

Robot to help passengers find their way at airport

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The robot from the project Spencer is ready to be tested at Schiphol Airport in Amsterdam. Credit: LASS Laboratoire

The robot in the "Spencer" project is now all set to face the real world at

the major international airport Schiphol in Amsterdam. Its mission: to help passengers find their way around the airport.

Contributions from researchers at Örebro University in Sweden have enabled the [robot](#) to map its surroundings. The project is funded by the European Commission and is a collaboration between researchers and businesses in five different countries.

"Navigating an airport is challenging, there is a lot of glass and a constantly changing environment in terms of temporary obstructions, such as parked luggage trolleys and people everywhere," says Achim Lilienthal, professor of computer science and project leader of Örebro University's contribution to the research project.

Over the course of one week, starting on 30 November 2015, the robot will be tested in the hustle and bustle of the major international airport Schiphol. After the test run, adjustments will be made in preparation for the real test in March when representatives of the European Commission, along with other prominent guests, will be attending the official premiere run.

The stately looking robot with its friendly but unsmiling "face" will be guiding passengers, unaccustomed to navigating international airports, from one gate to another. Researchers from Örebro have equipped the robot with a prerequisite for navigation – maps. The robot then surveys its surroundings by measuring the distance to various obstructions using laser beams.

One of the more basic maps is one that involves fixed obstructions, such as walls.

"People in motion are not that tricky either. Objects that are temporarily permanent so to speak, are the most difficult to work around. We do not

know, for instance, how long that luggage trolley will be parked in a particular spot, which makes it harder for the robot to determine its own location. We are working on a general map representation that includes and allows the robot to handle temporarily permanent objects," says Achim Lilienthal.

All the theoretical components of the robot's ability will be fused into one system in the upcoming integration week. In addition to the Örebro University researchers' contribution, another aspect of the project is the robot's ability to understand human behaviour and act accordingly. Things like navigating around a group of people rather than squeezing through, or looking around to see if the group it is guiding is keeping up.

"It is surprisingly difficult to fit all the pieces together. A small error somewhere along the line may take an unpredictably long time to discover and work out," Achim Lilienthal explains.

The robot project is run by researchers, but the initiative came from the Dutch airline KLM as a result of unwanted costs incurred when novice passengers missed their flights simply because they got lost.

"The airport has recently been remodelled and is now so much easier to find your way around," Achim Lilienthal says and smiles.

Be that as it may, the robot project is not in vain. Achim Lilienthal can see a range of other hands-on applications at airports, for example looking after passengers who have missed their flights and have a lot of time to kill before their next flight, in which case a robot can be updated with correct information more easily than a human. In addition, it is able to communicate in several languages.

To some degree, the [robot project](#) gives KLM and Schiphol Airport a futuristic and cool edge. But airports, or museums for that matter, are

not the only possible "places of work" for the robot:

"This technology can be used in all robots intended to interact with humans. Autonomous trucks for example, would be more widely accepted if they functioned better in their interaction with humans," says Achim Lilienthal.

He is very optimistic about the future for these robots generally:

"If people are able to live independently in their own home for, say, another two years with the help of robots, then that is a good thing. But you have to be very careful when selecting the contexts in which they should be used," says Achim Lilienthal.

Provided by Örebro Universitet

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