

# Pallet Recognition Solution

## Luminwave TOF Camera

### ■ Solution Overview

With applications like industry automation, intelligent warehousing, logistics and other industrial scenario, pallet recognition and positioning is an important technique. Irregular Pallet placement, pallet aging and wearing, shelf deformation, vehicle positioning accuracy and other issues may affect the pallet picking, and result in loss of goods and unsafe to operators. Some application scenario may have to remodel the working space, and add extra cost.

Luminwave's TOF camera captures the pallets in the space. With the integrated deep learning image segmentation and point cloud segmentation algorithms, it can accurately recognize the positions of single or multiple pallets with their distances and angles. It can identify the pallets with different materials like wood and plastic, with all kinds of colors from black to white, and with different sizes. The 3D camera and the algorithm delivers the real time data of pallet serial numbers, locations, positions, angels, etc. Customized algorithm integration with adding features is also supported.

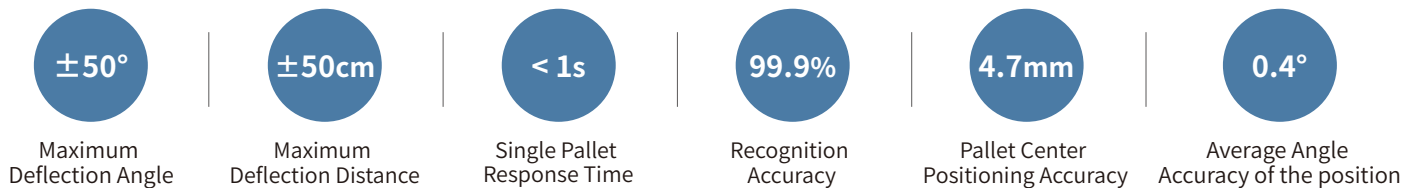
### ■ Program Effect

- Multiple Types Pallet Compatibility** | Compatible with multiple pallet materials, colors, shapes and sizes
- Accurate Position Information** | Real-time output of millimeter-level position (x,y,z) and angle data of single or multiple pallets, with response time <1s
- Multi-target Recognition Capability** | For the multi-pallet stacking scenario, multi-target position and angle data with a single shot
- Intelligent Algorithms** | Advanced model training, compatible with multiple types of pallets, support algorithm
- Anti-interference Ability** | Self-illumination in the dark environment, strong anti-ambient light interference
- Improving Efficiency** | Providing automatic real-time high precision data, avoiding damage to goods/shelves by human errors, fitting into the existing working space

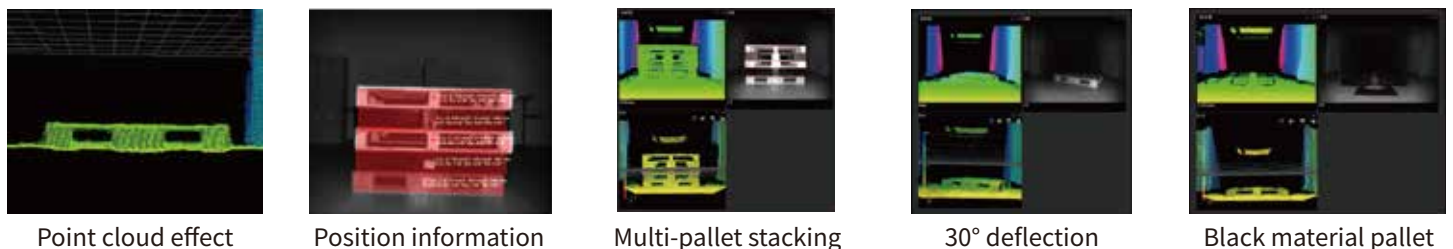


### ■ Deep Learning Algorithm

Coming with the deep learning image segmentation and point cloud segmentation algorithms, the solution supports for algorithm fusion and customization, It is compatible with multiple hardware platforms and operating systems. Online upgrade and adding new features are also supported. Algorithm customization can effectively and quickly improve the accuracy and efficiency of the new types of pallet recognition with special requirements.



### ■ Actual Effect



### ■ Recommendation

D Series TOF Camera D3 , M Series TOF Camera Mars01H