RFID Egypt

Robox
Crafting powerful machines

RFID-Bot

Autonomous UHF RFID Inventory Robot

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Transform Your Inventory Management with RFID-Bot

Introducing **RFID-Bot**,
the autonomous mobile robot (AMR)
designed to revolutionize inventory
accuracy and efficiency in retail,
warehouses, and logistics centers.

Built on asophisticated,
AI-powered navigation platform,
RFID-Bot replaces static inventory
checks with dynamic,
real-time data collection.

Equipped with
high-performance **UHF RFID readers**,
RFID-Bot provides an ultra-fast, com-
prehensive, and automated way to
know exactly what's on your shelves,
when you need it.



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Product overview

RFID-Bot is an Autonomous Mobile Robot (AMR) purpose-built for high-speed, accurate inventory auditing in commercial environments. Utilizing an intelligent navigation platform and integrated high-performance UHF RFID technology, it provides automated, real-time stock visibility for retail, manufacturing, and logistics operations.

Key Capabilities:

- **Automated Stock Auditing:**
  Performs full-scale inventory reads with minimal human intervention.
- **SLAM-based Navigation:**
  Capable of real-time mapping and localization for efficient route planning.
- **Near-Perfect Inventory Accuracy:**
  Reduces manual counting errors and improves data reliability.
- **Flexible Deployment:**
  Operates safely and effectively in dynamic indoor environments.

Comparative Advantage (Automated vs. Manual)

Metric	Automated (RFID-Bot)	Manual Process
Accuracy	99% +	65% - 85%
Audit Frequency	Multiple times daily	Weekly or Monthly
Labor Required	Minimal Supervision Only	High
Data Latency	Real-Time	High (Delayed)

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Features

1- Fast RFID inventory than hand-held.

2- Schedual task.

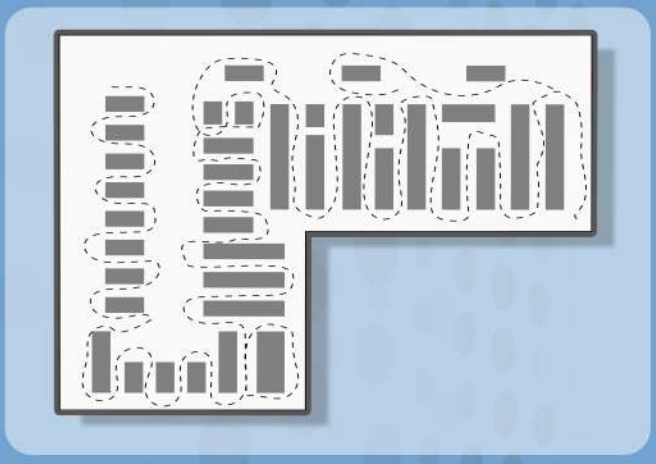
3- Autonomous mobile robot (AMR).

4- Self-charging.

5- Works in offline mode.

6- Integrated with ERP.

How does it work?



1. The first time operating on a new space, moves **RFID Bot** across the space using the interface app. In this first step, the RFID subsystem is not operating.

2. This navigation guided by the user allows Robin to generate automatically a map of the space. This mapping process only needs to be performed again if the layout of the space changes significantly.

3. The user schedules when Robin should perform inventories. For instance, everyday at 8pm. At the indicated time, Robin starts moving autonomously accross the space, reading and locating the RFID tags and storing this information.

4. When it has finished the inventory, it navigates back to its docking station to charge.

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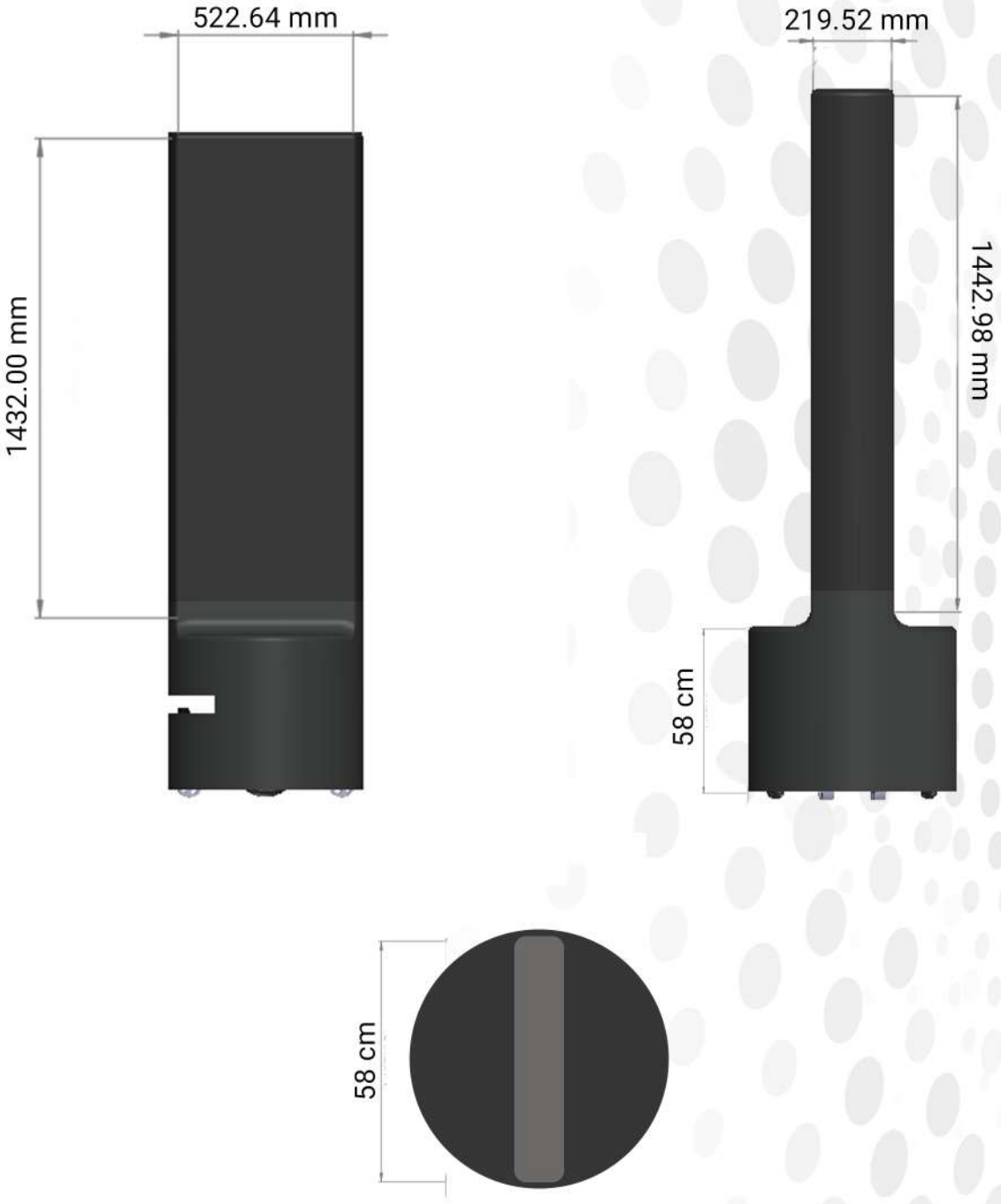
Technical Specifications

Dimensions (W x D x H)	(58x 58 x 200 cm)
RFID Technology	Integrated High-Performance UHF RFID Reader
Read Rate	650 tag/second
Max Read distance	5 meters
Max Capture Hight	3 meters
Sensors & Navigation	2D LiDAR / Depth Camera, AI-Powered Path Planning
Connectivity	Wi-Fi / Ethernet (Real-Time Data Sync)
Battery Life	Up to 8 hours Continuous Operation (or similar)
Battery voltage	36V and 12V rechargeable battery
Temperature	0 °C to +50 °C
Charging Type	Automatic / Dry Contacts
Charging time	4-8 hours
Maximum Speed	(max 0.5 m/s – typical 0.2 m/s)
Environment	Indoor (Retail, Warehouse, Logistics Centers)
Data Output	Real-time Data, API Integration
Safety Features	Smart Obstacle Avoidance, Emergency Stop Buttons

Radiofrequency specifications

Air Protocol Interface	EPCglobal UHF Class 1 Gen 2 / ISO 18000-6C
Supported regions	FCC (NA, SA) 902 MHz - 928 MHz ETSI (EU, IN) 865.6 MHz - 867.6 MHz MIC (KR) 910 MHz - 914 MHz SRRC-MII (P.R.China) 920 MHz - 925 MHz Brazil: 902-907,5 MHz and 915-928 MHz (by using channel selection) ACMA (AU, NZ) 920 MHz – 926 MHz Open region
Radiation pattern of each antenna	Wide beam in both directions in one hemisphere
Beamwidth	70° / 70° Gain
Gain	8.3 dBi
Polarization	Circular

Mechanical specifications



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