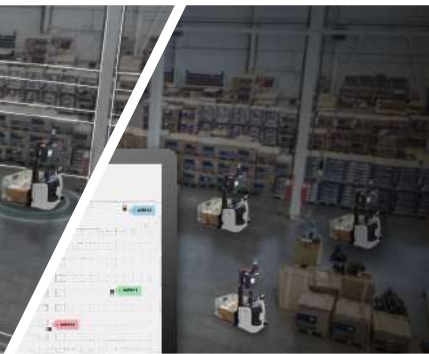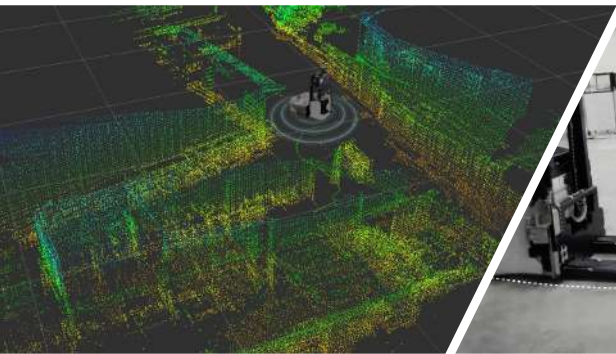# CiRC

Autonomous Mobile Robot

A Total Solution Provider of AMR Forklifts and Carriers

Smart Work from Smart AMR

AMR Forklift

Customized AMR Forklift with 3D SLAM Navigation System achieves the localization and natural navigation by 3D LiDAR mapping, having the features of AI recognition on pallet and location, auto positioning and stacking, to replace the manned transportation and enhance the active safety, then reduce the risk of occupational accident.

3D SLAM
Accurate Localization and Navigation

ToF Camera
Pallet Recognition and Positioning

2D LiDAR
Safety Protection

3D SLAM Navigation System

Integrating the 3D LiDAR, SLAM*, algorithm and motion control, CiRC has been successfully develop-ing the proprietary 3D SLAM Navigation System for the AMR Forklift, rendering the capability of autonomous navigation under the challenging environments, such as inclined or uneven surface, indoor-outdoor, and corridor.
It features the accurate positioning, vehicles meeting, auto switching of maps, and smooth motion control.

* SLAM (Simultaneous Localization And Mapping): the vehicle is localized by the relationship with the surrounding environmental characteristics given by the sensors on vehicle.

AI Recognition Algorithm

With ToF (Time of Flight) camera, AI algorithm, and motion control, the AMR Forklift provides a variety of recognition capabilities, incl. status of location, types of pallet or rack, position and angle of pallet front surface for normal action by dynami-cally adjusting the forklift, auto stacking without rack to increase the space utilization.

## Obstacle Avoidance and Smart Routing

The active safety is enhanced by 3 sets of 2D LiDAR mounted on front, left, and right sides of vehicle, forming a 360-degree protection zone. The decelerat-ing and stop zones could be defined per site environment to activate the obstacle avoidance properly for safety. Moreover, AMR Forklift is built in the feature of smart routing based on the site condition to ensure the performance of task assigned.
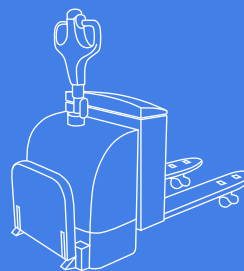
Vehicle Management System

Vehicle Management System (VMS) interfaces seamlessly with the upper-level management system and remotely manages and controls the AMR vehicles, incl. task planning and schedul-ing, routing, vehicle monitoring and dispatching, traffic manage-ment, map and e-location management., to achieve the synchronization between material flow and information flow. VMS facilitate the realiza-tion of smart manufacturing and smart logistics by further interfacing and controlling the peripheral equipment.
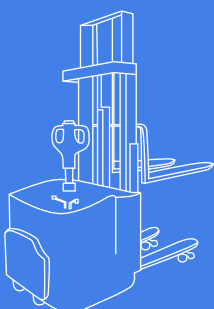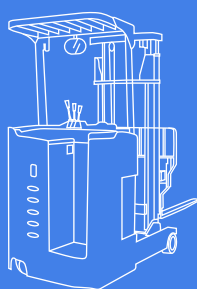
Pallet Stacker   Reach Truck   Pallet Truck   Counterbalance Stacker

AMR Carrier

Customized AMR Carrier with 2D SLAM Navigation System achieves the localization and natural navigation by 2D LiDAR mapping, eliminating the requirement of ancillary tools used in AGV (Automated Guided Vehicle) and then the maintenance cos, and giving the freedom of site re-planning.
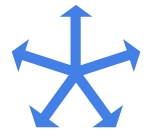

2D SLAM	±10mm Positioning Accuracy	Wi-Fi Communication	Smart Routing	Diverse Function

IMU Module
Accurate Positioning

2D LiDAR
SLAM+Obstacle Avoidance

Emergency Stop

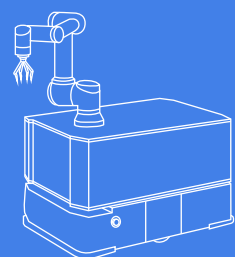**Indicator Lamps**
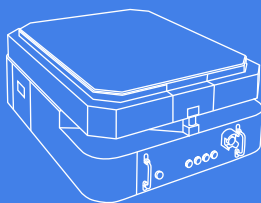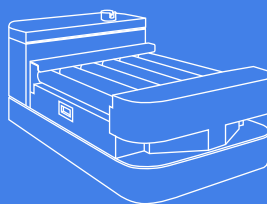
Lifter Type   Roller Type   Hybrid Type

Intelligent Robotics
Brilliants the Future of Industry

CiRC is being devoted to transforming the technologies for realizing the actual benefits, reducing the process for boosting up the industry capacity, and achieving the human-machine collaboration for maximizing the value.

Be Innovative, Be Extraordinary

CiRC takes the leading position by leveraging the technical supports from Coretronic Group in the fields related to optical, mechanical, electrical, thermal, and software developments.

APAC Top 10 Drone Technology Company

Smart City Innovative Application Award

Smart Science Park Application Award

CiRC

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More Information