Marvelmind Robot v100

Autonomous delivery robot for smart warehousing, industrial applications, and research

Up to 100 kg payload
>16h drive time
4,990 EUR

Marvelmind
robotics

Idea

- Fully autonomous, <u>economically viable</u>, and safe delivery robot of small-size goods for warehouse, retail and industrial applications
- Flexible, modular, and pragmatic approach
- Predictable and reliable delivery from point A to point B just in time
- Reduced dependence on labor

Marvelmind
robotics

Problem

Dangerous fork

Bulky

Expensive

Expensive LIDARs (up to 4kUSD+)

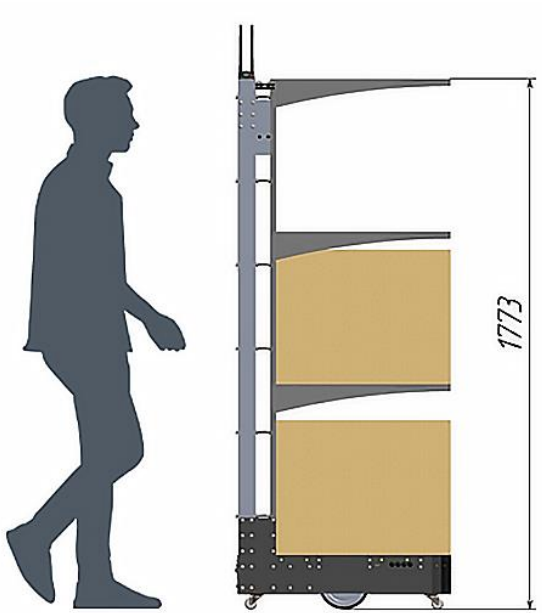Bulky

Expensive LIDARs (up to 4kUSD+)

- Usual autonomous guided vehicles (AGVs) are bulky, expensive, complex to integrate, and rather dangerous. Usual moderately expensive AGVs are inflexible - fixed delivery routes with magnetic wires on the floor

- Many end-users don't find it economically viable to employ typical AGVs => market remains unserved

Marvelmind
robotics

Solution: Autonomous Delivery Robot

Inexpensive Indoor "GPS" for autonomous navigation

Flexible in size and easy to assemble and maintain frame

QR scanner holder

Very cost efficient – base robot price - 4,990 EUR

Human size

Baskets or boxes for goods

Robot's base with main controller, battery and multiple sensors, control buttons

660

713

1950

1773

Marvelmind
robotics

Key benefits

Fully autonomous delivery:
- Navigation based on Marvelmind Indoor "GPS". Collision avoidance is based on multiple 1D LIDARs and other sensors

Cost-efficient solution by design:
- Inexpensive Indoor "GPS" + IMU + odometry + optical for navigation and positioning and multiple inexpensive 1D LIDARs for collision avoidance and safety instead of costly LIDARs
- No expensive 3rd party elements or software

Small size and modular architecture:
- Inherently safe operations due to the small size and simple frame of the robot
- No dangerous fork
- Customizable for different payload/cargo heights, lengths, weights

Marvelmind
robotics

Use cases

Warehousing:

- Hassle-free delivery of goods between different parts of the warehouse or between storage areas and loading/unloading/assembly areas. Reliable and fast goods delivery from point A to point B, C, D, etc. An assisting person puts loaded baskets or boxes into the robot, presses a single physical button B for address B, and the rest of inhouse delivery is done fully automatically by the robot

Industrial applications:

- Just-in-time and reliable delivery in assembly plants (automotive industry, factories, hospitals, chemical or pharmaceutical plants, food industry, etc.) of small and medium size cargo of different sizes and shapes

Researchers and developers:

- Using the robot with or without customizations as a basis for users' own robot. Customization is made either by Marvelmind Robotics or by the end users. Open APIs are fully available
- Examples:
    - Self-driving robot for VR/AR/BIM research of building level
    - Anti-COVID spraying robot

Marvelmind
robotics

Alternatives

- Inexpensive
- Versatile
- Light & Safe

Bulky

Dangerous

Expensive
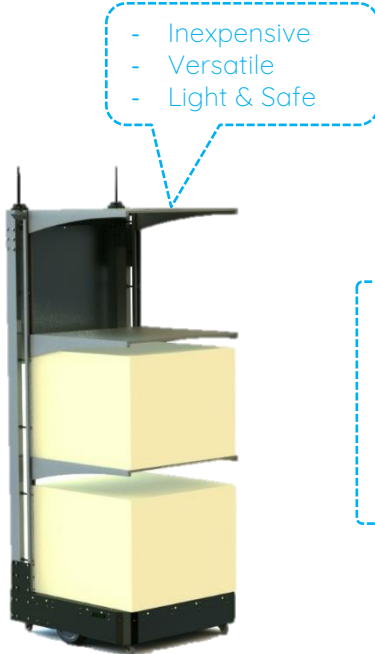
- Only partial overlapping with regular AGVs – more complementary co-existence. AGVs have different capabilities and serve different needs
- Price and complexity of the total solution is the decisive factor for the adoption

Price: as low as 4,990 EUR instead of 20,000-**10**0,000 EUR for regular AGV – 4-**20** times less expensive
Size: much smaller and more versatile than regular AGV – human size or smaller
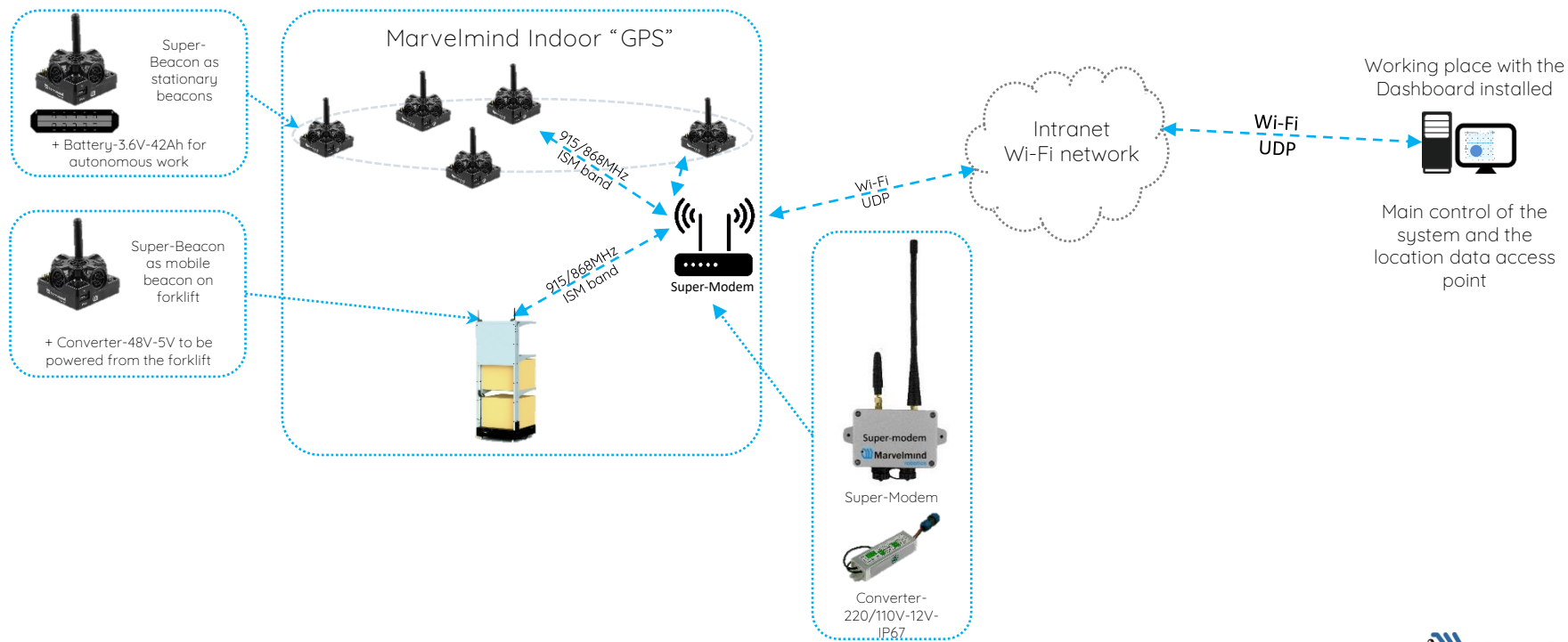Usage: can be used where regular AGVs are simply not viable

Marvelmind robotics

Robot v100 in action

Robot v100

Marvelmind
robotics

System architecture

Super-Beacon as stationary beacons

+ Battery-3.6V-42Ah for autonomous work

Super-Beacon as mobile beacon on forklift

+ Converter-48V-5V to be powered from the forklift

Marvelmind Indoor "GPS"

915/868MHz ISM band

915/868MHz ISM band

Super-Modem

Wi-Fi UDP

Intranet Wi-Fi network

Wi-Fi UDP

Working place with the Dashboard installed

Main control of the system and the location data access point

Super-Modem

Converter-220/110V-12V-IP67

Marvelmind
robotics

Thank you!

Marvelmind Robotics

Marvelmind OÜ
Ahtri tn 12
Tallinn, 10151
Estonia

https://marvelmind.eu/ - Robot v100 main website
info@marvelmind.com – contact us with any question
https://marvelmind.com/#watch_demo – selected videos
https://marvelmind.com/#customers – selected customers

Marvelmind
robotics