



Autonomous delivery robot

For smart warehousing and assembly plants

Idea

- Fully autonomous, economically viable, 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



Problem to solve



- Usual autonomous guided vehicles (AGVs) are bulky, expensive, complex to integrate and rather dangerous to use. If an AGV is not expensive, then it is, usually, very inflexible in terms delivery routes (magnetic wires in the floor)
- **Many companies simply don't find it economically viable to employ advanced AGVs => market remains unserved and untapped**

Solution: Autonomous Delivery Robot



Key benefits of Marvelmind Autonomous Delivery Robot



Fully autonomous delivery:

- Navigation and collision avoidance based on combination of Indoor “GPS” and several other systems and sensors. Solid and reliable autonomous delivery of cargo from point A to point B

Cost efficient solution by design with little or no integration cost:

- Inexpensive Indoor “GPS” + IMU + odometry for navigation and positioning instead of very costly LIDARs and very inflexible magnetic tape on the floor
- Combination of very inexpensive proximity sensors instead of LIDARs for collision avoidance and safety
- No expensive 3rd party elements, no 3rd party SW or licenses or IP

Small size and modular architecture:

- Simple and very customizable multi-shelves (“Ikea style”) with possibility to choose between more cargo shelves vs. larger shelves. No bulky and dangerous fork
- Suitable for different robot’s height/width/length and cargo boxes/baskets’ sizes

Use cases

Warehousing:

- Hassle-free and single-button 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.
 - Assisting person puts loaded baskets or loads boxes into the robot
 - Taps the delivery address on the robot's display or just press a single physical button B for address B
 - The rest of inhouse delivery is done fully automatically by the robot
 - Another assisting person unloads in the destination B, presses the button and sends the robot back to address A

Industrial applications:

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

Competition

- Inexpensive
- Versatile
- Light & Safe



- Only partial competition with AGV – more complementary co-existence. Regular forklift AGVs have different capabilities and serve different needs
- Many regular AGVs players: Kuka/Swisslog, Egemin, AGVE, Ward, JBT etc. Relatively few established competitors in autonomous delivery robots => great and relatively uncrowded room for fast growth
- Even less competition in mini-size and micro-size delivery robots
- Price and complexity of the total solution is the decisive factor for adoption

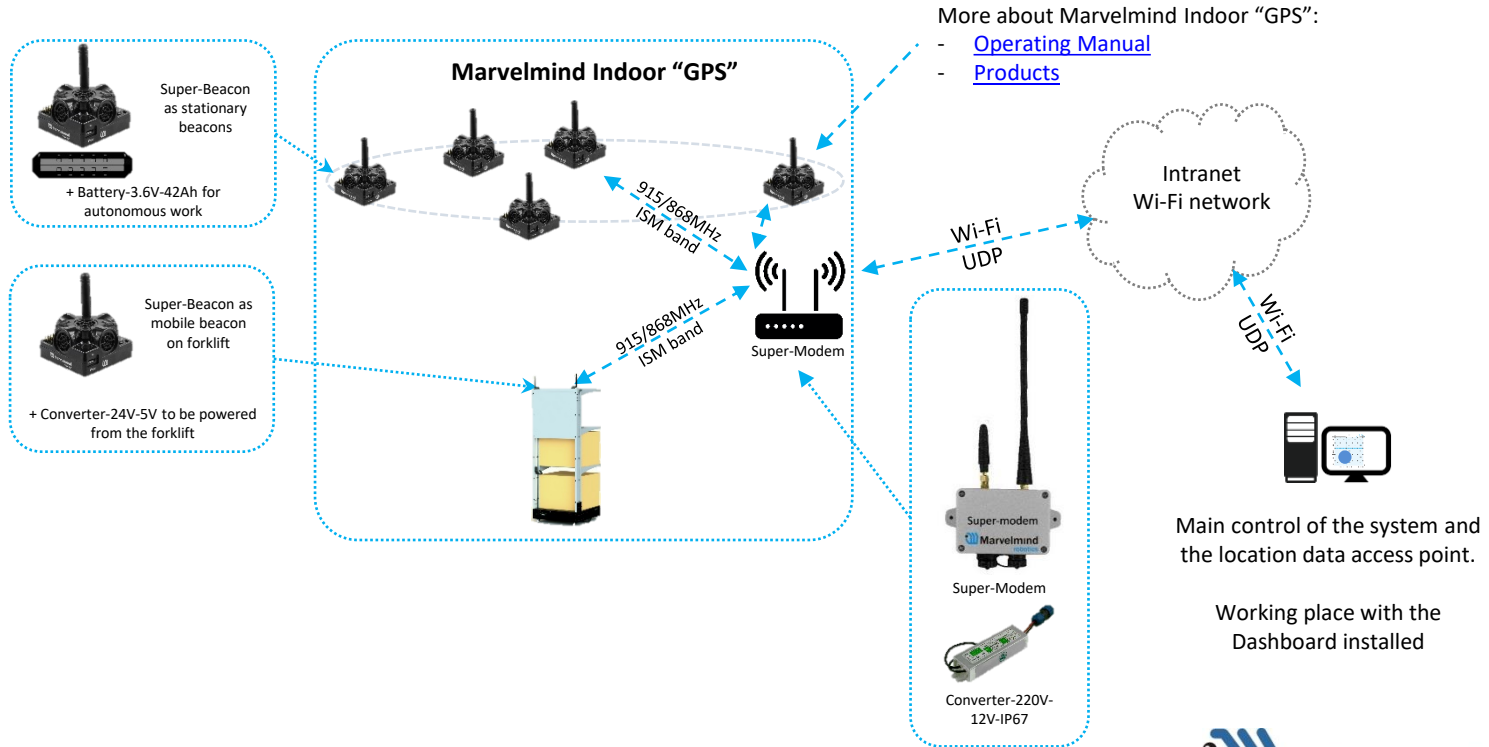


Price: as low as **3,990 USD** instead of 40,000-100,000 USD for regular AGV – **10-20 times less expensive**

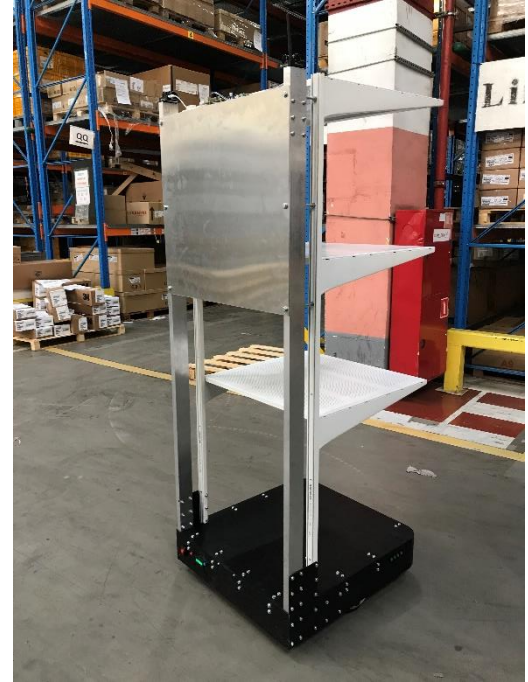
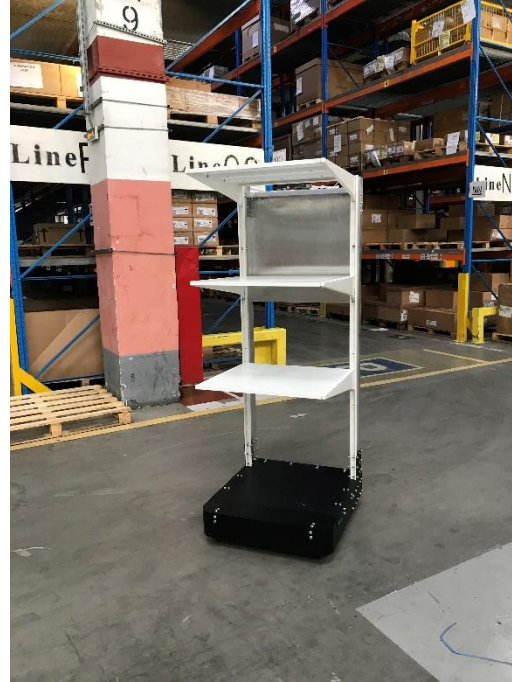
Size: much smaller and more versatile than regular AGV – **human size or smaller**

Usage: can be used where regular AGVs are simply not viable

Autonomous robotics system architecture



Robot in the car assembly plant



Autonomous delivery demo video



<https://youtu.be/efOc-ItVvgg>

Thank you!

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https://marvelmind.com/#watch_demo – selected video demos

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Autonomous delivery demo video (fun edition 😊)



<https://youtu.be/dN4QZackC-0> - Don't-Try-This-At-Home edition :-)