

Warehouse Automation and Robotics

KL Fan

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Warehouse Automation and Robotics

- (1) Robot Follower (man-robot interaction)
- (2) Deliverbot
- (3) Future Warehouses
- (4) Smart Service Robots

1. Robot Follower

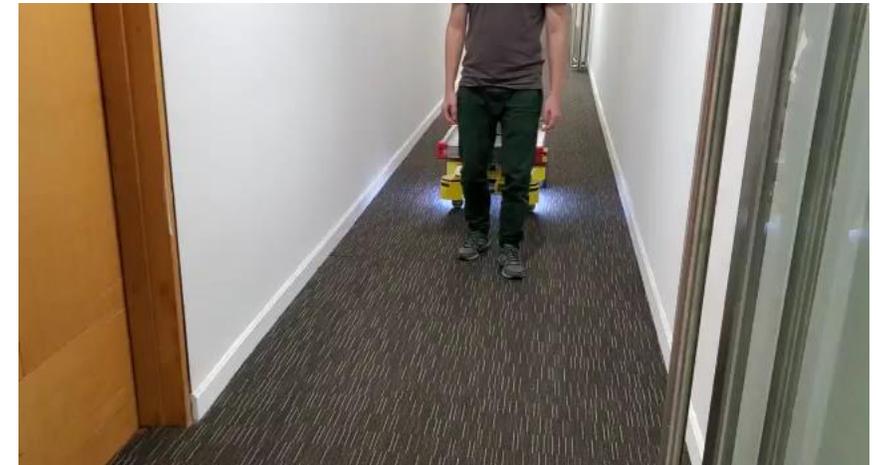
- No major infrastructure change and No Wifi required - conventional warehouses with fixed storage racks and isles;
- Workers/operators are required to pick/carry items from the shelves and walk to and forth in the warehouse;
- Simple operations.



Standard warehouse settings

Major technologies developed:

1. Robot mechanical design & control system;
2. Two technologies have been research and developed (i) robot vision and (ii) UWB;



3. Platooning



2. Deliverbot (or Delivery Robot)

Major technologies developed:

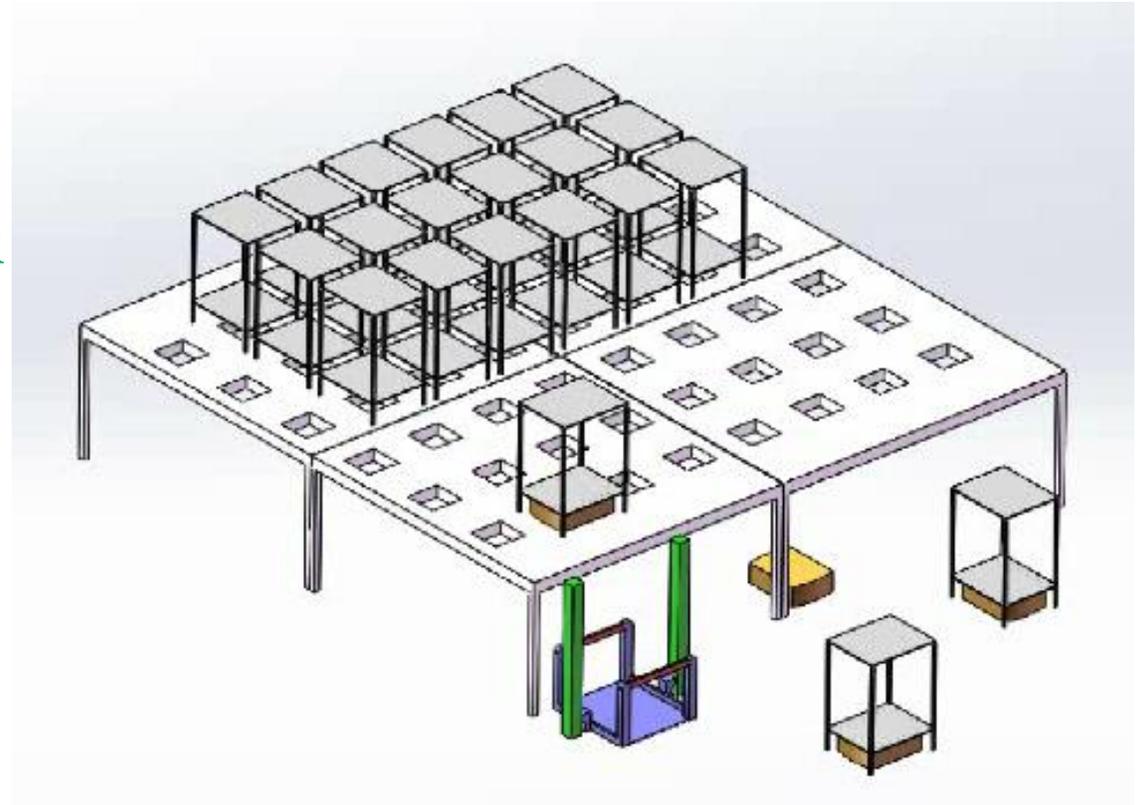
- Landmark recognitions
 - Less infrastructure required.
- “Hopping”
 - with intelligence of human behaviours.

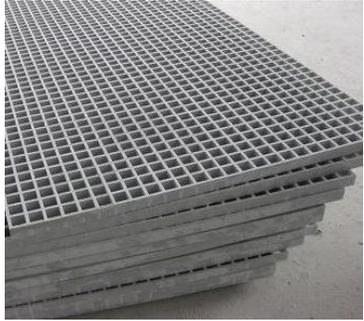


3. Future Warehouses

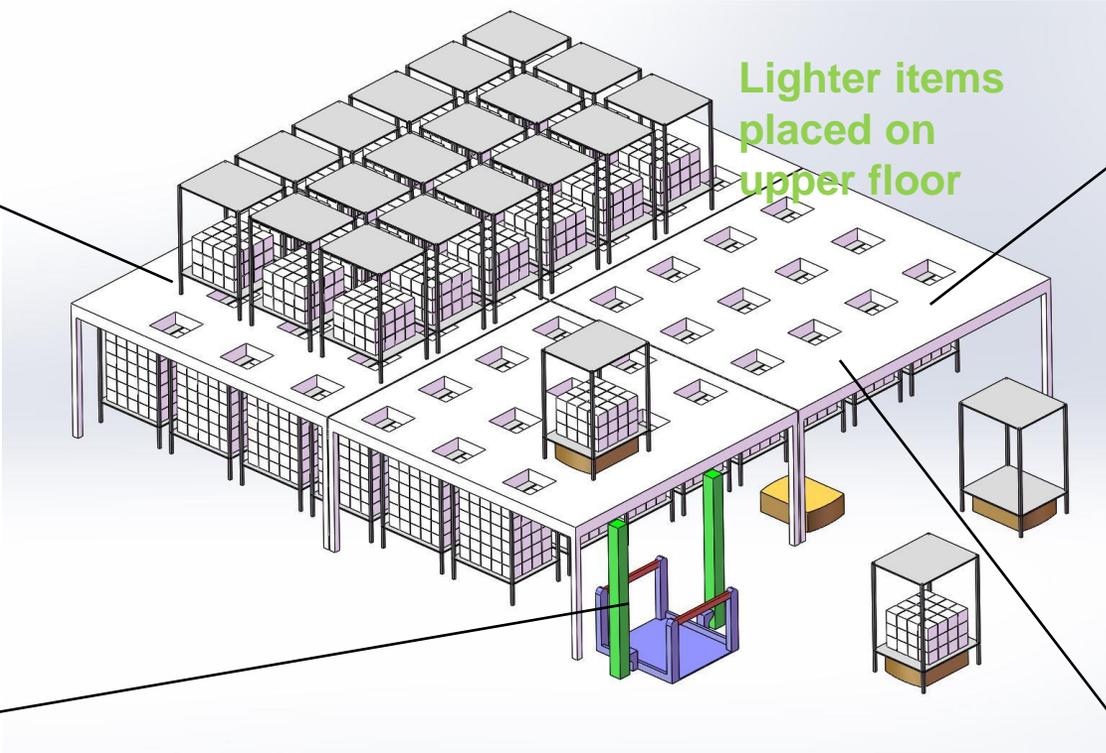
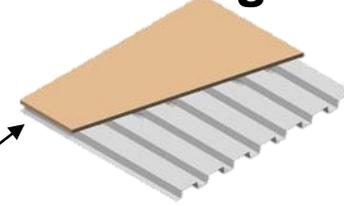
Major technologies (under development)

- To target many multi-level (or high ceiling) warehouses
- AGVs are able to go to different levels by smart elevators
- Modular Platform design for enhancing cost effectiveness





Decking

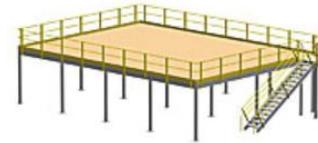
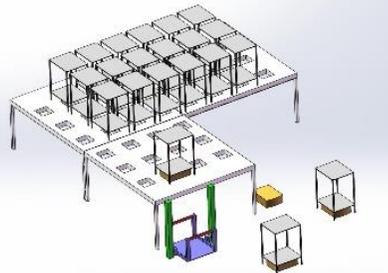


Lighter items placed on upper floor

Smart Elevators



Modular Design



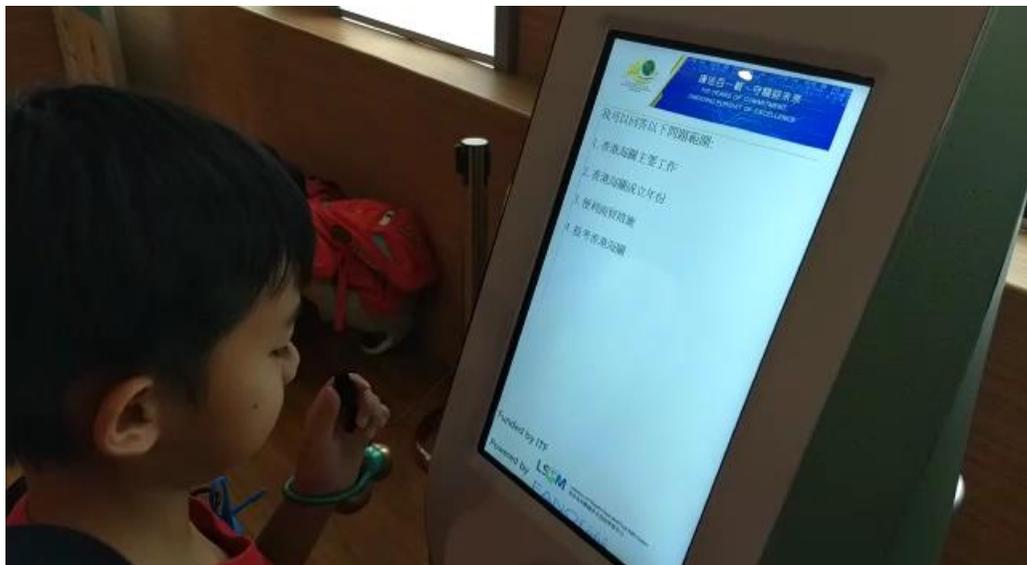
Structural Mezzanine, 8'H, 42'-9" x 31'-5½" Platform, Roof Deck

Reclaim 1343 Square Feet of Wasted Vertical Space with this High-Capacity Mezzanine

4. Smart Service Robots

Major technologies (under development)

- Robust electro-mechanical design for stable motion;
- Modular (or plug & play) design of multiple sensor integration;
- Robot navigation by SLAM (LiDAR mapping), vision, voice detection, robot behaviours (e.g. people-approaching,...);
- Other functions: vital signs monitoring, drug reminder, User Interface,... customise to applications;
- Cantonese Chatbot (under development).





The End