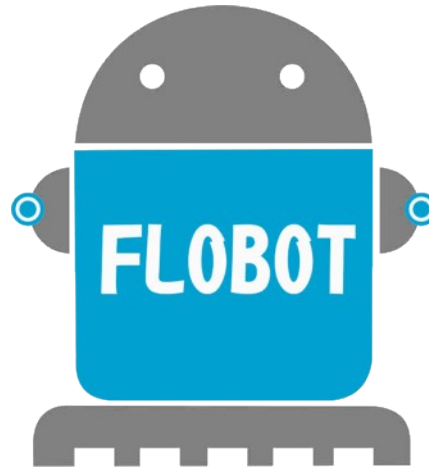


Floor washing robot for professional users

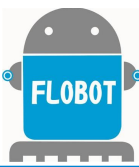


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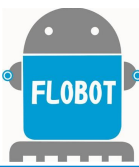
Coordinator: CyRIC – Cyprus Research and Innovation Center, Tel: +357 22777200, E-mail: info@cyric.eu

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645376



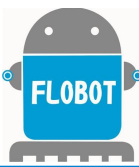
Introduction (1)

- Supermarkets, Airports, Trade fairs, etc. have to be cleaned daily and infra-daily.
 - Time demanding, tight schedule, personnel have to be present on standby, cleaning services often have problems related to workers' health and ergonomics.
- Demands
 - Autonomy of operation
 - Safety with regards to humans and goods
 - Interaction with the personnel
 - Easy set-up of path and tasks sequences without complex reprogramming.



Introduction (2)

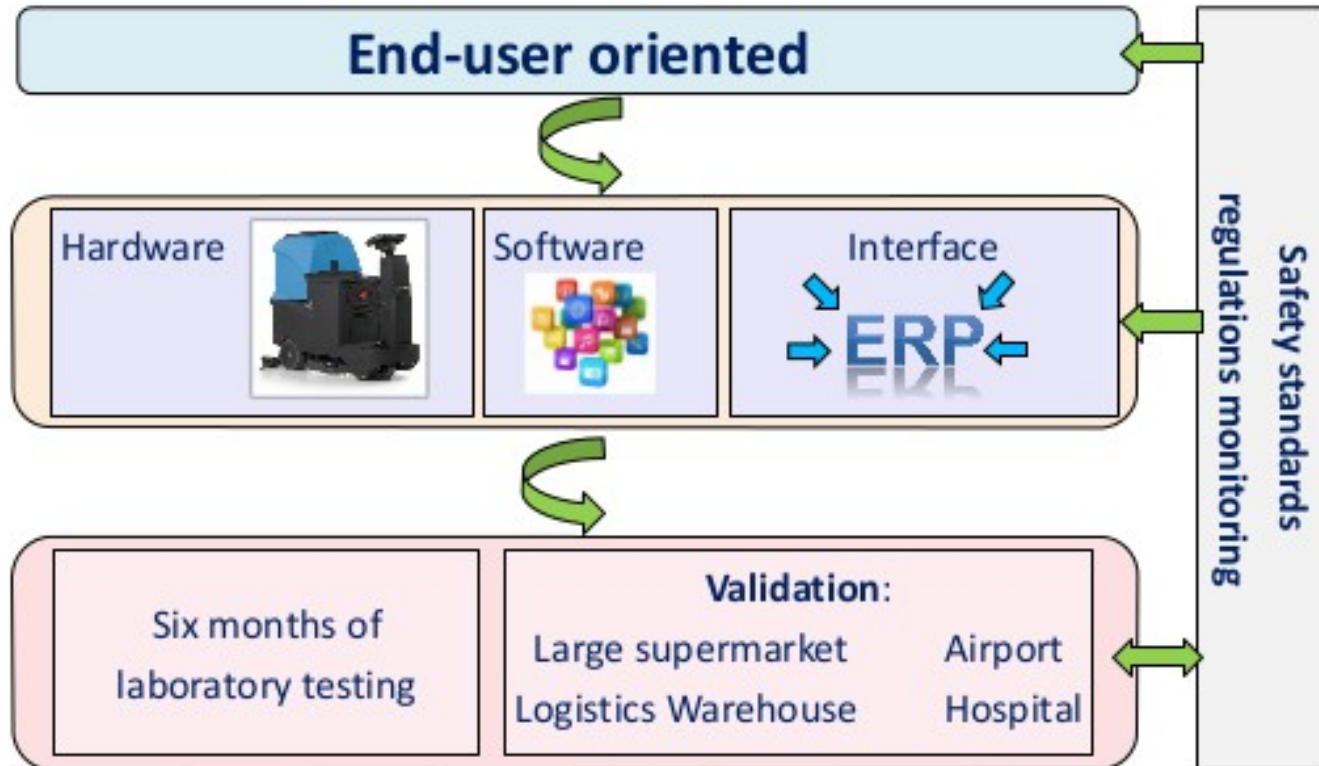
- How does FLOBOT address these demands?
 - Integrate existing research results
 - Close cooperation with companies
 - TRL-8 prototype → tested in a real operating environment.
- FLOBOT - System
 - Professional robot scrubber
 - Mobile platform and docking station
 - Modules for: human tracking, floor cleaning intelligence, navigation and mapping, mission programming and connection to the data management ERP of the users.

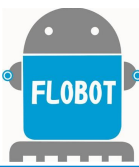


Objectives

- Develop an autonomous, robotised professional washing machine for large premises
- Develop a system that increases the quality of service and lowers the cost of operation
- Integrate modular, low cost solutions for autonomous navigation, object detection and human tracking
- Develop user interfaces for easy reprogramming of mission, tasks, remote supervision and control
- Prove the usability and flexibility of the robot by testing in four real-world use-case scenarios

Our Approach





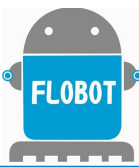
Object & Dirt Detection

- Detecting and quantifying the level of dirt.
- Coping with reflections, shadows, inhomogeneous textures.
- Detect small and medium size objects that may obstruct the robot's motion or damage the cleaning system.



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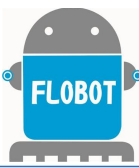
People Detection, Tracking & Trajectory Analysis



- Sensor fusion methods for human detection and people tracking
- Enable a fast and safe navigation in highly dynamic environments
- Statistical analysis of human trajectories to identify floor areas that are more likely to be dirty



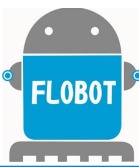
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Real-World Evaluation

- Evaluate a fully functional prototype in a supermarket, an airport, a hospital and a logistic warehouse.

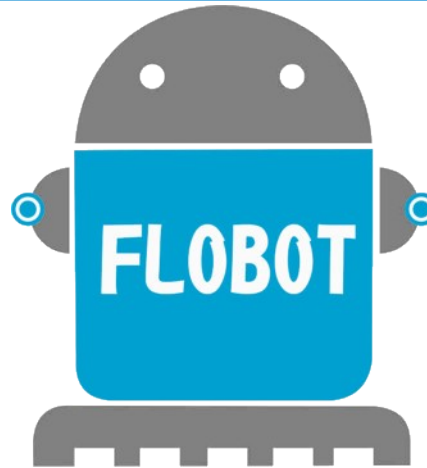
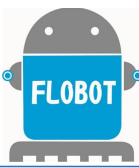




- Start implementation of algorithms and integration of sensors on real system 2016
- First tests with prototype
- Publications on conferences (Visual Dirt Detection)
- System integration and testing
 - Supermarket
 - Warehouse
 - Hospital
 - Airport



Thank You!



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