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INDOOR DOCUMENT DELIVERY AND ENVIRONMENT MONITORING ROBOT

by RV Automation Technology

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機電工程署 EMSD

INDOOR DOCUMENT DELIVERY AND ENVIRONMENT MONITORING ROBOT

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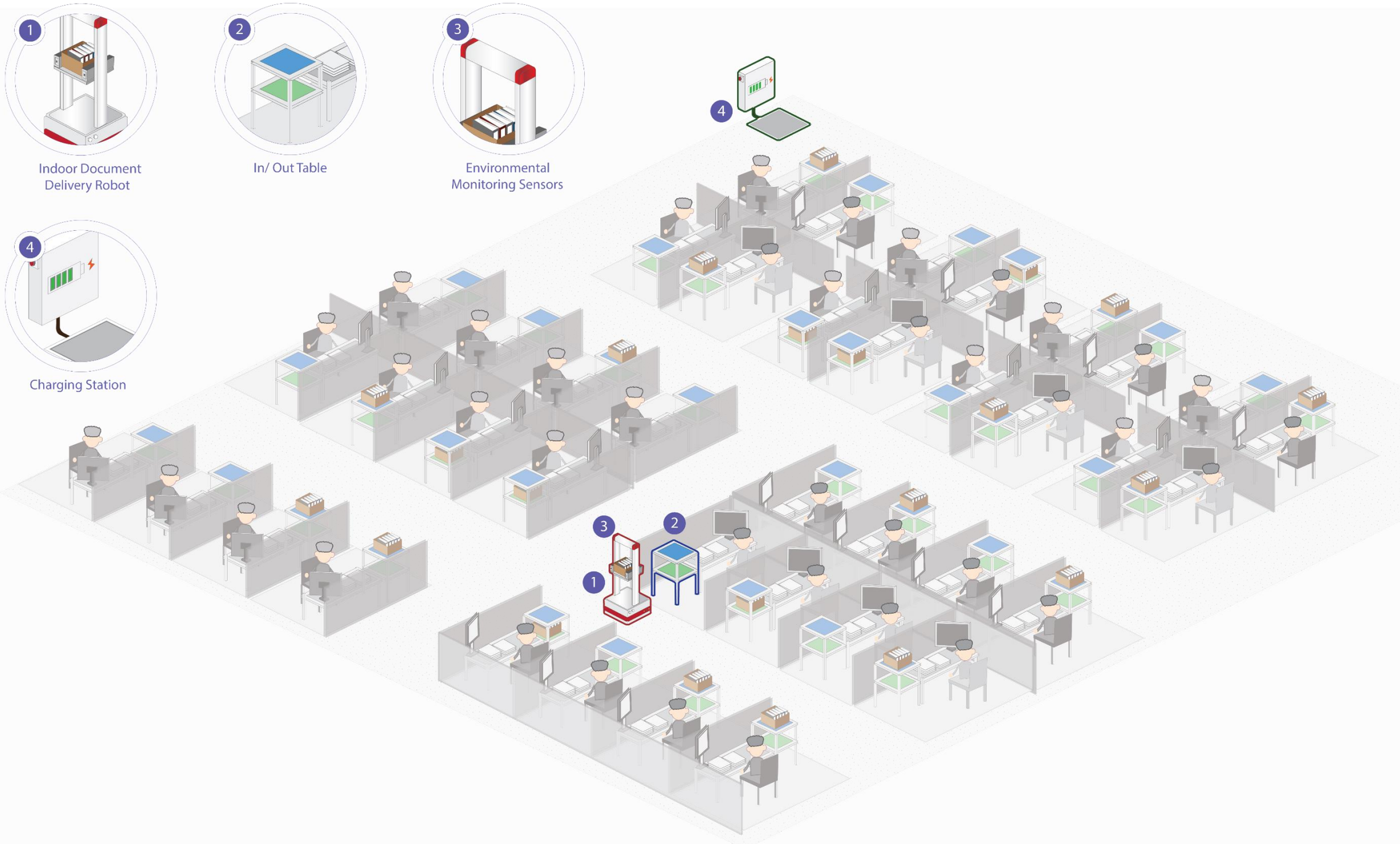
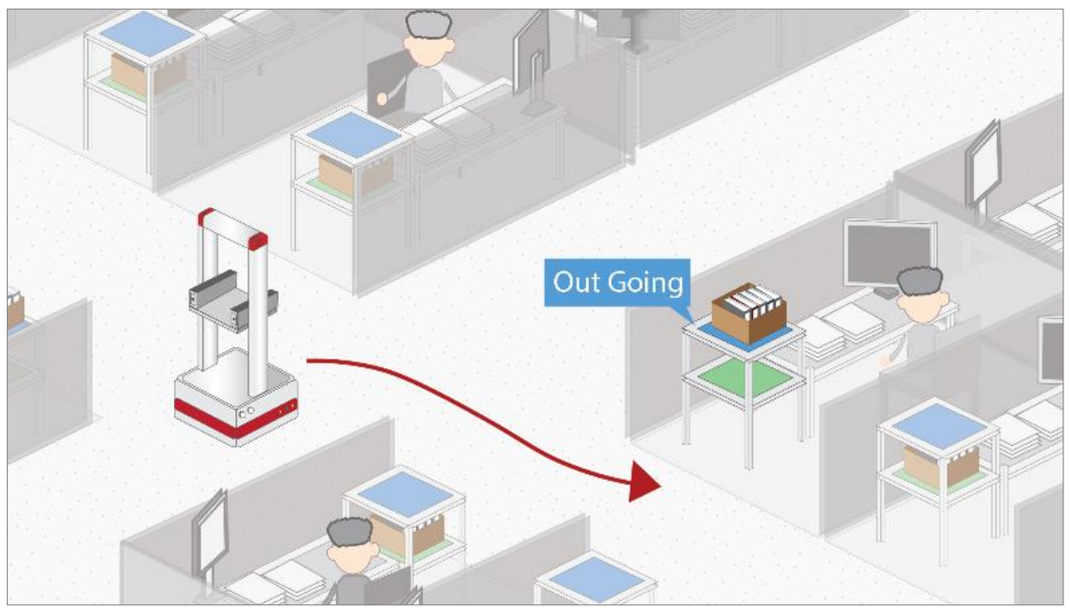


FLOW - PICKING

Robot Picking F4-size Tray at Out-Tray Table

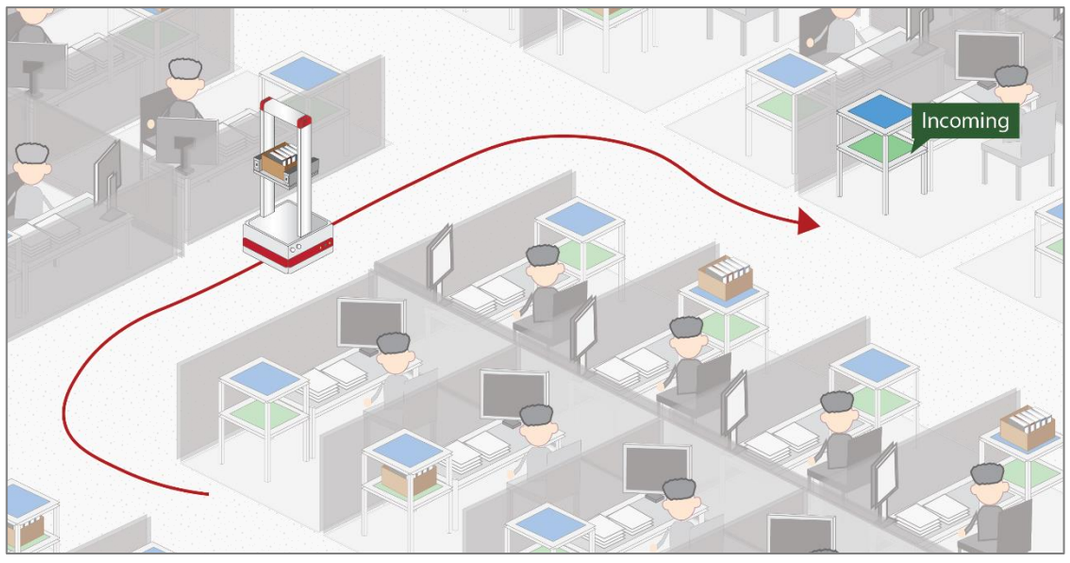
- Staff put the F4-Size Tray on Outgoing Table
- Choose the receiving staff
- Place Picking Order to the robot for the delivery task
- The robot received the order and come to pickup the Tray
- The robot pick the tray

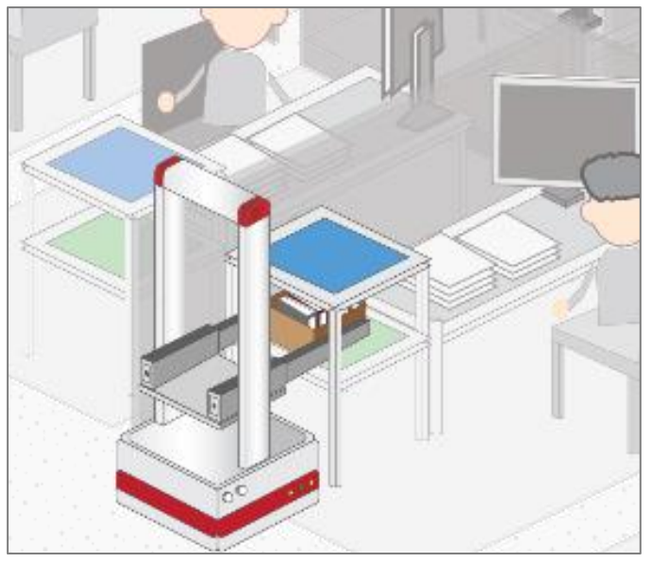


FLOW - DELIVERY

Robot Deliver the Tray to Destination In-Tray Table

- Robot carry the tray
- Robot navigate along the corridor with the tray
- Robot arrive the destination staff’s In/Out Table
- Robot put down the F4-size tray to complete the Delivery Order





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Autonomous Mobile Robot

Auto Storage and Retrieval Mobile Robot (SRM)

PRODUCT VIDEOS

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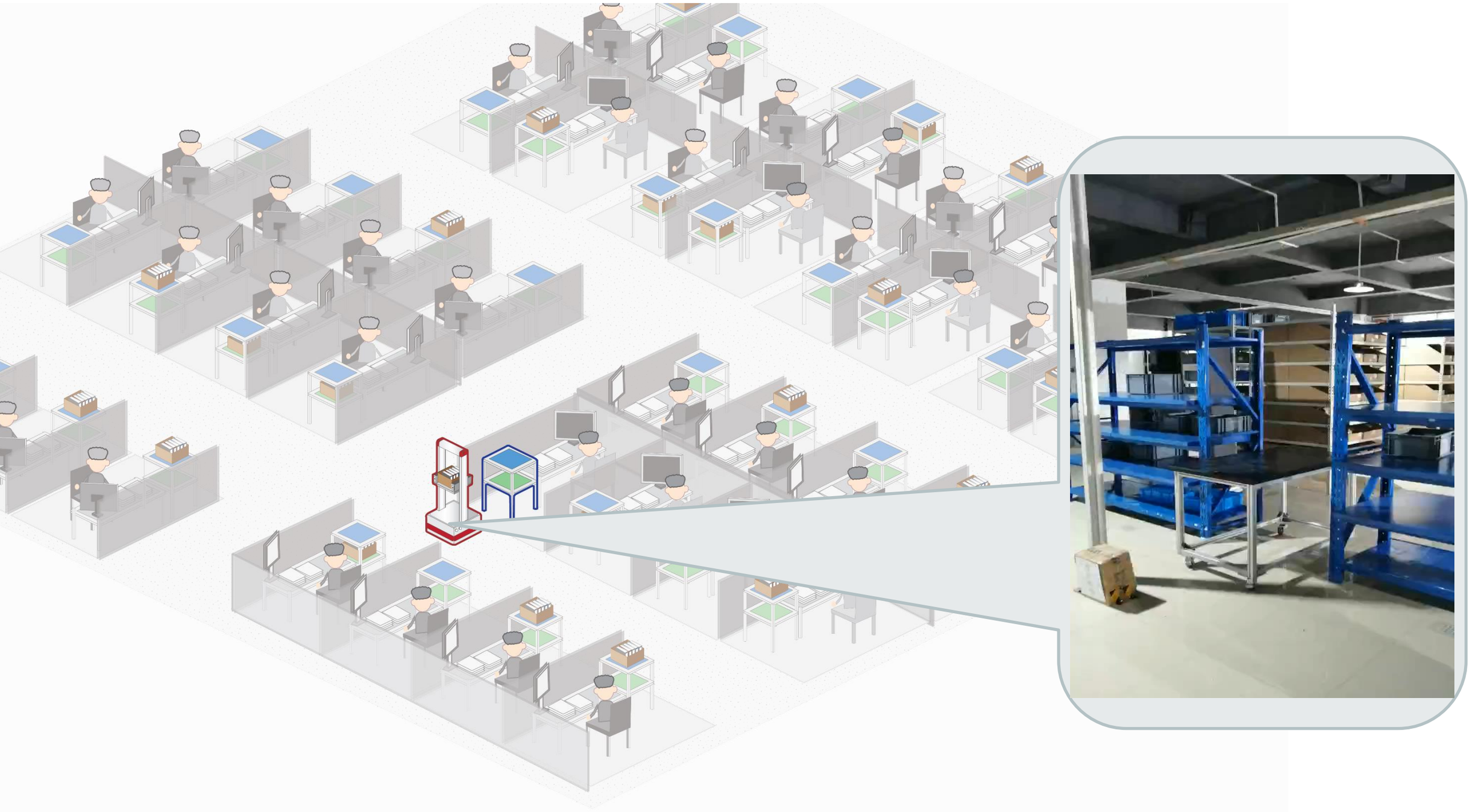
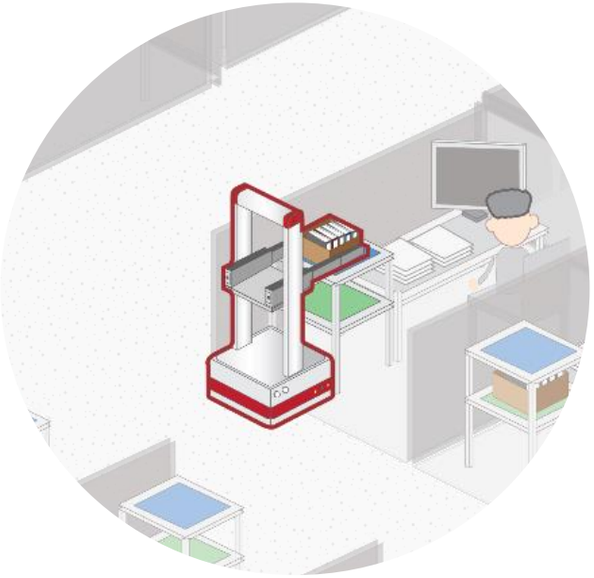
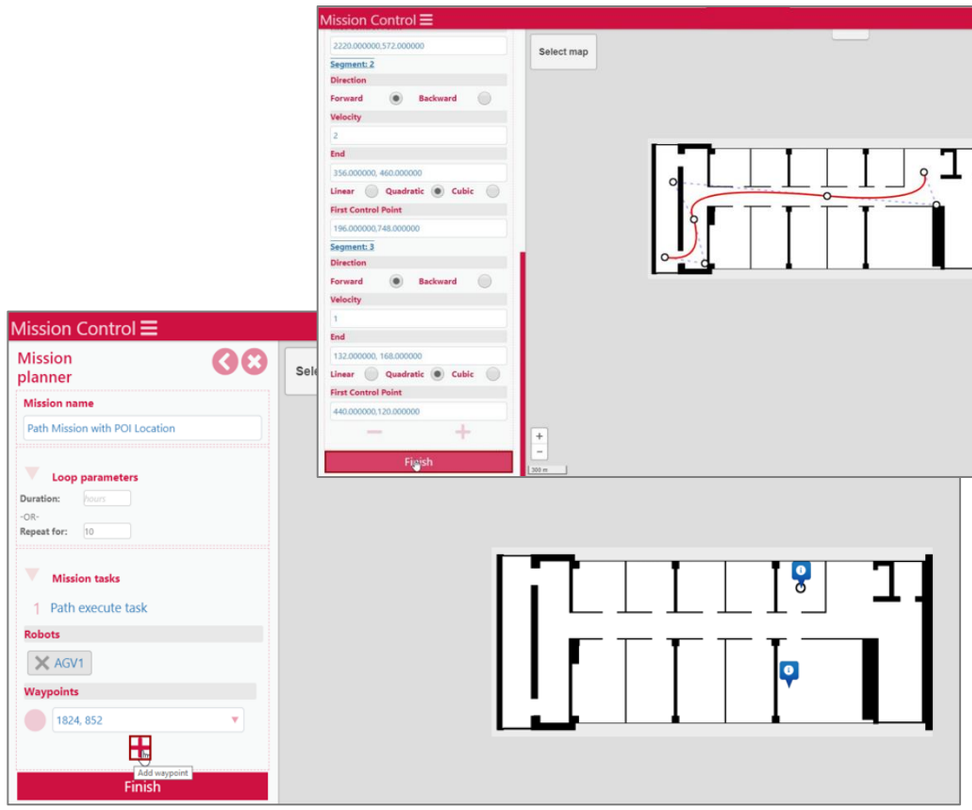


FUNCTIONS

Indoor Document Delivery Robot

- Creation of Virtual Map
- Registration of Staff Table Location
- Selection of Delivery Destination
- Picking Order
- Delivery Order
- Connect to Wi-Fi Network
- Web-based System
- Monitoring of robot real-time location

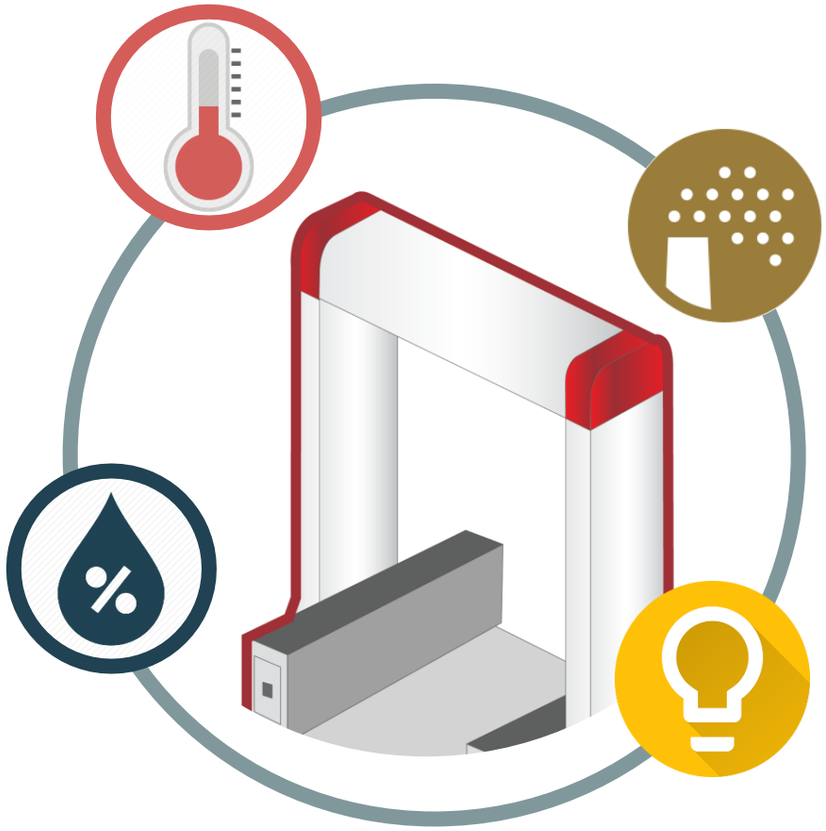




FUNCTIONS

Environment Monitoring

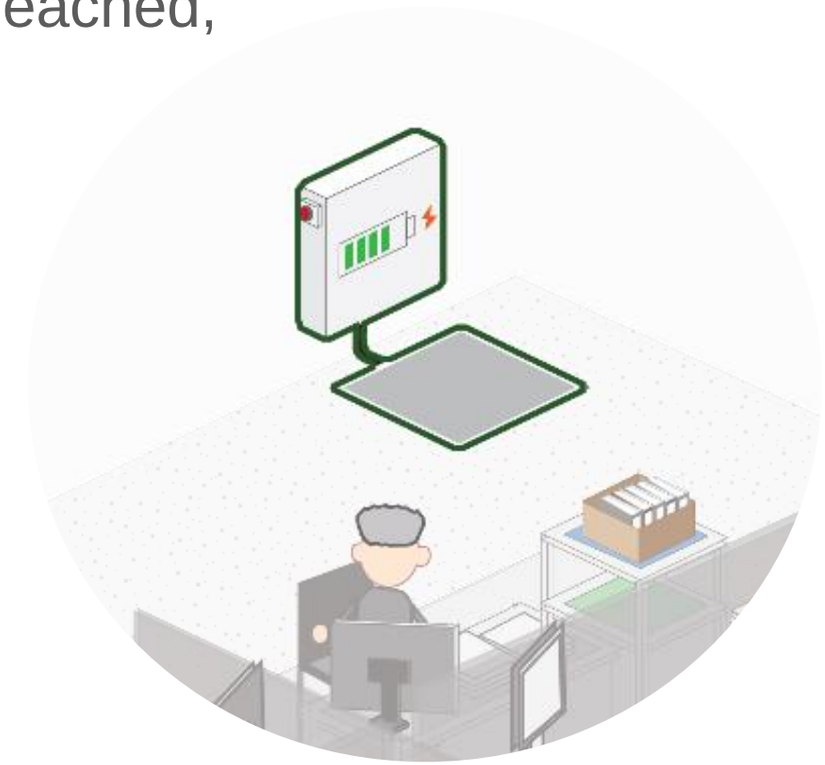
- Equipped with sensors for environmental monitoring
  - Temperature Sensor
  - Humidity Sensor
  - Air Quality Sensor
  - Light Sensor
- Data are transmitted to server for storage



FUNCTIONS

Charging Station

- The charging strategy can be configured to be a time-basis or battery-level-basis
- For time-basis, robot will be scheduled to charging at pre-defined time
- For battery-level-basis, the system keep monitoring the battery level of the robot. If the charging level is reached, system will instruct the robot to go for charging



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TECHNOLOGIES

AUTONOMOUS ROBOTS

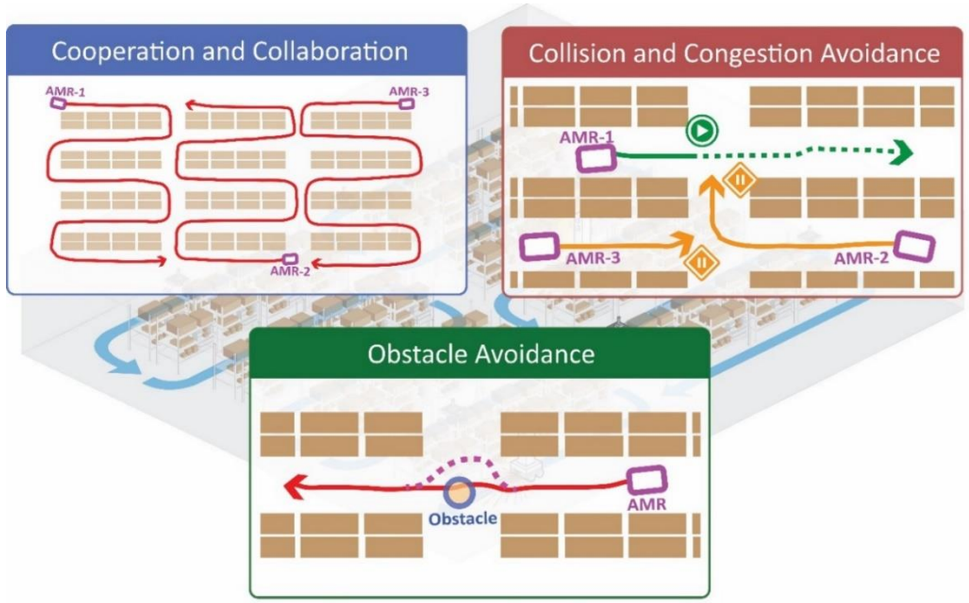
- Autonomous Navigation for Indoor Environment
- Collision Avoidance
- Auto Storage and Retrieval Gripper
- Simultaneous Localization and Mapping (SLAM)
- LiDAR Sensor
  - Navigation Sensor
  - Safety Sensor
- Two-wheel Differential Drive

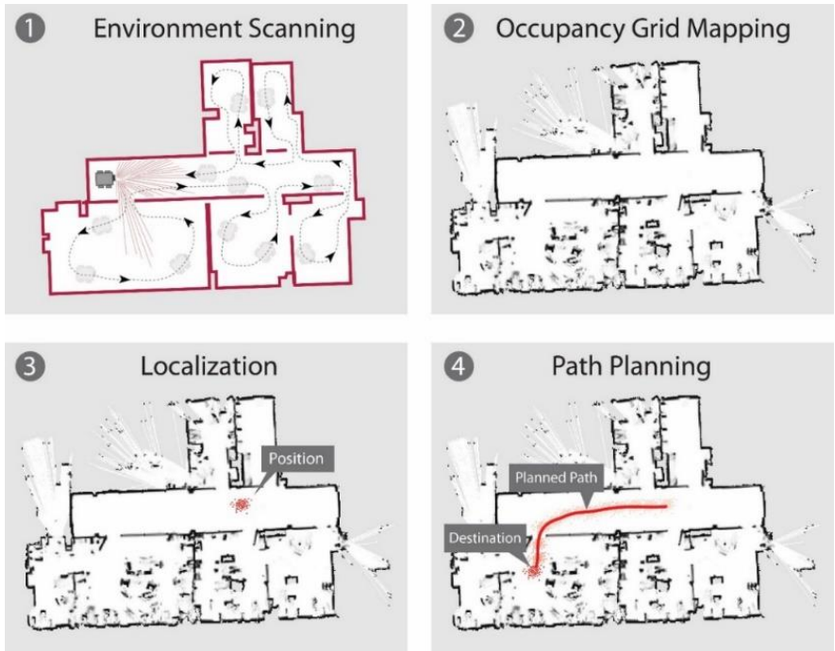
Auto Storage and Retrieval Mobile Robot

Autonomous Mobile Robot (FOBO)

INTERNET OF THINGS (IOT)

- Environmental Monitoring Sensors
- LiDAR Sensor
- Navigation LiDAR Sensor
- Safety LiDAR Sensor
- Mesh Wi-Fi





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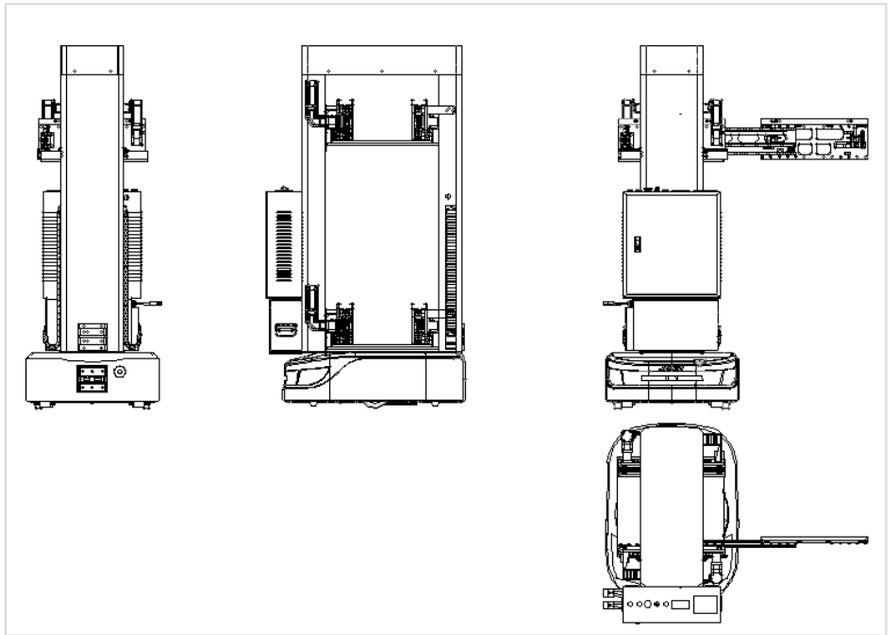
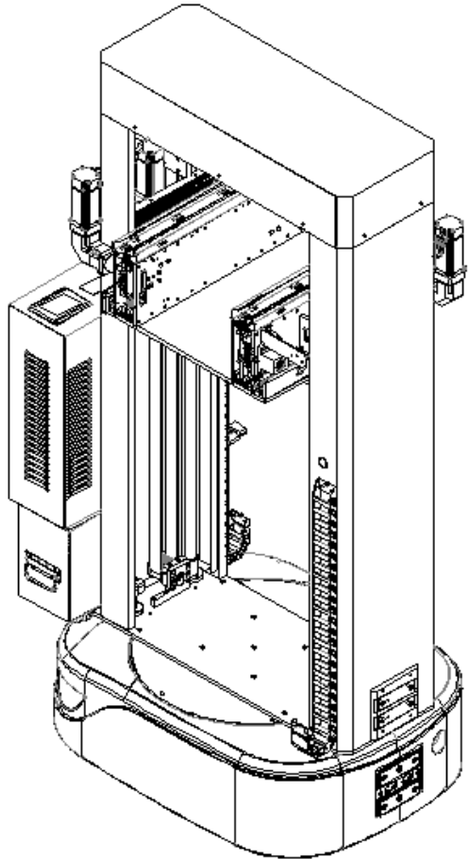
SPECIFICATION

STORAGE AND RETRIEVAL MACHINE (SRM)
(TOP MODULE)



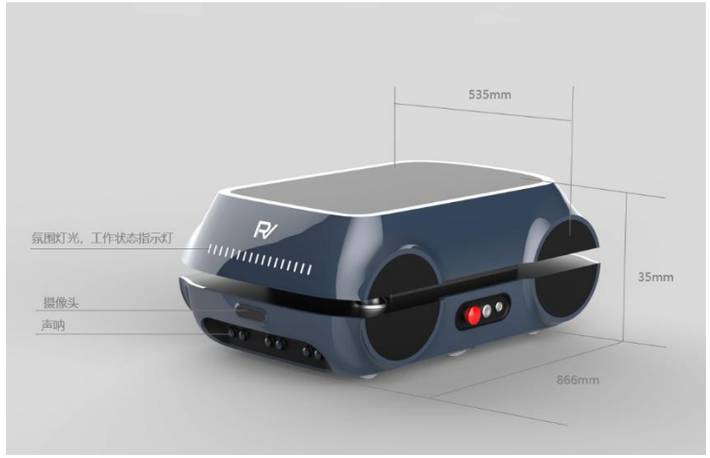


Parameter	Specifications
Dimensions	1200mm(L) 750mm(W) 2250mm(H)
Vertical travel distance	1300mm (420mm-1720mm)
Vertical Speed	0.5m/s
Hook travel distance	900mm each side
Extend/Contract Speed	0.3m/s
Maximum Bin weight	30kg

AUTONOMOUS MOBILE ROBOT (FOBO)

(BASE MODULE)

Weight (without load)	<80 kg
Robot payload	100 kg
Dimensions (L x W x H)	750 x 520 x 310 mm
Maximum speed	1.5 m/s
Navigation	SLAM Navigation
Obstacle avoidance	LIDAR (front & back)
LIDAR Range	360° & 25 meters scanning range
Communication	2.4 GHz : IEEE 802.11 b/g/n; 5 GHz : IEEE 802.11 a/n/ac
Positioning accuracy	+/-50 mm of position
Running time	7 hours or 15 km
Battery	LiFePo4, 48v 20ah,
Charger	Input: 100-230 Vac, 50-60Hz / Output: 54.5V
Charging mode	Manual/ Contact/ Wireless



BUDGET TIMELINE

Description	Duration
• Project awarded and receive PO • Finalize project scope and requirement	1 month
• Design and development of robot • Hardware procurement and fabrication • Software development	6 -9 months (Depend on Robot quantity)
• System test and integration • Delivery and installation • Customer buyoff and training	2 months
Total project timeline	**9 -12 months**

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THANK YOU