ECHORD++

The European Coordination Hub for Open Robotics Development

Embedded software for autonomous industrial vehicles

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RUROBOTS Cognitive Science at Work

SEVENTH FRAMEWORK PROGRAMME

Brief Experiment Description

- The proposed experiment aims to develop and **implement navigation software** for delivery robots in an industrial environment. The experiment focuses on the future framework for smelter plant, aiming to integrate fully **autonomous unmanned vehicles** in an industrial process.
- Each unmanned vehicle has its own route plan, which encompasses the loading zone, the delivery area and the path. The robot shall navigate indoors and outdoors.
- Many unmanned vehicles can operate simultaneously inside the smelter and have to cope with additional resources such as manned vehicles and pedestrians.

Novelty/Objectives

The goal of this experiment is to validate the concept of using autonomous unmanned vehicles for heavy load deliveries. In this respect, its aims are:

- Accurate indoor and outdoor navigation in the Dunkirk aluminum smelter.
- Accurate docking for anode handling.
- Reactive management of the robot to cope with unexpected obstacles such as pedestrians or other manned vehicles, and ensure the right level of safety. For this purpose, different scenarios will be explored during the experiental stage.
- Observance of all binding rules related to the smelter.
- Analysis of conformity with existing standards

Impact

Industrial impact:

This experiment will help to convince potential customers that autonomous mobile robots are a mature solution.

Societal impact:

The introduction of mobile autonomous robots aims to improve the productivity of plants and thus maintain activities in developed countries.

Technological impact:

The success of the experiment will promote the technology of safe autonomous robotics.

Economic impact:

- For industries, significant savings and improvements are expected in the field of energy consumption, direct manpower optimization, creation of new added-value jobs and operator's safety.

- For robots manufacturer, become key players in the mobile robots market by reaching significant market shares.