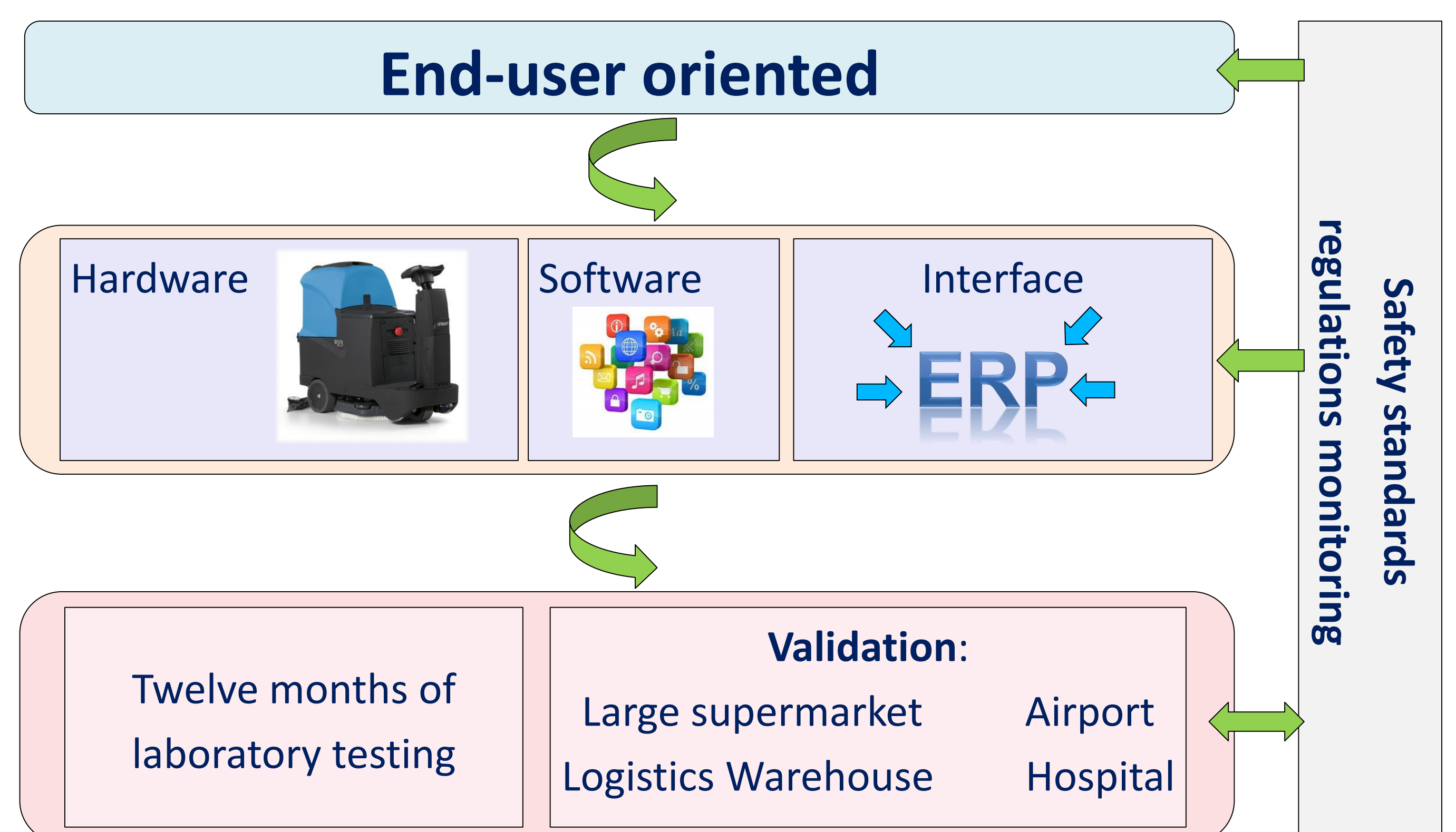


FLOBOT: Floor washing robot for professional users

Objectives

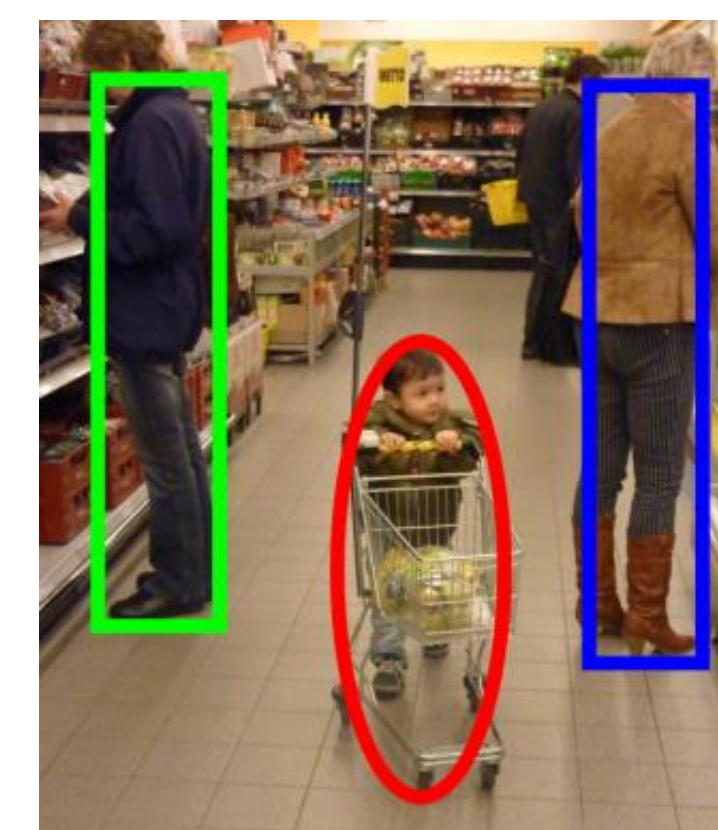
- To develop an autonomous, robotised professional washing machine for large premises
- To develop a system that increases the quality of service and lowers the cost of operation
- To integrate modular, low cost solutions for autonomous navigation, object detection and human tracking
- To develop user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

Our Approach



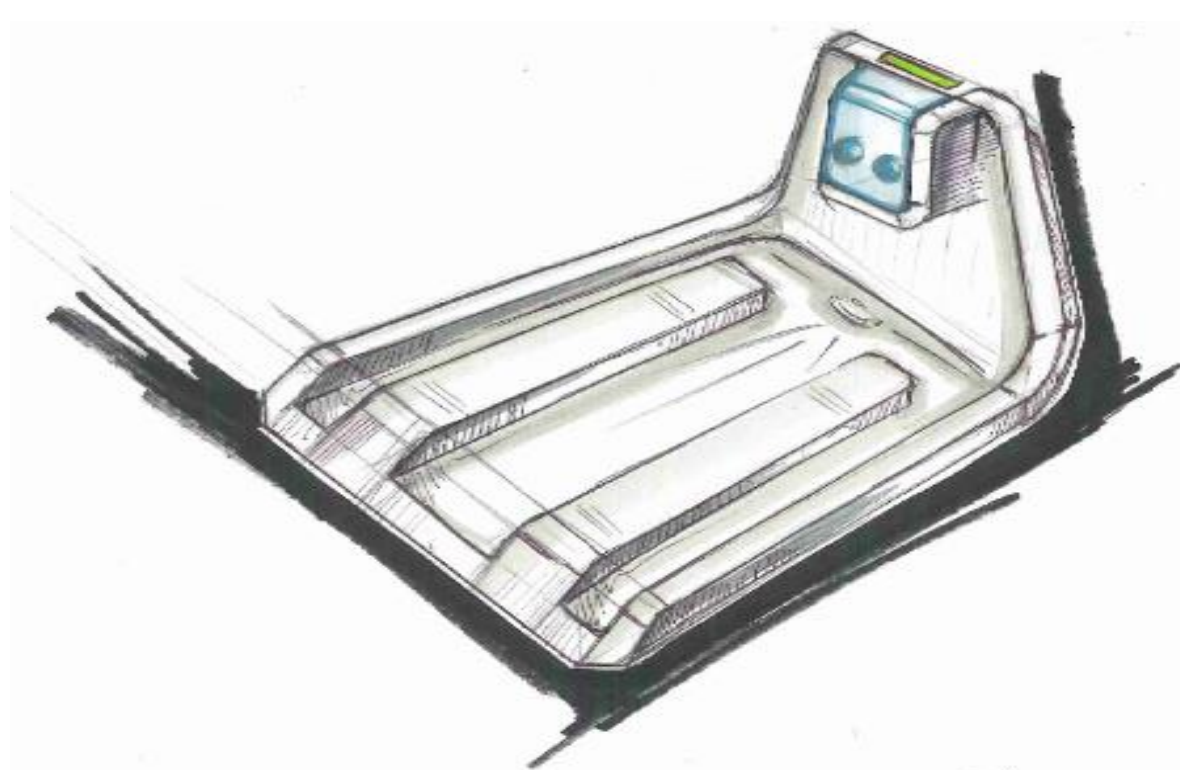
Object and dirt detection

Detecting and quantifying, in real-time, the level of dirt on different floor surfaces, coping with reflections, shadows and inhomogeneous textures. Detecting small and medium size objects that may obstruct the robot's motion or damage its on-board cleaning system.



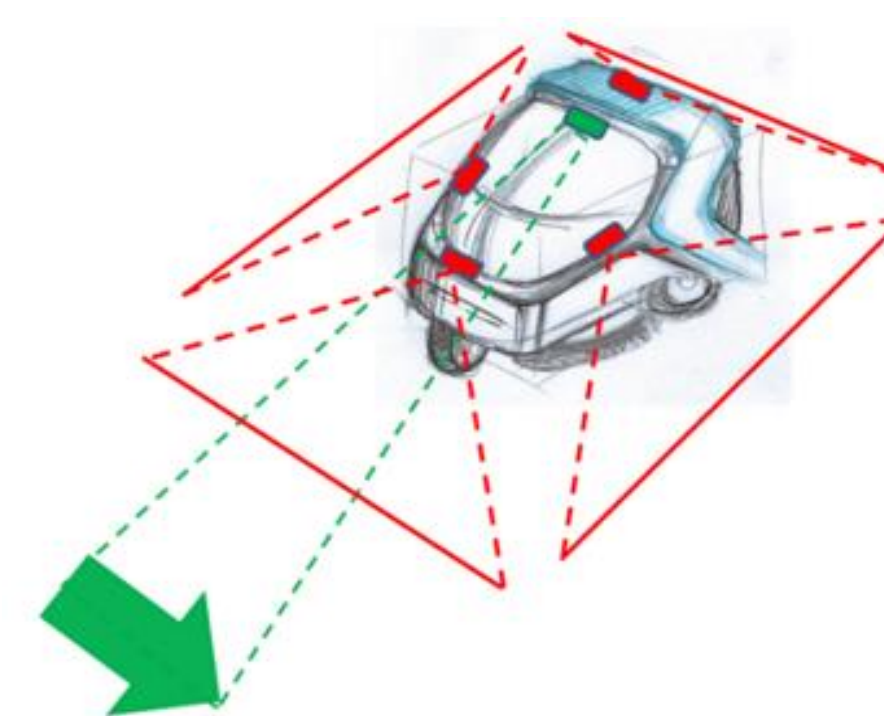
People detection, tracking and trajectory analysis

Robust sensor fusion methods for human detection and people tracking for safe and fast navigation in highly dynamic environments. Statistical analysis of human trajectories for identification and efficient cleaning of floor areas more likely to be dirty.



Docking station

The robot automatically connects to a docking station for regular, automated maintenance. In this way, human intervention is minimised and longer autonomous missions can be executed



Proactive safety

Use of lasers and smart projection systems for notifying the people around the robot about its presence and planned movement for safety purposes, but also for avoiding continuous robot stops that could limit performance.

Field validation

The first operational FLOBOT prototype is currently being used for field validations and demonstrations in a supermarket and a hospital in Italy, as well as in an airport and a logistics warehouse in France.

