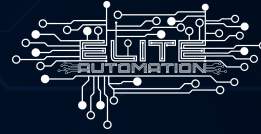


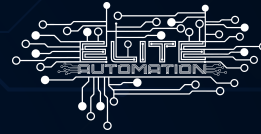
Autonomous Mobile Robot

ABOUT ME



MALACHI GREB

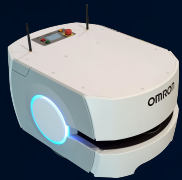
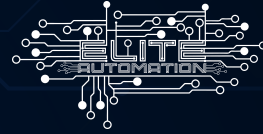
CEO/Owner/Engineer
of *Elite Automation USA*



WHAT IS AMR?

- ❑ An **autonomous mobile robot (AMR)** is a type of robot that can understand and move through its environment without being overseen directly by an operator or limited to a fixed, predetermined path.
- ❑ Autonomous means robot is not obliged to follow a given route. Sensing its environment to decide on the best path to follow.
- ❑ AMRs are untethered from wired power and data, which can navigate using cameras, sensors, artificial intelligence, and machine vision.
- ❑ Paired with software such as **MiR's SLAM** (Simultaneous Localization and Mapping) an algorithm used for navigation.

INDUSTRIAL AMR BRANDS



OMRON



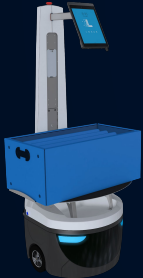
MiR
MOBILE INDUSTRIAL ROBOTS



Geek+
Moving the world intelligently



Scallog®
SCALABLE LOGISTICS



LOCUS



GreyOrange
Fulfilling the Future in Real Time™

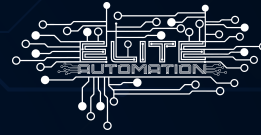


WAYPOINT
ROBOTICS



VEENA
robotics

Industries



Logistics



Manufacturing



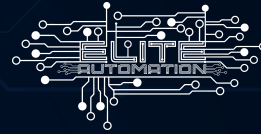
Healthcare



Agriculture

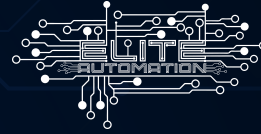


ADOPTION RATE



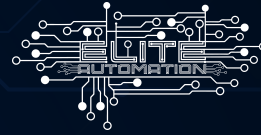
- ❑ As of 2021, AMR's **current market** value is **\$1.97 billion** and projected to grow to \$8.70 billion by 2028 at a CAGR of **23.7%**.
- ❑ Mobile robotics in material handling and logistics will become a \$75 billion market by 2027, and is then expected to be more than double by 2038.

AMR Pros



- ❑ **AMR** can be quickly implemented in an operation within two to four weeks. Showing relative ease and no complications in integrating and implementing AMR in operation.
- ❑ **AMR** can be modularly deployed because of relatively ease in implementation within a facility. Start with a few units and add more as necessary for the operation.

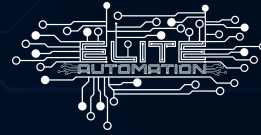
FLEXIBILITY



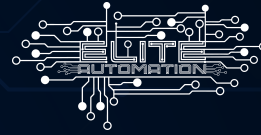
AMR as *Tugger*



Effidence's Human-following Mobile Robot



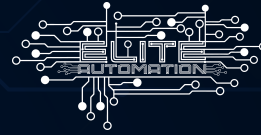
FLEXIBILITY



AMR as *Palletizer*



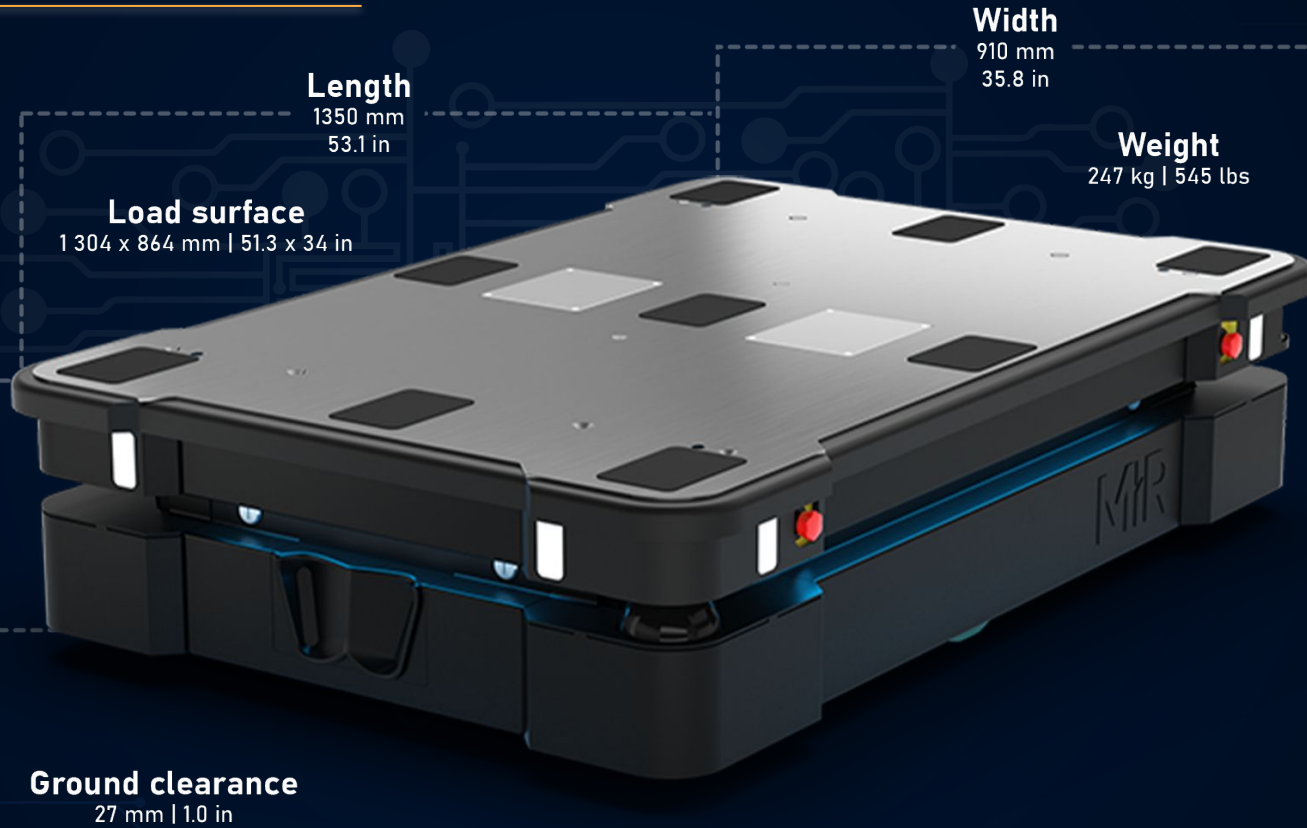
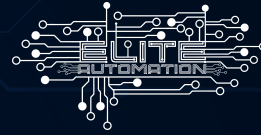
FLEXIBILITY



AMR as Conveyor



MiR Dimensions



Length
1350 mm
53.1 in

Load surface
1304 x 864 mm | 51.3 x 34 in

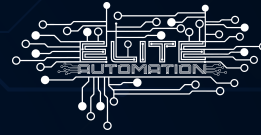
Width
910 mm
35.8 in

Weight
247 kg | 545 lbs

Height
322 mm
12.7 in

Ground clearance
27 mm | 1.0 in

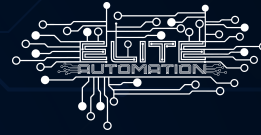
Quick facts



 <p>Max. speed 1.2 m/s</p>	 <p>Payload 1350 kg</p>
 <p>Run time 9:50 hours</p>	 <p>Dimensions 1350 mm x 910 mm</p>

- ❑ **Maximum speed:** 1.2 m/s (4.3 km/h) | 3.9 ft/s (2.7 mph)
- ❑ **Active operation time with maximum payload:** Up to 7 h
- ❑ **Active operation time with no payload:** Up to 10 h
- ❑ **Standby time (robot is on and idle):** Up to 12 h 30 min
- ❑ **Charging ratio:** Up to 1:12 (10 min charging gives 2 h runtime with maximum payload)

MiR INTERFACE & BATTERY



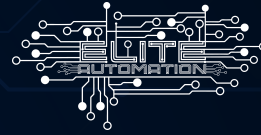
Dashboard

- ❑ A dashboard is made up of a number of widgets each representing a feature in the system, e.g. a particular mission, the map the robot is running in or the current mission queue.

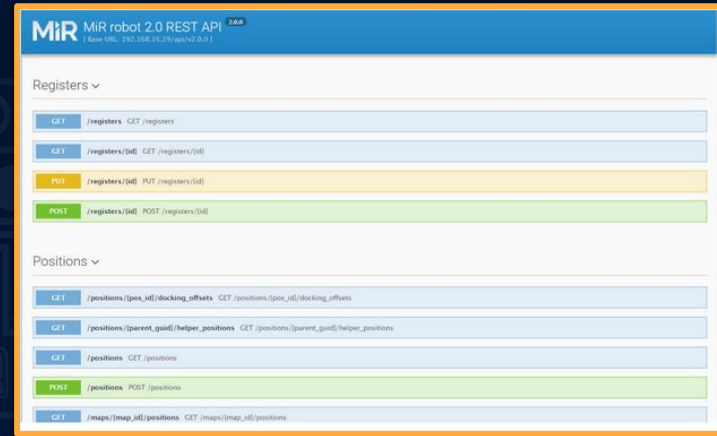


Battery Cycle

- ❑ Charge Time: 2 hours
Run Time: 13 hours
(10 minutes of charge time gives 2 h and 40 mins of runtime with maximum payload)



MiR COMMUNICATION PROTOCOLS

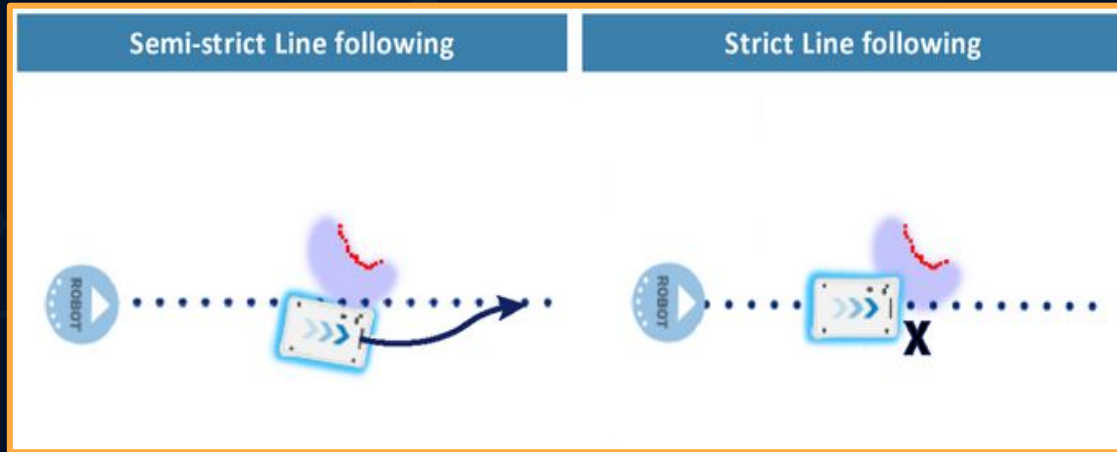
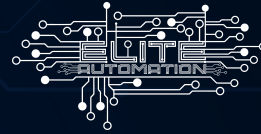


Rest API

- ❑ Triggers make it possible to set up missions to be executed from external PLC devices via Modbus TCP/IP communication.

- ❑ The REST API is what the robot interface uses to communicate with the robot - and so with the software.

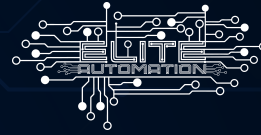
MIR PATH PROTOCOL



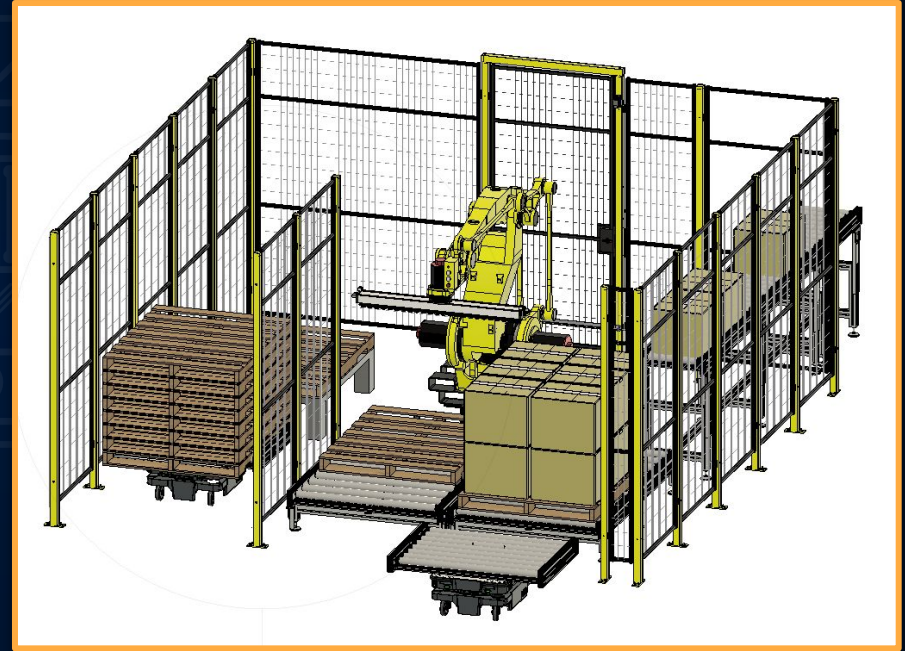
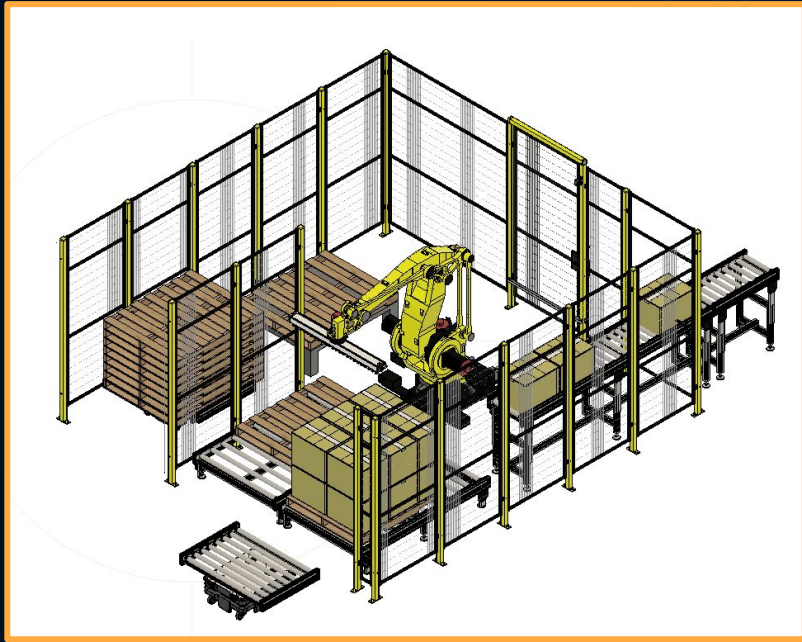
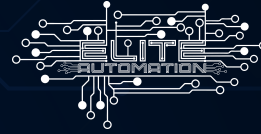
Line Following

- ❑ Follows line defined according to user

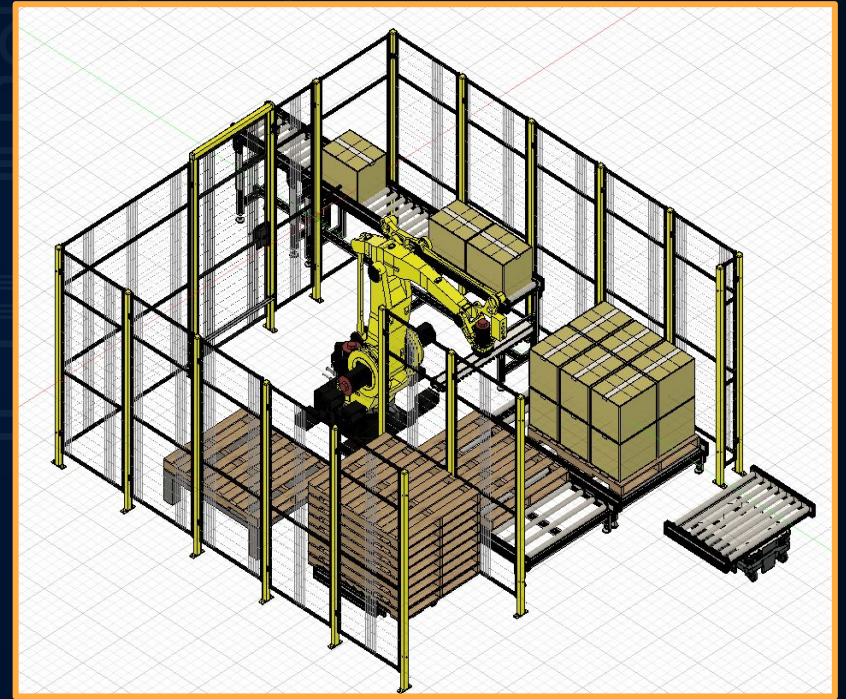
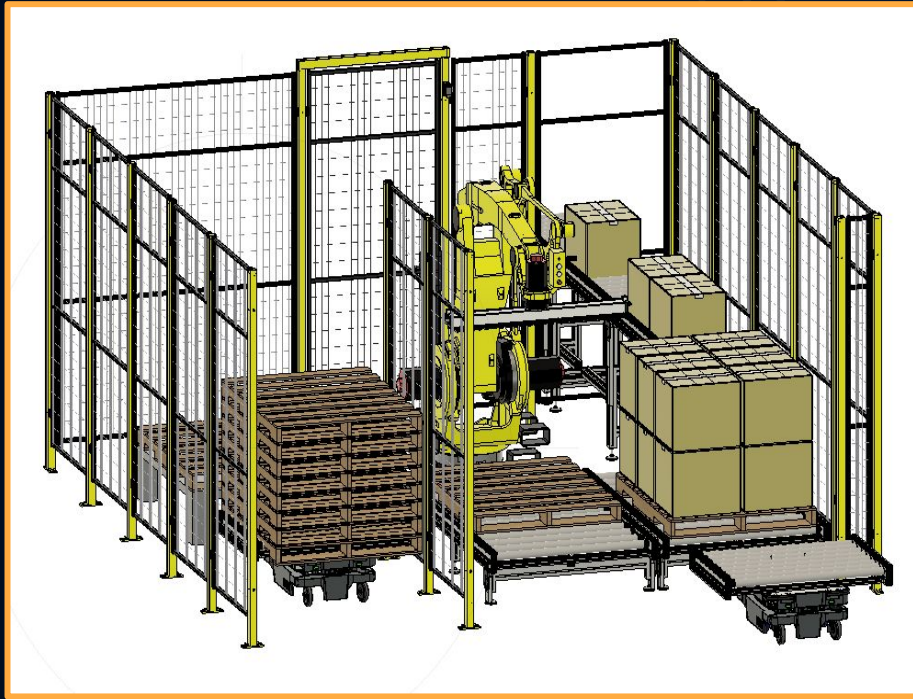
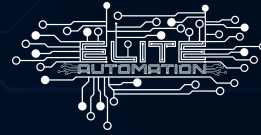
AMR PROJECT OF ELITE AUTOMATION



AMR ROBOT CELL LAYOUT



AMR ROBOT CELL LAYOUT



THANK YOU!



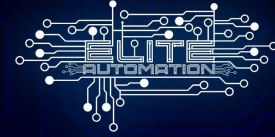
<https://eliteautomationusa.com/>



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MALACHI GREB

SCAN THIS QR CODE

