



Ultra-wide field of view visual obstacle detection in a warehouse detecting pallet stacks and humans from head to toe

Obstacle Detection Solution Starter Kit

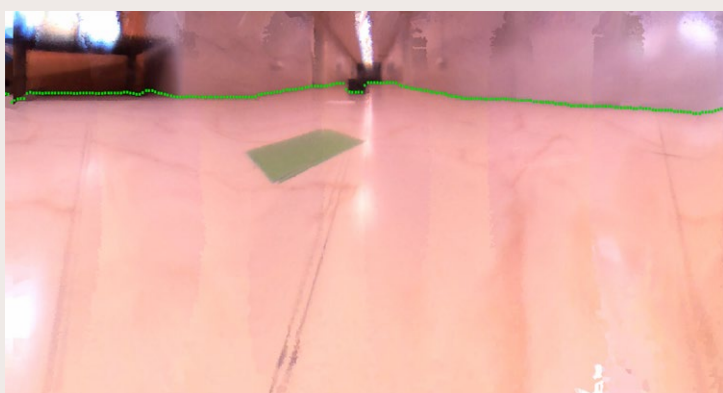
By DreamVu

This Starter Kit allows you to quickly evaluate the DreamVu obstacle detection solution. This solution detects any obstacle within a wide vertical field and across a horizontal field of view up to 360°. To be compatible with mapping solutions such as Cartographer and Gmapping, it simulates a 2D laser scan output. The Starter Kit includes the DreamVu Explorer GUI for quickly visualizing the RGB-D and point-cloud generated by the PAL Mini stereo camera. It also includes ROS so maps can be generated, viewed and saved.

Starter Kit Outputs:



Simulated 2D laser scan output overlaid on 360° RGB with real-time 360° mapping output in ROS



Accurately detect small obstacles on challenging floor types with markings (non-obstacles)



Accurately detect floating obstacles in 3D even in varying lighting conditions

Experience the advantages of the Obstacle Detection Solution Starter Kit



Unparalleled field-of-view provides 3D obstacle detection in an output compatible with 2D mapping solutions



Uses stereo vision to detect objects from floor to the ceiling with 0 false positives even in challenging real-world environments.



Accurately detect different obstacle types (Thin wires, Small toys, Solid Obstacles, Near-range Floating obstacles, Shoes, Slippers, Newspapers) on challenging floor types (Low texture, Matte, Carpeted & Glossy floor surfaces)



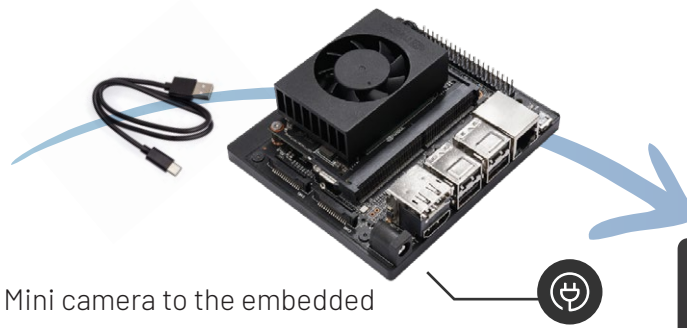
Generate and view real-time maps within ROS Cartographer and Gmapping

Getting Started



Step 1

Connect the PAL Mini camera to the embedded processor board and mount the PAL Mini at the desired location. Power will need to be applied.



Step 2

Connect the embedded board to any display via the HDMI cable. You will see our GUI 'Explorer'. It enables you to output different modes (RGB, Depth, Point cloud) and also allows you access to the camera parameters.



Step 3

The starter kit is fully compatible with ROS. The output plugs seamlessly into your robot's 2D mapping pipeline (gmapping, cartographer). You can mount this on your robot and test this in your deployment environment.



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Starter Kit Specifications

Obstacle Detection Performance

Obstacle detection range	0 cm - 300 cm
Obstacle detection field of view	up-to 360° Horizontal, 80° Vertical
Obstacle detection accuracy	≤2.5 cm at 50 cm and ≤ 15 cm /5% at 300 cm
Refresh Rate	20 Hz
False positive rate	< 1%
Detection Latency	300 ms
Obstacle Types	Thin wires (radius > 2mm), Small toys, Solid Obstacles, Near-range Floating obstacles, Shoes, Slippers, Large Obstacles (Wall and furniture), Dog Poop, Newspaper, Clothes, Door threshold, Area rugs
Non- Obstacles Types	Glossy Tapes, Matte tapes
Floor types	Low texture, Matte, Carpeted & Glossy floor surfaces
Lighting types	> = 20 Lux ambient lighting
Adaptive Illumination Support	Yes

Hardware & Connectivity

ROS Plugins	Gmapping, amcl, laser-filters, turtlebot, move_base, map_server
Device Side	ROS Melodic
Host Streaming (Optional)	Intel x86 i7 Ubuntu 18.04 through Ethernet
Host Side (Optional)	ROS Kinetic, Melodic & Noetic
Starter kit includes (1x each)	PAL Mini, HDMI cable, Jetson NX board with power adaptor, USB 3.0 cable
Connectivity Output	HDMI & Ethernet
Camera Mounting (from the ground)	25 cm - 50 cm
Weight	~1150gms (including all the hardware components)
Operating Temperature	-30° to 55° C