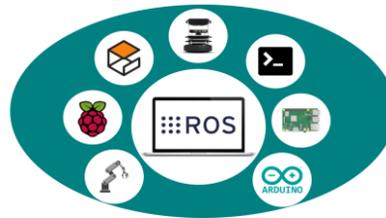


## Challenges for components integration:

Points for attention



Carlos Neves - [cneves@idmind.pt](mailto:cneves@idmind.pt)

1

## Short Intro



Carlos Neves, 36yo from Portugal



Masters in Electrotechnical Engineering from IST, Lisbon



Software Developer at IDMind since 2017



DT1 since 1996, with strong interest in new technologies and community-driven solutions

2

**LIFEBOTS**  
EXCHANGE

**IDMIND**  
LIVING ROBOTICS

### Presentation Summary

The diagram shows a vertical flow of six topics, separated by a dashed vertical line. On the left side of the line are three topics: IDMind, What do we do, and How do we do it. On the right side are three topics: Challenges, Success stories, and Ongoing Projects. Each topic is represented by a green diamond icon with a white symbol inside.

- IDMind
- What do we do
- How do we do it
- Challenges
- Success stories
- Ongoing Projects

3

**LIFEBOTS**  
EXCHANGE

**IDMIND**  
LIVING ROBOTICS

### ID Mind

#### What we do?

Robots for:

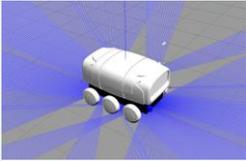
- Remote Inspection**
  - SMART MONITORING
  - SAVING RESOURCES
  - REDUCING RISKS
- Logistics/Services**
  - COWORKING
  - GUIDING
  - DELIVERING
- Edutainment**
  - COMMUNICATING
  - INTERACTING
  - LIFE ENHANCING

4

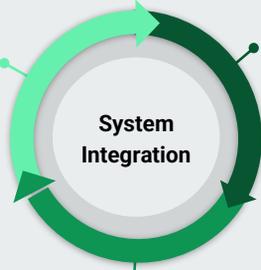



## ID Mind

Perception



How do we do it?



Processing



Actuation



5




## Integration



### What is system integration?

- Mechanical Systems
- Electrical Systems
- Software Modules



### What about environment integration?

- People
- Permanent obstacles (Doors, elevators, stairs...)
- Temporary obstacles (maintenance material, boxes...)



6




## Development Challenges

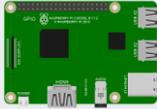
---

### System Design

- 1) Define appropriate goals
- 2) Select processing platform
- 3) Pick the required sensors and actuators
- 4) Choose OS/middleware

### System Safety

- 1) Project with suitable size and weight
- 2) Pick sensors to enforce safety
- 3) Limit velocities according to environment








7




## Deployment Challenges

---

### Environment Challenges

- 1) Indoor/Outdoor
- 2) Plain/rugged terrain
- 3) Manual/Automated Doors
- 4) Elevator controllers

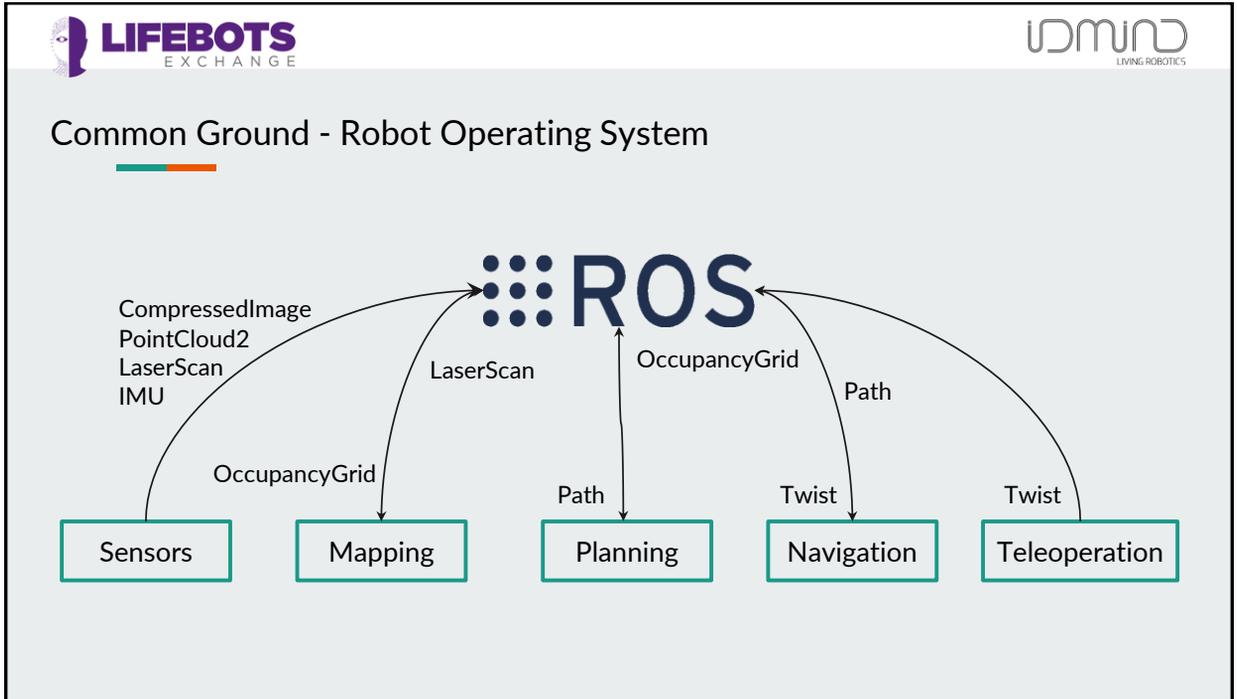
### Social Challenges

- 1) Staff Acceptance
- 2) Public Acceptance
- 3) GDPR and data collection
- 4) Medical data acquisition and storage






8



9

The 'Success Stories' section features two projects. On the left is the 'Squirrel' project, with a logo that says 'SQUIRREL Clearing Clutter Bit by Bit'. Below the logo is a photograph of a white and yellow robot in a room. A URL is provided: <http://www.squirrel-project.eu/>. On the right is the 'MONARCH' project, with a logo featuring a blue alien head and the word 'MONARCH' below it. Below the logo is a photograph of a white robot in a hospital hallway with a child, and another photograph of a group of children with a robot. A URL is provided: <https://cordis.europa.eu/project/id/601033>.

10



### Success Stories

Loop



<https://de-enigma.eu/>

11



### On Going Projects



## Harmony

Assistive robots for healthcare

<https://harmony-eu.org/>



<https://www.idmind.pt/rovid/>

## elmo



12



# Questions/Contacts



IDMind  
[www.idmind.pt](http://www.idmind.pt)  
[info@idmind.pt](mailto:info@idmind.pt)  
 +351 217 102 575  
 @idmind  
 @idmind\_robots  
 ompany/idmind

