Home > ... > FP6 >

Group of unmanned assistant robots deployed in aggregative navigation supported by scent detection



Group of unmanned assistant robots deployed in aggregative navigation supported by scent detection

Fact Sheet

Project Information Funded under GUARDIANS Information Society Technologies: thematic priority Grant agreement ID: 045269 under the specific programme "Integrating and strengthening the European research area" (2002-2006). Project website 🔼 **Total cost Project closed** € 3 395 643.00 Start date End date **EU** contribution 1 December 2006 31 January 2010 € 2 715 000,00 Coordinated by SHEFFIELD HALLAM UNIVERSITY Kunited Kingdom

Objective

The GUARDIANS are a swarm of autonomous robots applied to navigate and search an urban ground. The project's central example is an industrial warehouse in smoke, as proposed by the Fire and Rescue Service. The job is time consuming and dangerous; toxics may be released and humans senses can be severely impaired. They get disoriented and may get lost. The robots warn for toxic chemicals, provide and maintain mobile communication links, infer localisation information and assist in searching. They enhance operational safety and speed and thus indirectly save lives.

The robots navigate autonomously and accompany a human squad-leader. They connect to a wireless ad-hoc network and forward data to the squad-leader and the control station. The network is self-organising, adapts to connection failures by modifying its connections from local up to central connections. The autonomous swarm operates in communicative and non-communicative mode. In communicative mode automatic service discovery is applied: the robots find peers to help them. The wireless network also enables the robots to support a human squad-leader operating within close range. The aim is for flexible and seamless switching between these modes in order to compensate for loss of network signals and to support and safeguard the squad-leader. Several robot platforms are used, off-the-shelf mini-robots as well as middle sized robots. The emphasis in data collection is on toxic plume detection, to enable olfactory-based navigation, allow safe progress for the human squad-leader and to detect plume sources.

The major aim of the project is to develop a swarm of autonomous robots that is able to adequately assist and safeguard a human squad leader. The project organises workshops with end-users (rescue workers and fire-fighters) and the advisory board, to assess the demonstrations and to disseminate research results. The workshops, moreover, aim at exploring additional exploitation of results.

Fields of science (EuroSciVoc) 3

<u>engineering and technology</u> > <u>electrical engineering</u>, <u>electronic engineering</u>, <u>information engineering</u> > <u>electronic engineering</u> > <u>robotics</u> > <u>autonomous robots</u>

6

Programme(s)

<u>FP6-IST - Information Society Technologies: thematic priority under the specific programme "Integrating</u> and strengthening the European research area" (2002-2006).

Topic(s)

IST-2005-2.6.1 - Advanced Robotics

Call for proposal

Data not available

Funding Scheme

STREP - Specific Targeted Research Project

Coordinator

SHEFFIELD HALLAM UNIVERSITY
EU contribution
No data
Total cost
No data
Address
HOWARD STREET
S1 1WB SHEFFIELD
Winted Kingdom I

Participants (8)



K-TEAM SA

Switzerland

EU contribution

No data

Address

RUE GALILEE 9 1400 YVERDON-LES-BAINS

Total cost

No data

ROBOTNIK AUTOMATION, SLL

Spain

EU contribution

No data

Address

CALLE BERNI Y CATALA, 53, BAJO IZQUIERDA 46019 VALENCIA

Total cost

No data



SOUTH YORKSHIRE FIRE AND RESCUE SERVICE

United Kingdom

EU contribution

No data

Address

REGENT STREET S70 2PQ BARNSLEY

Total cost

No data

SPACE APPLICATIONS SERVICES

Belgium

EU contribution

No data

Address

LEUVENSESTEENWEG 325 1932 ZAVENTEM

Total cost

No data

Ħ

TOBB EKONOMI VE TEKNOLOJI UNIVERSITESI

C Türkiye

EU contribution

No data

Address

SOGUTOZU CAD. 43, SOGUTOZU 06560 ANKARA

Total cost

No data

UNIVERSITAET PADERBORN

E Germany

EU contribution

No data

Address

WARBURGER STRASSE 100 33098 PADERBORN

Total cost

No data



UNIVERSITAT JAUME I DE CASTELLON

Spain

EU contribution

No data

Address

AVENIDA VICENT SOS BAYNAT S/N 12006 CASTELLON DE LA PLANA

Total cost

No data

Last update: 6 September 2024

Permalink: https://cordis.europa.eu/project/id/045269

European Union, 2025