kg
Climbing Ability	45°
Operating Temperature	−20°C to 60°C

Construction	
Top case	5.0 mm GFK
Bottom case	6.0 mm in GFK
Assembly	fabricated high-grade Aluminium

Power	
Battery	Lithium Ion Cell
Capacity	60 Ah
Run time	12 hrs
Recharge time std charger	6 hrs

Mobility	
Chain drive	two rubber treads
Chain/Wheel diameter	14.5 cm
Chain width	12 cm
Translate speed max.	4 km/h
Rotational speed max.	2000 degrees/sec

Motors	
Power	500 W
Voltage	24 V DC
Force	28 Nm
Encoder	HP HEDS-5540 A11, r=500 cpr

Sensors	
Front Ultrasonic	1
	2 forward @ 20° intervals
Position Encoders	270 ticks per mm
	17,984 ticks per revolution
Infrared	Wide FOV (50°× 35°)
Video Camera	7–14µm; 320 × 240 pixels

CCD Camera	Wide FOV (25° × 35°)
	640 x 480 pixels
DGPS	12-channel DGPS receiver;
	submeter differential accuracy,
	World-wide operation
	with Omnistar
Gas/Smoke Sensor	12 (optional)
Front Infrared Sensor	5

Electronics Intelligent onboard microcontroller	
Processor	Transmeta Crusor (800 MHz)
Comm port	12 buffered serial ports (with
	RS-232, RS-485, TTL options)
USB-Ports	2
Ethernet Controller	2
RAM	64-bit wide 3.3V DRAM –
	up to 256 Mbytes
Extend	PC104 Standard
A/D-Board	16 bit A/D resolution,
	4 analog in, 4 analog out,
Frame Grabber	FBAS and SVideo

Communication	
WLAN	Secure Wireless-LAN using
	authentication after IEEE
	802.1x / EAP with Key-
	Rollover, ACL, RADIUS and
	WEP128 / WEP152
GSM/GPRS/UMTS	Its a dual mode, dual
	band card, which means
	as well as operating on 3G
	networks it can roam onto
	GSM900 and GSM1800

Controls and Ports	
Main Power	Robot power On/Off
Charge	System power/battery recharge
LCD display	Systems status and messages
Speaker	100–20 khz, 3.5 watt sinus

MULTI IMS	
Ion Mobility Spectrometer for detection of chemical warfare agents.	
Nerve gases	0.01 to 0.1 mg/m³
Mustard gases	0.5 to 2.0 mg/m³
Blood gases (e.g. HCN)	20 to 50 mg/m³

Ray-Sensor (N)	
Gamma sensitivity 95.0 pulses per minute at Co-60-radiation = 1µSv/h in energy band of ambient radiation.	
Ray Types	
(α + β + γ) (alpha)	from 4 MeV
β (beta)	from 0.2 MeV
γ (gamma)	from 0.02 MeV

FIELDS OF APPLICATION

- Real estate (open depots, large storage areas, outdoor storage, military premises, tank farms)
- Interim storage
- Parking spaces of aeroplanes
- Large events

RANCHE OF APPLICATION

- Early recognition of fires
- Measuring leaks
- Process control
- NBC reconnaissance
- Detection of persons