



CORE FEATURES

- Runs along rail attached to fence
- Speed - up to 20 km/h
- Coverage of up to 1 km per robot
- Powered by a rechargeable battery
- Wi/Fi communication
- Variety of payloads:
 - Laser scanner
 - Fixed or PTZ cameras
 - IR illuminator
 - Two-way intercom
 - Flash beacon
 - And more ...
- Automatic modes include:
 - Laser based surveillance for fence damage and suspicious objects at the vicinity of the fence
 - Rapid homing-in on the location of an alert
- Manual mode includes manual driving of the robot and PTZ camera control
- Operated via Magal's Fortis4G Security Management System (SMS)
- Unique in the market



DESCRIPTION

RoboGuard is a revolutionary agile scout robot, which runs along secured fences, ensuring perimeter integrity and capable of responding promptly to intrusion alerts. It consists of an autonomous unit, traveling on a monorail and carrying several sensors.

The robot has two modes of operation:

- **Routine patrol**, in which it travels autonomously at about 5 kilometers per hour, scanning and searching for perimeter anomalies such as fence holes or nearby suspected objects
- **Response mode**, in which the robot rushes promptly to home in on a suspected intrusion, acting as a first responder

A typical RoboGuard configuration includes:

- Laser scanner that acts as a short range 3D LIDAR (Light Radar) for perimeter inspection
- Fixed camera with IR illuminator for short range perimeter surveillance and threat verification
- PTZ camera with IR illuminator for medium range
- Two-way intercom between the control room and a potential intruder

HOW IT WORKS

- The robot, powered by a rechargeable battery, travels along a monorail, which is attached to the fence structure; several optional preset gear combinations are supported in order to provide the optimum speed / slope performance
- Wi-Fi communication ensures constant link between the robot and the control room; this can be achieved through either:
 - RF antennas at the docking stations or any other locations covering the rail
 - Leaky feeder cable laid along the rails
- The sophisticated laser scanner uses a rotating laser beam perpendicular to the fence, covering the lower hemisphere (270°); it scans up to 20 meters of each side of the perimeter, capable of detecting holes in the fence or new objects left close to the fence
- The two-way intercom onboard the robot enables conversation between the control room and a person standing a few meters away from the robot

SITE LAYOUT

- Each robot typically covers 1,000+ meters, mostly pending the required response time
- A docking station is located at every 2,000+ meters, serving the two adjacent robots with battery replacement and Wi-Fi communication
- Each docking station is powered by 230/110 VAC. The average time between battery replacement stops is 3 hours.

APPLICATIONS & BENEFITS

RoboGuard is the ideal choice for sensitive unattended critical sites, where the site is remotely monitored yet prompt first-response is highly recommended.

As an affordable "unmanned first response vehicle" **RoboGuard** is useful as a complementary solution for almost any perimeter application, such as airports, seaports, prisons, military and other sensitive sites;

- It can offload the burden of routine regular inspection of the perimeter
- It can offload the burden of checking areas where frequent nuisance alarms occur
- And most importantly - save manpower by performing some of the tasks typically done by first responders

TECHNICAL SPECIFICATIONS

ROBOT UNIT

Speed: 5-10 km/h in patrol mode
 Up to 20 km/h when alerted to intrusion location
 Motor: 48VDC 960W 4.55Nm Electric motor, 4WD
 Battery: 48V 9.6Ah, LiFePO₄, Cycle life: ~2000 cycles
 Battery capacity: at least 3 hours of constant travel
 Operating temperature: -20°C to 55°C (-4°F to 130°F)
 Optional: -40°C to 65°C (-40°F to 150°F)
 Completely weather proof IP 66
 Size: 85 x 75 x 26 cm (33.5 x 29.5 x 10.5 in)
 Weight (including battery): 37 kg

Rail

Material: Welded galvanized steel pipe, outer diameter 60 mm
 Rail distance from the fence: 50-120cm (20-47 in)
 Slope: Maximum 8°
 Horizontal radius: 2.5 m, inclination limiter required
 10 m without the need for inclination limiter
 Vertical radius: Minimum 5 m
 Carrying posts: 50 x 50 x 5 mm angle galvanized steel
 End/Corner carrying costs: Galvanized RHS 60 x 60 x 3 mm

DOCKING STATION

Power: 110/230 VAC, 1000 W
 Size: 120 W x 230 H x 140 D cm
 Weight (including batteries): 850 kg

WIFI

Standards: IEEE 802.11b/g and 802.11n draft for Wireless LAN
 IEEE 802.11i Wireless Security
 IEEE 802.3u for 10/100Base-TX
 IEEE802.1D Spanning Tree Protocol

REGULATORY COMPLIANCE

CE, RoHS 2 and FCC

ROBOT PAYLOAD

Laser Scanner

Field of view: 270°
 Scanning range: 20 m
 Angular resolution: 0.25°
 Laser class: class 1 (eye safe) as per EN 60825-1
 Wave length: 905nm

PTZ Camera (IR illuminated)

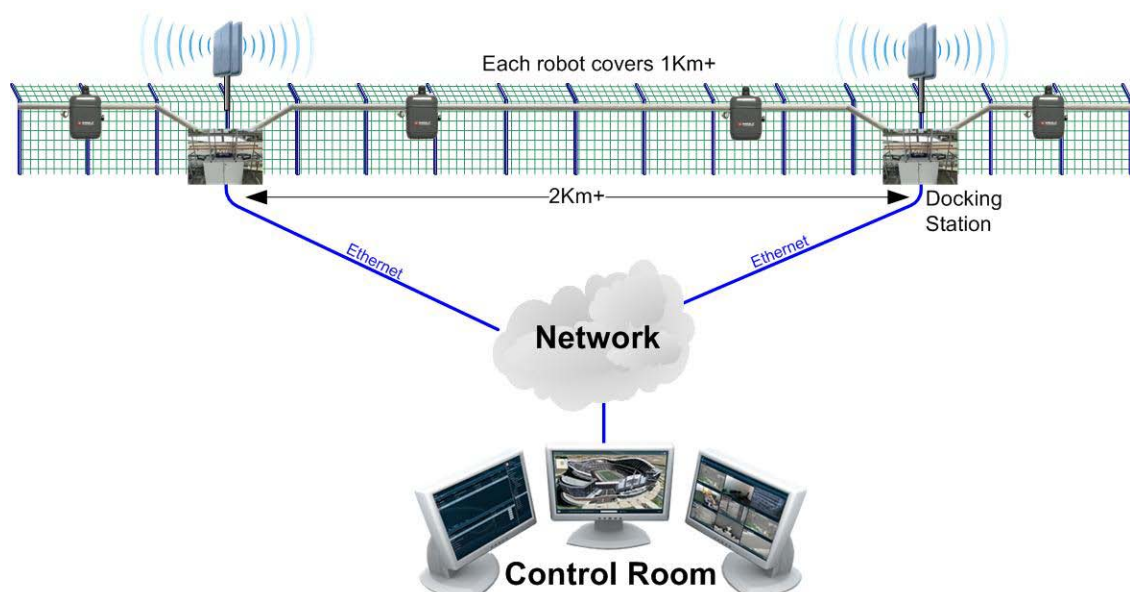
Image sensor: 1/4" Sony EX-View HAD CCD
 Effective pixels: PAL: 752(H)×582(V); NTSC: 768(H)×494(V)
 Horizontal resolution: 550 TVL
 Optical zoom: 36X
 Lens: focal length 3.4mm to 122.4 mm; F1.6 to F4.5
 Viewing angle (horizontal): 57.8° (wide) to 1.7° (tele)
 Illuminator wave length: 850nm
 Illuminator range: 60 m
 Minimum illumination: 0 lux (Lights On), 0.01 lux (Lights Off)
 Pan range: 360° Continuous
 Tilt range: -15° to 90°

Fix Camera (IR illuminated)

Image sensor: 1/3" DIS Camera
 Resolution: 976(H)×496(V)
 Illuminator range: 10 m
 Lens: focal length 2.8 mm, F1.2
 Viewing angle: H: 80° V: 65°
 Minimum illumination: 0 lux (Lights On)

Audio

Speaker power output: 15W
 Speaker frequency response: 20 Hz to 20 kHz
 Microphone type: Omni directional
 Microphone frequency response: 200 Hz to 16 kHz



SYSTEM CONFIGURATION