



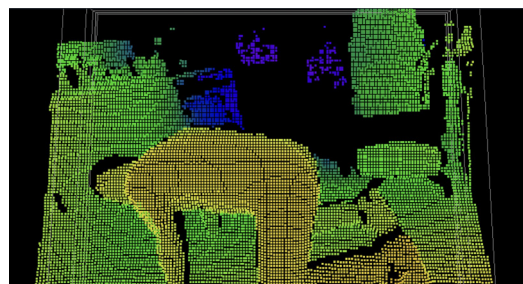
## Functions

- 0.3MP ToF sensor
- VGA H.264/AVC high-performance video compression
- Simultaneous streaming of H.264 and Motion JPEG encoded streams
- 1-way audio supported
- Digital I/O : 1 out
- IP66 rain and dust resistant
- Support EDGE AI

## Time of Flight

The biggest difference between ToF and normal cameras is that it can obtain "3D" dimensional information. While 2D images are prone to overlap and distance discrimination, ToF's 3D image detection can even calculate the volume of an object. "Collision prevention" is one of ToF's best applications.

In industrial automation and medical fields, ToF applications can easily be expanded to replace the human eye's judgment function in unattended environments. Its small size and ease of deployment make it highly desirable for measurement and identification work.



Spec	
Angle of View	62.4° (H) x 47.2° (V) x 77.2° (D)
Lens Aperture	F1.2
SoC	CV22S66
Pick Up Element	1/4.5" Sony DepthSense® IMX570
Maximum Frame Rate	15fps
Effective Pixels	640 (H) x 480 (V) = 307,200 (Pixels)
Shutter Type	Global
IP Rating	IP66
Vandal Resistant Rating	IK10
CE	Yes, EMI Class A
FCC	Yes, EMI Class A
Regulatory Approvals	Eye Safety Class 1 IEC 60825-1:2007 (Certificate)
Starting Temperature	0° C – +50° C (32° F – 122° F)
Operating Temperature	-10° C – +50° C (14° F – 122° F)
Storage Temperature	-25° C – +60° C (-13° F – 140° F)
Humidity	0% – 90% RH
Casing Material	Aluminum alloy
Color (RAL Number)	White
Dimension	150 (W) x 90 (H) x 55 (D) mm
Weight	650g
Power Supply	DC12V ±10%
Power Consumption	DC12V, 3.5A, 42W
Illumination	940nm VCSEL × 4, Class 1
Accuracy*	± 10 mm ± 0.5% of depth
Precision*	15mm
Working Range	0.3m~7. 4 meters
Network	
Video Compression	H.264 main and high profile , Motion JPEG
Resolution	640 x 480
Video Streaming	RTP/HTTP, RTP/TCP, RTP/UDP, Multicast streams in H.264 and Motion JPEG
Number of streams	2
Maximum Frame Rate	15 fps @ 640 x 480
Video Bitrate	128Kbps – 2Mbps
Authentication	Digest HTTP authentication, RTSP authentication, DDNS via HTTPS
Address Filter	Yes
Access	Multiple user access levels with password protection
User accounts	10 user accounts available
Metadata	Yes
RTCP Check	Yes
Max number of online users	10 simultaneous users
Multi IP address	Yes
Event Triggers	Audio / Network lost detection / Global Counter / Virtual Input / Metadata
Event actions	FTP / SMTP / HTTP post / SD card / SAMBA / Alarm Output / Push Service / Global Counter / Virtual Input
Log	Event & operation log
Schedule	Support holiday list
CPU, Memory	Embedded Quad-core ARM Cortex-A53 1.0GHz CPU, 2GB LPDDR4X, 8GB e.MMC memory
OS	Embedded Linux 4.9
Video Display	LILIN Universal ActiveX & HTML5
Maintenance	Firmware update via HTTP and IP Scan, available at web site
Languages	English, Traditional Chinese, Simplified Chinese, Russian, Italian, Hungarian, Korean, French, Turkish, Arabic, Spanish, Japanese
Ethernet	10BASE-T/100BASE-TX, RJ-45

Network Protocols	IPv4, TCP, UDP, HTTP, HTTPS, QoS, NTP, DDNS, FTP, ARP, DHCP, PPPoE, DNS, RTSP, RTCP, Telnet, ICMP, IGMP, SMTP, Multicast
Network Storage	NAS (Support SAMBA/CIFS)
PC Requirement	Intel® Core™ i7 or higher grade, Windows 7 or above, 8GB or above, Dedicated Graphics Card
Web browser	Microsoft® Internet Explorer® 9 or above, Microsoft® Edge (IE mode)
Mobile Application	Integrated to LILIN mobile app iPhone, iPad, Android support
Video Management	LILIN Navigator Enterprise 5.0 support, Third party VMS through LILIN HTTP API
SD Card Recording	Support Micro SD/SDHC/SDXC card for circular recording (card is not included)
SD Card Compatible List	Micron - 32GB,64GB,128GB,256GB,512GB, 1TB (SDXC, U1, C10) Transcend - 4GB SD,8GB SDHC,32GB SDHC C10,128GB SDXC C10 SanDisk - 8GB SDHC, 32GB, 64GB, 128GB SDHC C10 Kingston - 64GB SDXC C10
Audio Input / Output	Audio Input, Mono, 1.98 Vp-p , 2.2KΩ , RCA Jack
Audio	One-way Audio, G.711 u-law / AAC
Alarm Input / Output	Digital 1 Output (MOS Relay contact N.O., Load.max. 40VDC,450mW/300mA,450mW), Terminal block
Warranty	
(Warranty Period)	3 years
EDGE AI	
AI (Optional)	Person
Aida processing power capability	Aida power 1 / ch
Recognition speed (per server)	12 (640 * 480) recogs / sec / ch
Zone configuration	Detection zone for bed
Confidence rate	Configurable
Traffic object 100x100 pixels	200 x 200 Pixels
Behavior Detection	Person In-bed, person wake up, bed leaving, fall detection
Notification	SmartEvent triggering, FTP/SFTP, SMTP, HTTP/HTTPS post
3D Point Cloud	640 x 480 / 320 x 240 / 160 x 120 in PCD format
Measurement	Height, depth, distance in feet and meter

# Applications

## Logistics

ToF's anti-collision applications are the first to come in handy. In addition, ToF can detect the volume of objects and furthermore calculates the capacity of three-dimensional space to accurately evaluate the volume and loading time when moving goods, achieving efficient logistics.



## Smart Factory

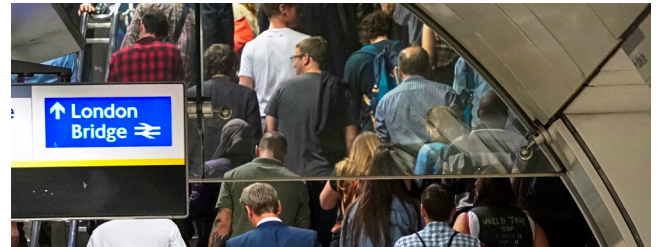
Through ToF detection, it is easy to find out which areas of the factory are "crowded" and which spaces are "unused". This helps in task assignment or managing the distribution of personnel and robots.

ToF can also detect intrusion of objects in the vacant areas and trigger other alarms.

## People density of public area

In a crowded area, it is difficult for 2D cameras or AI cameras to cope with a large number of people and the performance will be tight. In addition, overlaps between people on the screen also affect the recognition rate.

The operation principle of ToF makes it easier to carry out such applications, such as pedestrian control in airports, stations, or public space.



## Human Behavior Detection

Since ToF can accurately detect people's posture, it also helps determine people's behavior.

For example, when a customer bends down to examine the items on the shelf in a store, it can become an event for operational reference.

## Smart Agriculture and Forestry

Livestock feed stocks, animal body volumes, and orchard crop thickness or sparseness are all reliable and useful information for automated harvesting or farming.

Counting is also a common application for ToF, and it is an ideal terminal device for any task that requires fast and accurate volume or quantity detection.



## Civil engineering

Heavy machinery has a higher-risk factor, hence more immediate alarms and event triggers are required to prevent accidents. The ToF provides additional precautions in construction sites with limited personnel by triggering events linked to construction machines during operation.

ToF can also detect the volume of earthwork, which is ideal for calculating the rate of infrastructure erection on a construction site.

## Medicalcare

ToF camera accurately detects movement without revealing the patient's face or other details of the body, helping to alert healthcare professionals to the patient's behavior and reducing the patient's sense of "being watched" to avoid psychological stress.

For example, when a patient gets up from bed or shakes as if he is about to fall, the ToF can detect abnormalities more quickly and help healthcare workers quickly react.

