



ROUGH terrain calls for RUGGED construction

- ***Range readings at 30 fps with FPGA!***
- ***Pre-calibrated!***
- ***Scratch-resistant lenses***
- ***Tested reliable in heavy rain!***

COMPONENTS

- processor with Linux or Win drivers
- 6cm baseline monochrome indoor or outdoor stereovision camera
- Fixed or pan-tilt mount, indoor or outdoor version

MobileRanger stereovision systems are top-of-the-line instruments for measuring depth for demanding applications such as mobile robot navigation, people tracking, gesture recognition, targeting, 3D surface visualization and advanced human computer interaction. They are ideal for robot applications because it offloads initial depth calculations to an FPGA, reserving the robot's computing resources for other tasks. Delivering range readings (not just data) at 30 frames per second for 752x480 images, the PCI or PC104+ card provides superior speed and depth performance.

When deployed on any MOBILEROBOTSindoors or MOBILEROBOTSoutdoors compliant platform, MobileRanger is installed onto the required computer embedded in the robot. The included software package makes the depth data available, as well as the raw monochrome images for those wishing to do analysis on either single images or the matched left and right images.

MobileRanger is also sold separately for use on non-compliant platforms.

MobileRanger is available with either a manual tilt mount for fixed use or a pan-tilt mount controllable through ARIA, also available in indoor or outdoor versions.

MobileRanger Stereovision System Specifications	
Vision Processor Subsystem	
Resolution	WVGA (752x480)
Disparity Frame Rate	30 frames per second WVGA with 92 disparity levels.
Disparity Range	64
Camera Callibration	Calibration coefficients generated at the factory. Processor rectifies and undistorts images in real-time
Calibration Error	0.1 pixel RMS error.
Stereo Algorithm	Sum of Absolute Differences (SAD) with 9x9 block matching.
Left/Right Check	Identifies places where correlation is contradictory and thus uncertain
Host Interface	33 MHz PCI or PC/104+, direct DMA access
Processor Upgrades	Ability to upgrade processor functionality in the field.
6cm Baseline Stereo Vision Camera	
Resolution	Two 752x480 1/3-inch wide-VGA CMOS digital image sensors.
Frame Rate	Programmable up to 60 frames per second.
Baseline	6cm. Contact us for custom baseline cameras.
Mounting	Includes three standard Tripod mounts on the bottom. Contact us for drawings.
Image Format	Monochrome: Near_IR enhanced performance for use with non-visible NIR illumination. Contact us for information regarding color sensors.
Dynamic Range	>60dB
Analog to Digital Conversion	10 bit
Shutter Type	Global shutter photodiode pixels; simultaneous integration and readout.
Controls	Automatic/Manual synchronized exposure and gain control.
Interface	LVDS on CAT6 cable up to 5 meters in length.
Focal Lens Length	Uses standard 2.9mm. Contact us for additional lens options.
Field of View	75 degree (horizontal) by 52 degree (vertical) Field of View
Power Supply	Supplied via CAT5 cables from PCI card.
Power Consumption	<500mW at maximum data rate;
Dimensions	4.25in x 1.5in x 1.25in indoors, 4.88in x 3.75in x 2.50in