



The Robot Award

**Japan Machinery Federation
President's Award**

Autonomous mobile security robot SQ-2

SEQSENSE Inc.

Highly autonomous mobility functionality reduces the human burden of security work and achieves high levels of sophistication



■What is the Autonomous Mobile Security Robot SQ-2?

The SQ-2 is an autonomous mobile security robot created by making full use of advanced technologies such as 3D sensor technology, self-positioning algorithms, and real-time path planning algorithms. It is capable of performing security patrol work in place of or in cooperation with humans, a job for which there is a serious lack of available workers.

Equipped with a proprietary 3D LiDAR system, the security robot can perform detailed 3D mapping of properties to be guarded, detect moving objects such as pedestrians, and detect changes in the environment. The system can also be linked to a cloud system to provide various security operations (patrol, standing guard, moving guard) remotely from the security base.

■Work Type

Patrols

The robot moves autonomously to predetermined patrol points and performs monitoring and inspections. During the patrol, the robot is equipped with a camera (frontal high-definition or panorama) to stream video in real-time. It takes photographs at each point in the patrol and saves it to the cloud system making it possible to check for abnormalities after the patrol is completed.

Standing Guard

The robot stands at a security point and performs surveillance. Images from the 360-degree panoramic camera can be displayed on a monitor installed at the security base. It is possible to monitor the area around the security point in real time. The onboard microphone and speaker make it possible to use it to respond to enquiries in the field.

Moving Guard

The robot can be operated remotely from the security base. By specifying any point on the map, the robot will move autonomously to the point. If a suspicious object or an injured person is found during a patrol operation, the robot can be

moved to check and talk with the subject.

■Reliable technology to support work

The proprietary LiDAR system on board the SQ-2 is capable of perceiving the robot's vicinity from a high angle, enabling flexible and safe autonomous movement, even in large-scale environments that require security. The software stack that uses the data from the sensors is based on self-positioning and path planning software, which is also available as open-source software, making it possible to make advanced adjustments and customizations.

With the connected cloud system, security work that uses the internet can be done and robot operation management applications can be built, enabling both flexible functional expansion and ease of operation as the system can be used anywhere with a web browser. The system can also be smoothly connected to external systems such as elevators. Application-wise, the company plans to incorporate daily field requests, eventually proactively offering recognition functions to support security operations.



SQ-2 on patrol

Contact:

SEQSENSE Inc.

Address: 2-2-3 Uchisaiwai-cho, Chiyoda-ku, Tokyo
Saeki, Tel: 050-2018-7860 E-mail: staff@seqsense.com