Patika Robotics

"your autonomous journey starts here"

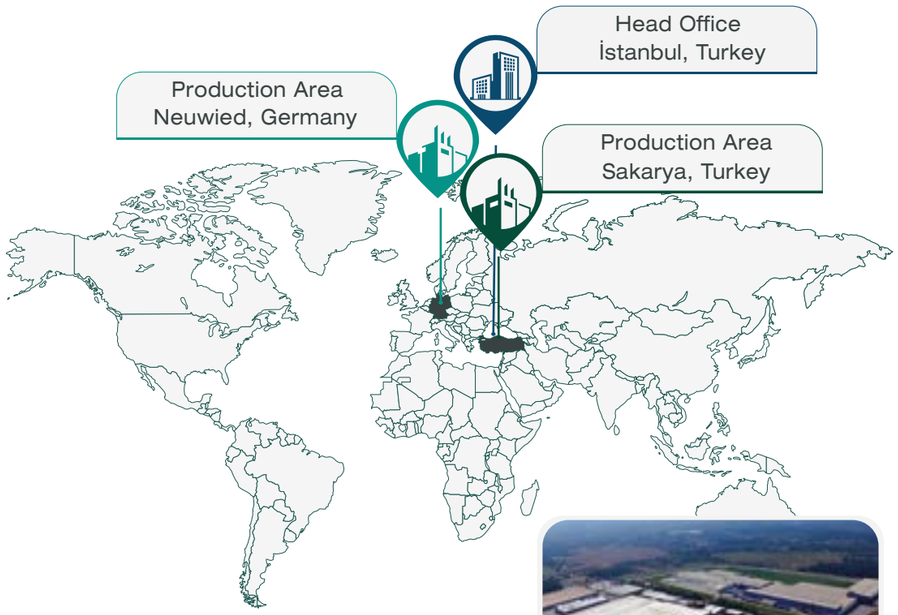
Autonomous Mobile Robot Solutions

PTK1350

Who we are?

Patika Robotics is a research and development company that focuses on producing new generation of autonomous mobile robots for industry. Our aim is to provide intelligent robotic solutions to our customers and maximize their profit.

The company has begun its journey in 2018 with 5 friends who are passionate about building intelligent robots. After months of hard work, we completed the design and production of our first autonomous vehicle at the end of 2018. Since then, our product range has grown and now we have different autonomous vehicles that serve industry, healthcare and agriculture.



Locations in Turkey

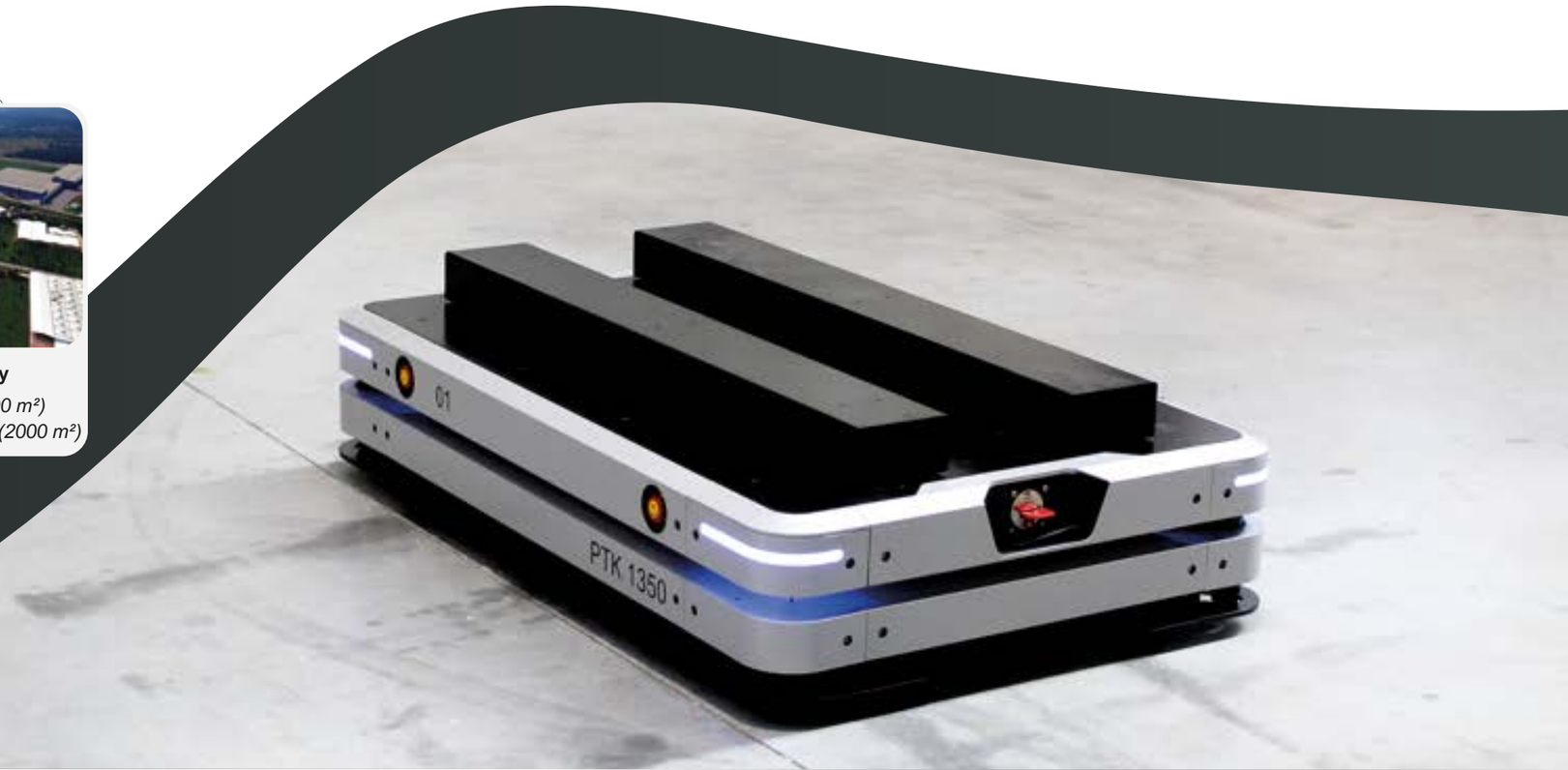
Head office, İstanbul (200 m²)
Production Facility, Sakarya (2000 m²)

Location in Germany

Production Facility,
Neuwied (1500 m²)

Autonomous Mobile Robot Solutions by Patika Robotics

- Amortize investment cost in less than a year
- No infrastructure changes or markers required
- Lifting and carrying capacity up to 1350 kg
- Lightweight aluminium chassis for increased efficiency
- Operates a full shift with a minimum of 8 hours battery capacity
- Maximum uptime with opportunity charging
- In-house developed autonomous navigation and fleet management software
- Fully CE certified to safely operate and cooperate
- 100% recyclable all aluminium chassis and coverings

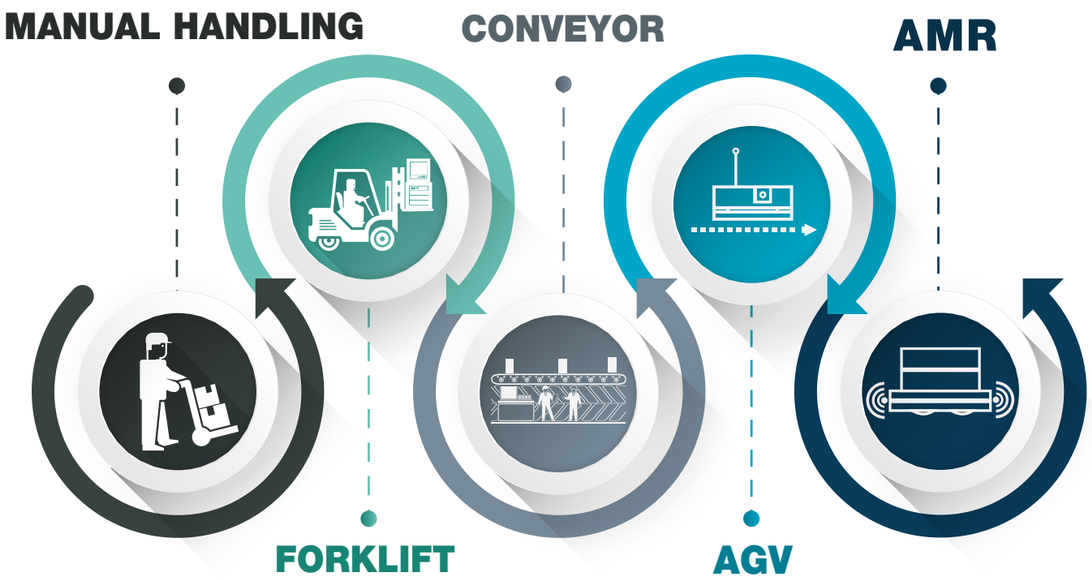


Guide to Material Transport and Logistics Options

How to evaluate logistics options?

- When you're considering automating material transport within your manufacturing facility, warehouse, or distribution center, you'll encounter a variety of choices. These options encompass traditional equipment such as forklifts and conveyors, as well as more modern solutions like Automated Guided Vehicles (AGVs) and today's advanced Autonomous Mobile Robots (AMRs).

- It's crucial to be able to demonstrate that your chosen method offers distinct advantages over manual material handling in the short term and can also adapt to your evolving business needs in the long run.



What are autonomous mobile robots (AMRs)?

- While manual material handling, forklifts, conveyors, and Automated Guided Vehicles (AGVs) boast extensive histories, AMRs may be somewhat unfamiliar. However, it's important to note that mobile robots designed for logistics purposes have been well-established for nearly a decade, with millions of AMRs successfully deployed worldwide.

- Mobile collaborative robots distinguish themselves through their ease of programming, adaptable implementation, and a wealth of built-in safety features that enable them to autonomously navigate dynamic environments. These robots employ integrated cameras, scanners, and intelligent software to skillfully maneuver around obstacles and coexist harmoniously with human workers. They can seamlessly navigate doorways, tunnels, and elevators, adjusting their speed or stopping when potential hazards to people or goods are detected. Fleet management software ensures the safest and most efficient logistics operations, whether you're employing a single robot or an entire fleet.

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Manual Material Handling

EFFICIENCY

- Cost effective for short distances
- Requires a full-time employee for low value and repetitive tasks, or high value employees need to leave their assigned processes
- Relies heavily on the attendance, training, and attention to detail of the workers

AGILITY

- Adaptation to changes is easy
- Can operate in narrow aisles and dynamic areas
- The operator is ready to handle the loading and unloading of materials
- In peak production periods, can put stress on existing resources, pulling workers from other positions to keep the material moving

SAFETY

- Heavily depends on the training and oversight of workers

Forklifts

EFFICIENCY

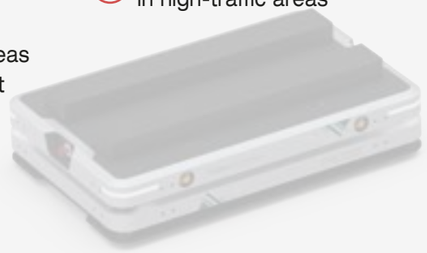
- Transportation speed is high
- Suitable for larger payloads
- Can put material on the shelves
- Requires an experienced operator to run the vehicle
- Relies heavily on the attendance, training, and attention to detail of the workers
- Expensive equipment, power/fuel, and maintenance cost

AGILITY

- Capable of lifting pallets directly from the ground
- Able to function effectively in relatively narrow aisles
- Not suitable for dynamic areas where the operator may not notice obstacles or people

SAFETY

- Heavily depends on the training and oversight of workers
- Poses risks to other workers in high-traffic areas



Conveyors

EFFICIENCY

- Capable of efficiently managing high volume and substantial payloads
- May block the flow of worker traffic and other material transportation routes.
- Expensive equipment, power/fuel, and maintenance cost

AGILITY

- Travel paths are fixed and not easily adjustable for changing requirements.

SAFETY

- High speeds present safety hazards to workers

Automed Guided Vechicles

EFFICIENCY

- Able to achieve rapid throughput
- Proven solution for thousands of implementations
- May block the flow of worker traffic and other material transportation routes
- Expensive infrastructure installation

AGILITY

- Travel paths are fixed and not easily adjustable for changing requirements
- In dynamic environments, obstacles can halt traffic until an operator resolves the issue

SAFETY

- Very limited obstacle detection around the vehicles
- High speeds present safety hazards to workers

Autonomous Mobile Robots

EFFICIENCY

- Operates autonomously, allowing workers to remain at their stations
- Long operational time with opportunity charging
- Tracking, managing, and programming the fleet in real-time
- Low operating and maintenance cost
- May require fixtures for pallets or conveyor interfaces
- Dependent on consistent and reliable Wi-Fi connectivity

AGILITY

- Able to function effectively in relatively narrow aisles
- Capable of navigating through dynamic environments
- Easily programmable to accommodate changing needs and processes
- Requires minimal infrastructure and floor space

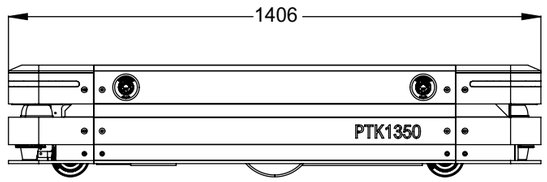
SAFETY

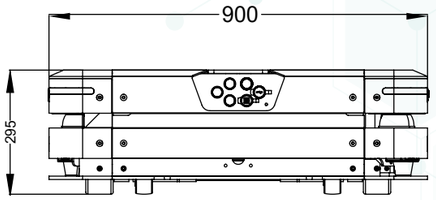
- Easily controlled access to robot movements, speed, and mission
- Extensive obstacle detection systems with various sensors
- Safely navigates around people, equipment, and goods

PTK1350

Automate Workflows In Your Facility with PTK1350.

Built to deliver the highest throughput in its heavy class, PTK1350 is a compact AMR that moves more efficiently in tight spaces. Equipped with patented adaptive fieldset technology, PTK1350 quickly maneuvers around people and turns, delivering best-in-class average speed without compromising on safety.





Top Modules

Integrated Lift Platform

Maximum Payload	1200 kg
Size	1220*162*87 mm
Lifting Height	60 mm
Total height in lifted position	143 mm
Compatibility	Euro, US Pallets
Lifting speed	12 s
Pallet dimensions	800*1200 mm, 1000*1200 mm
Pallet production spec.	EN 13698 - 1

- Amortize investment cost in less than a year
- Fully CE certified to safely operate and cooperate
- No infrastructure changes or markers required
- Lightweight aluminium chassis and coverings for increased efficiency
- Operates a full shift with a minimum of 8 hours battery life
- Maximum uptime with opportunity charging
- In-house developed autonomous and fleet management software
- Lifting and carrying capacity up to 1350 kg
- 100% recyclable all aluminium chassis and coverings

Main Features of PTK1350 and Top Modules

Speed and Performance

Maximum Total Payload	1350 kg
Maximum Speed	1,0 m/s
Turning Radius	0°
Positioning Accuracy	X,Y +- 25 mm
Positioning Accuracy (Tape)	X,Y +- 10 mm

Size and Weight

Dimensions	1406 mm x 900 mm x 295 mm
Base Weight	360 kg

Battery and Power System

Nominal Battery Voltage	41.6 V Li-ion
Battery Capacity	54 Ah
Charging Time	45 min
Nominal Run Time	8 hours

Environmental

Operating Ambient Temp	0°C to 50°C
Storage Temperature	-10°C to 50°C
IP Rating	IP 41

Patika Fleet Management Software

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Patika Fleet Manager streamlines centralized control of robots from a single station across your entire facility. Its intuitive visual interface makes tasks like defining jobs, mapping routes, monitoring individual robot statuses, and adapting to facility changes exceptionally easy.

Robots

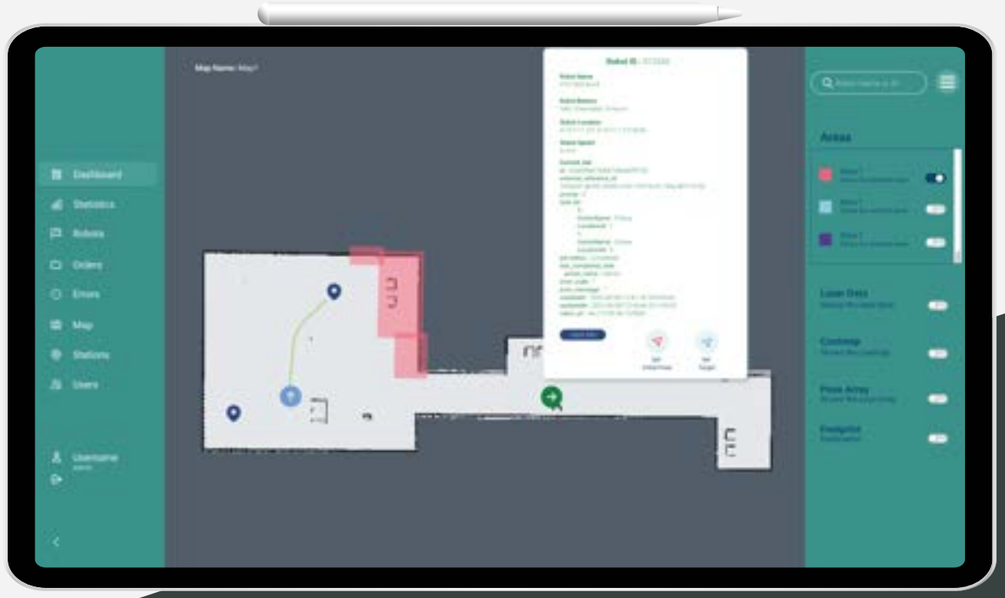
Real time view of all robots including each robot's status, location and battery

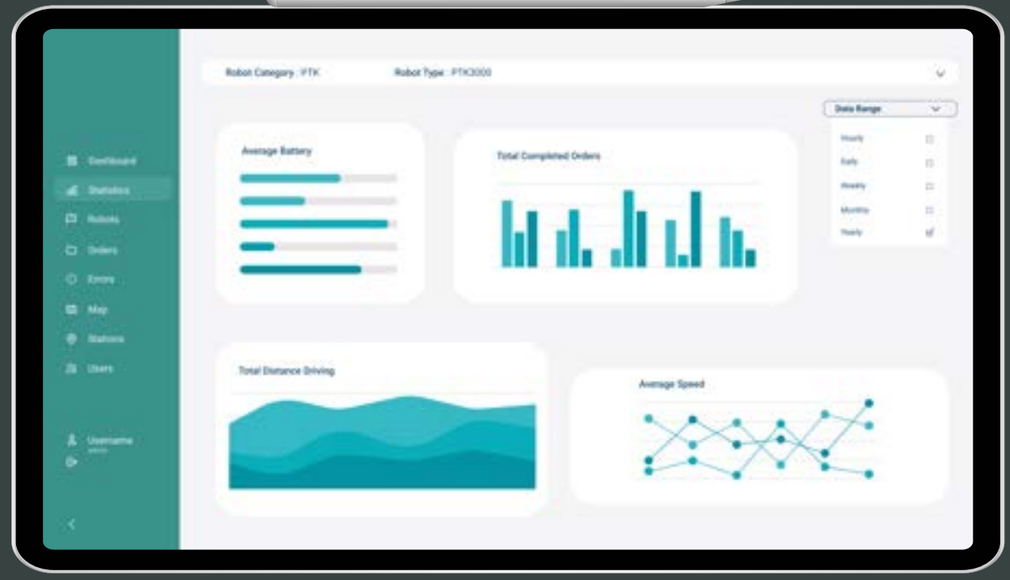
Loads

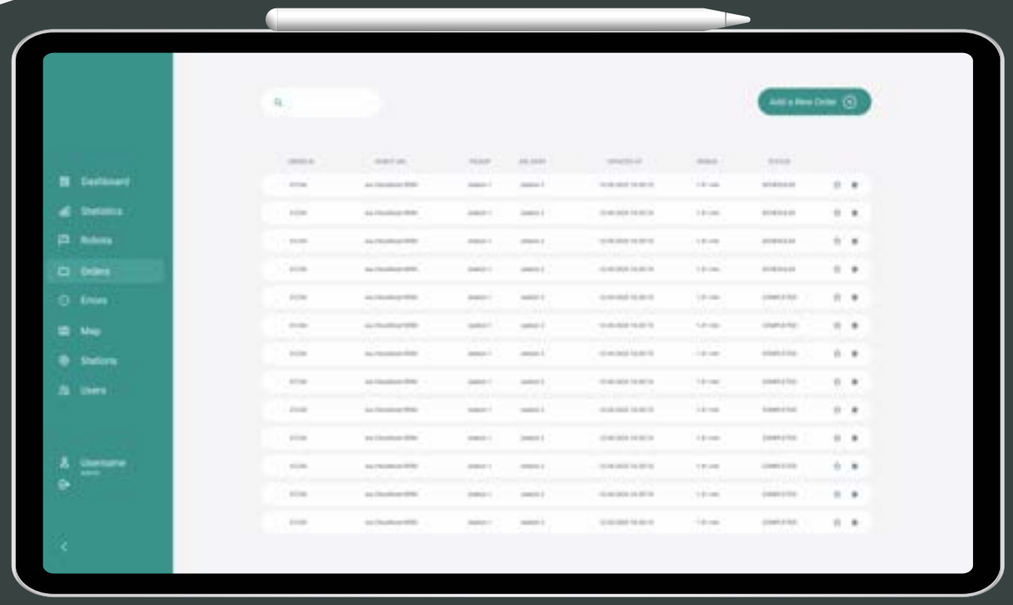
View list of all loads and stations that are defined to the system

Orders

An overview of all orders that have been created including their status







Statistics

Monitor robot status and visualize performance metrics (OEE, battery life, road driven...)

Configuration

Add or remove robots and stations to the system, customize settings for robots

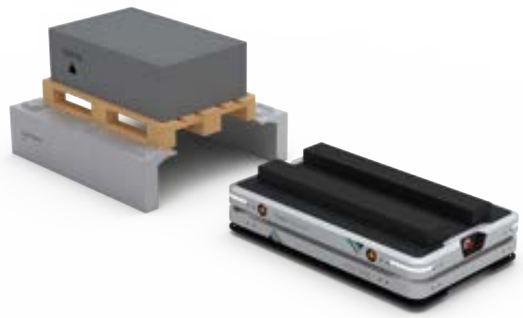
Errors

Get alerts when there is an error or abnormalities, view system warnings

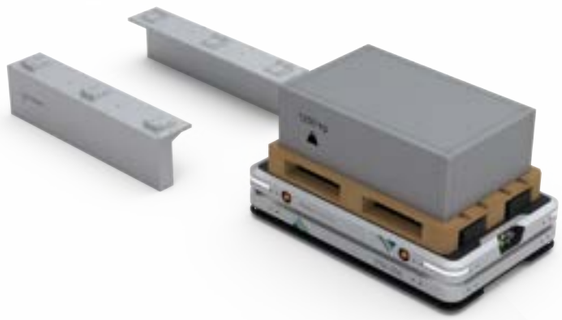
Palletized Finished Goods Transfer

Palletized goods are placed on a loading station or conveyor for transport 01

02 PTK1350 is requested via ERP System, workstation or PLC integration to pick up the pallet



PTK1350 navigates to workstation,lifts and picks up the pallet without requiring any intervention 03



04 Pallet is transported to designated location autonomously

The job is now complete and PTK1350 is released for another mission 05

06 If there is no job request, PTK1350 parks itself to charging station for opportunity charging

Cart Transfer

Cart is prepared and placed in the assigned location for transport 01

02 PTK1350 is requested via ERP System, workstation or PLC integration to pick up the cart

03 PTK1350 navigates to workstation, positions itself under the cart and locks it with pin-hook mechanism

Cart is transported to designated location autonomously 04

05 The job is now complete and PTK1350 is released for another mission

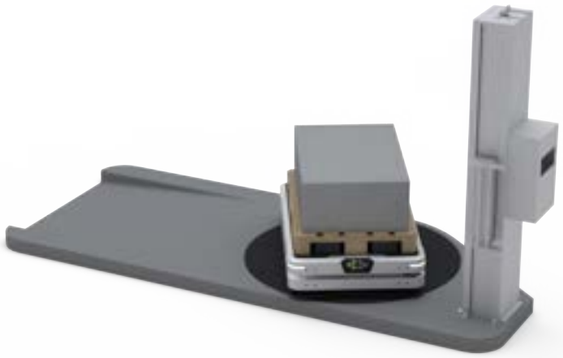
If there is no job request, PTK1350 parks itself to charging station for opportunity charging 06

Palletizer to Stretch Wrapper

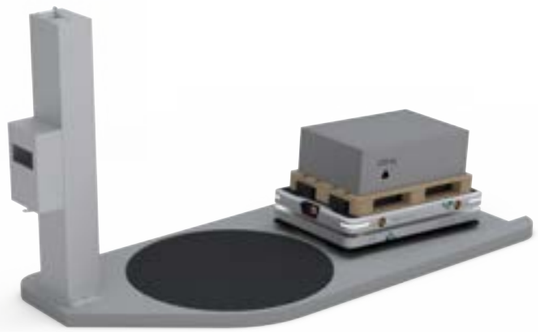
Palletizer finishes loading boxes on a pallet and sends a request to PTK Fleet for pick up 01

02 PTK1350, equipped with a conveyor attachment, arrives at the palletizer. PTK1350 connects to the palletizer conveyor and takes the pallet automatically

PTK1350 delivers the pallet to the stretch wrapping machine autonomously 03



04 PTK1350 connects to the conveyor on the stretch wrapper, and unloads the pallet for wrapping



After wrapping is done, PTK1350 takes the pallet and transfers it to next station 05

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Step by Step Guide for a Successful AMR Implementation

1.ASSESSMENT AND PLANNING

We begin by clearly defining your objectives for introducing autonomous mobile robots (AMRs). Your goals may encompass improving efficiency, reducing operational costs, enhancing safety, or optimizing material flow. We carefully evaluate your existing workflows, identifying tasks suitable for automation and assessing the potential impact on production and logistics processes.

2.TASK IDENTIFICATION AND PRIORITIZATION

In this phase, we scrutinize tasks that can benefit from automation, such as material transport, inventory management, or routine inspections. Subsequently, we prioritize these tasks based on their overall impact on efficiency and the feasibility of automation.

3.SELECTING AUTONOMOUS MOBILE ROBOTS

We make strategic decisions about the types of robots needed, considering features such as navigation capabilities, payload capacity, and integration options. If deploying multiple robots, we also explore the use of a fleet management system to coordinate and optimize their movements within the factory.

4.INTEGRATION WITH EXISTING SYSTEMS

Ensuring seamless integration is key. We focus on connectivity, making sure that our AMRs can smoothly integrate with your existing systems, including warehouse management systems (WMS), enterprise resource planning (ERP) software, and other automation equipment. Additionally, we establish communication protocols to facilitate information exchange between AMRs and other factory systems.

5.WI-FI COVERAGE

Recognizing the importance of sufficient Wi-Fi coverage, we address this crucial aspect for the successful implementation of AMRs in your factory or any other environment. A robust Wi-Fi infrastructure is essential to support the effective communication and operation of autonomous mobile robots.

Step by Step Guide for a Successful AMR Implementation

1. PRE-INSTALLATION PREPARATION

As we embark on the pre-installation phase, our team conducts a thorough assessment of the installation site. We meticulously identify potential obstacles, pinpoint high-traffic areas, and strategically plan the placement of docking or charging stations. It is imperative to ensure that the power supply for charging stations is adequate and that the facility boasts a robust Wi-Fi network or an equivalent communication infrastructure.

2. INFRASTRUCTURE SETUP

As we move forward, our focus shifts to setting up the necessary infrastructure. We strategically install contactless charging stations at key locations within the facility, ensuring easy accessibility for the Autonomous Mobile Robots (AMRs) and providing a reliable power supply. Additionally, we establish waypoints and navigation aids, incorporating visual markers, QR codes, or RFID tags to guide the AMRs along their designated routes.

3. SOFTWARE CONFIGURATION AND MAPPING

The integration of AMR software with existing systems, such as Warehouse Management Systems (WMS) or Enterprise Resource Planning (ERP) systems, becomes a pivotal step. To achieve this, we employ mapping tools to create a digital representation of the environment. This involves defining waypoints, docking stations, and restricted areas, enhancing the precision of the AMRs' movements.

4. SAFETY FEATURES

In anticipation of unforeseen circumstances, we implement emergency stop protocols and ensure that the AMRs can swiftly and safely respond to unexpected situations. Rigorous testing and calibration of obstacle detection systems are conducted to prevent collisions, guaranteeing that the AMRs can adeptly detect and navigate around obstacles.

5. OPERATOR TRAINING

With an emphasis on operational readiness, we provide comprehensive training for operators and other personnel involved in the interaction or supervision of the AMRs. This training encompasses system operation, emergency procedures, and adherence to safety protocols. Detailed documentation, including user manuals, troubleshooting guides, and safety instructions, is also made available to facilitate a smooth operational transition.

Step by Step Guide for a Successful AMR Implementation

Patika Robotics

1. PILOT DEPLOYMENT

In the initial phase of implementation, we conduct a limited deployment of Autonomous Mobile Robots (AMRs) in a controlled area within your factory to assess their performance under real-world conditions. This pilot deployment allows us to gather valuable feedback from your operators, enabling us to address any issues or optimizations needed for seamless operation.

2. OPTIMIZATION

Building on the insights gained from the pilot deployment, we engage in a process of optimization. This involves utilizing the collected data to fine-tune navigation algorithms, ensuring that the AMRs operate at peak performance. We proactively identify areas for improvement, making necessary adjustments to guarantee an optimal deployment.

3. FULL DEPLOYMENT

With the success of the pilot deployment, we move forward with the full-scale implementation of AMRs across the intended area. Throughout the initial stages of full deployment, we closely monitor performance to address any emerging issues promptly. This ensures a smooth transition to a comprehensive and fully operational AMR system.

4. CONTINUOUS IMPROVEMENT

Establishing a commitment to ongoing enhancement, we implement mechanisms for continuous improvement. This involves collecting feedback and monitoring performance on an ongoing basis. Regular software updates and adaptations based on evolving needs contribute to the sustained efficiency and effectiveness of the AMR system.

5. MAINTENANCE AND SUPPORT

To uphold the longevity and reliability of the AMR fleet, we institute a routine maintenance schedule encompassing inspections, software updates, and component replacements. Technical support is readily available to address any operational issues that may arise, ensuring a swift and effective resolution to maintain uninterrupted functionality. Our focus on maintenance and support reflects our dedication to the sustained success of the AMR deployment.

Technical and After Sales Support by Patika

In the realm of Autonomous Mobile Robot (AMR) technology, reliable technical support stands as a linchpin for ensuring seamless operations and minimizing downtime. Our dedicated AMR technical support team is committed to providing comprehensive assistance to address a spectrum of challenges. From routine troubleshooting to intricate system diagnostics, our experts are equipped with the knowledge and tools necessary to keep your AMRs operating at peak efficiency.

Feature	Basic Support Package	Premium Support Package
Service Availability	Standard business hours	24/7, including weekends and holidays
Response Time	24 hours for non-critical, 4 hours for critical	4 hours for all issues, 1 hour for critical
Software Updates	Quarterly updates	Monthly updates with automated deployment
Remote Diagnostics	Basic tools and limited access	Advanced tools with real-time monitoring and predictive maintenance
Knowledge Base	Online knowledge base and video tutorials	Extensive knowledge base with a dedicated support portal and forums
Training	Online sessions and webinars for basic troubleshooting	Comprehensive on-site and remote training, regular webinars for advanced features
Spare Parts	Basic kit and 48-hour shipping	Advanced kit and 24-hour shipping
On-Site Support	Available at an additional cost, scheduled within 72 hours for critical issues	Priority included, scheduled within 24 hours for all issues

Tech Support Locations

01

Turkey

Küçücek İstiklal Mah,
Kışla Alanı Cad No: 2-2/1,
54400 Akyazı/Sakarya

02

Germany

Rasselsteiner Str. 101,
56564 Neuwied,
Germany

Our Intellectual Rights

Patika Robotics

Brand

	Registered 1014-M-0002	TÜRK PATENT	In process — WIPO
Patika Robotics	Registered 1014-M-0001	TÜRK PATENT	In process — WIPO

Design

Design Registered 1014-T-0001 — TÜRK PATENT — In process — WIPO

Patent

Member of TCAV(Turkey Connected and Autonomous Vehicles Cluster)

Eureka Clusters AI-EFICAS(Energy Efficient Heterogeneous AI-Platform for Smart Mobile and Embedded Systems) *Head of System Integration & Demonstrators

Our 3 patent applications in process

Autonomous Mobile Robots that Disinfects the Environment by Emitting 222 nm or 254 nm UVC Ray

Mecanum Wheeled Autonomous Load Carrier Platforms with Natural Navigation Principle

Special Suspension System Design That Increases the Contact of Mecanum Wheeled Vehicles

Our References

BOSCH Invented for life
ASAŞ
HACETTEPE ÜNİVERSİTESİ
İTÜÇEKİRDEK
BOĞAZİÇİ ÜNİVERSİTESİ 1863
İTÜARI TEKNOKENT BRIGHTER TOGETHER
AKDENİZ ELEKTRİK DAĞITIM
BİGG BİREYSEL GENÇ GİRİŞİM
Türk Traktör

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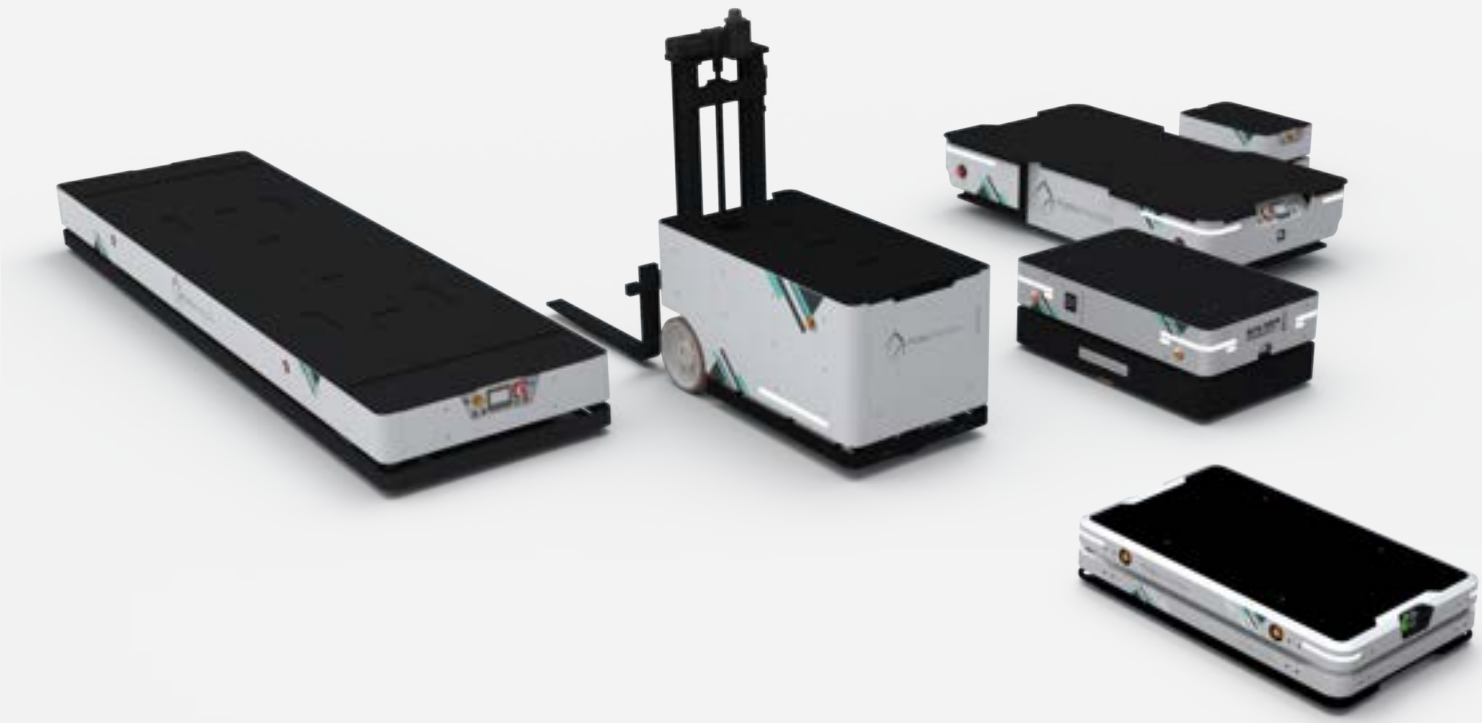

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