



As supply chains become more complex, managing inventory in warehouses becomes more labor-intensive, error-prone and time-consuming, particularly in large warehouses. The InWareDrones project aims to develop a completely autonomous drone-based inventory management system that provides continuous live feedback and high-quality data. This will help save businesses hundreds of man-hours.

Inventory management struggles to keep pace with Industry 4.0

The success of e-commerce and the flexible production of personalized products have significant impacts on inventory management. Even with cutting-edge warehouse management software and tools – such as RFID, barcode scanning and robots – inventory work continues to require heavy labor, specialized equipment and large amounts of time. This results in key risks such as lower data quality, accidents and lost time, especially in large warehouses and those using tall racks.

The first fully autonomous drone-based solution for inventory taking

The InWareDrones consortium is composed of imec, Flanders Make and leading references in aerial robotics, wireless power transfer, mechatronics and inventory management automation. These partners will collaborate to develop the first autonomous drone-based inventory management solution: one that can be set up rapidly, supports combination of multiple inventory techniques and offers real-time wireless communication.

Research Goals

Four multidisciplinary goals will be addressed by the consortium:

1. To mount novel RFID and vision-based inventory solutions on drones.
2. To develop an automated, wireless drone recharging solution based on induction.
3. To investigate methods of reliably communicating drone control traffic and inventory data.
4. To enable infrastructure-light indoor localization, drone navigation and task execution.

Outcomes

InWareDrones will advance the state-of-the-art in hardware, software and algorithms for fully automatic inventory management solutions that use drones. The project will also provide insights into technological and economic tradeoffs to define viable business models for the solution. Finally, demonstrators will be developed for a permanent warehouse system as well as a drone inventory as-a-service model.

“The InWareDrones project will develop an autonomous drone-based inventory management system that provides continuous live feedback and high-quality, high-frequency data. This will help save companies hundreds of man-hours.”

InWareDrones

Indoor Inventory DRONE Solution.

InWareDrones is an imec.icon research project funded by imec and Agentschap Innoveren & Ondernemen.

It started on 01.10.2018 and is set to run until 30.09.2020.

Project information

Industry

- Auxcis
- DroneMatrix
- Id Logistics Belgium
- In2power
- Octinion

Research

- imec – IDLab IBCN - UGent
- imec – WAVES - UGent

SOC

- Flanders Make

Contact

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