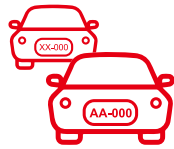


# LILIN Aida Intelligent Traffic Management Solutions

LILIN AIDA software offers object classification and identification technology, paired with a wide range of behavior detection. These technologies cooperate to offer deep integration to traffic systems for intelligent monitoring solutions.

## AIDA AI Models



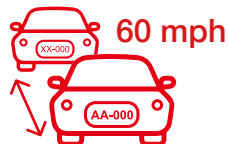
Multi-lane and high-speed detection



Traffic objects and flow detection



Parking space counting



Average speed estimation



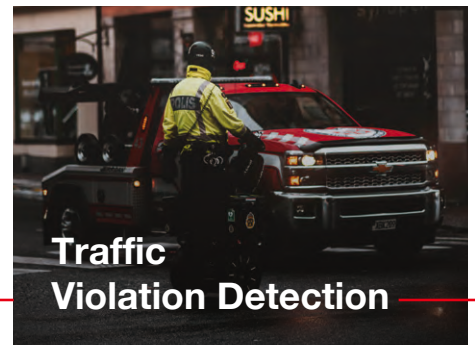
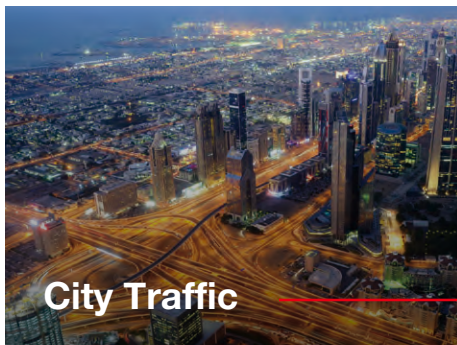
Traffic violation detection



Customized reports



# Key Vertical Applications



## Aida Traffic Management Solution

### City traffic flow monitoring

1. Detect multiple objects, including pedestrians, bicycles, motorbikes, cars, pickups, trucks, busses, trailers, and other vehicles.
2. Gain statistical insight to real-time traffic patterns and moving violations.
3. Utilize simple and effective traffic queuing detection for traffic management and optional alarm notifications.



### Parking violation detection

1. Identify vehicles and detect parking violations.
2. Set up restricted zones, and detect 'stay time' of vehicles that enter those zones.
3. Trigger recording / send snapshots with ANPR and vehicle identification when violations are detected.

## Parking space counting

1. Analyze the number of parking spaces in a given area.
2. Visualize data using Navigator client.



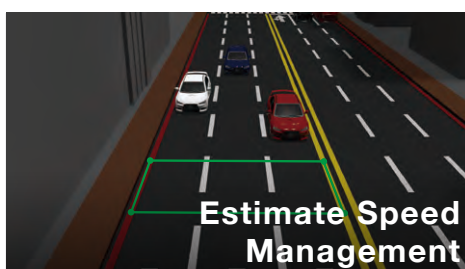
## Traffic violation detection

LILIN AIDA intelligent traffic solutions can immediately detect traffic violations and notify the appropriate party or governmental department. Some examples include:

1. Detect a freight truck driving in a restricted zone / lane.
2. Count motorcycles driving on highway lanes.
3. Detect vehicles running red lights, making illegal u-turns, etc.

## People and car counting

1. Keep track of building or area capacity.
2. Track foot traffic patterns, stay time, and more.



## Estimate speed management

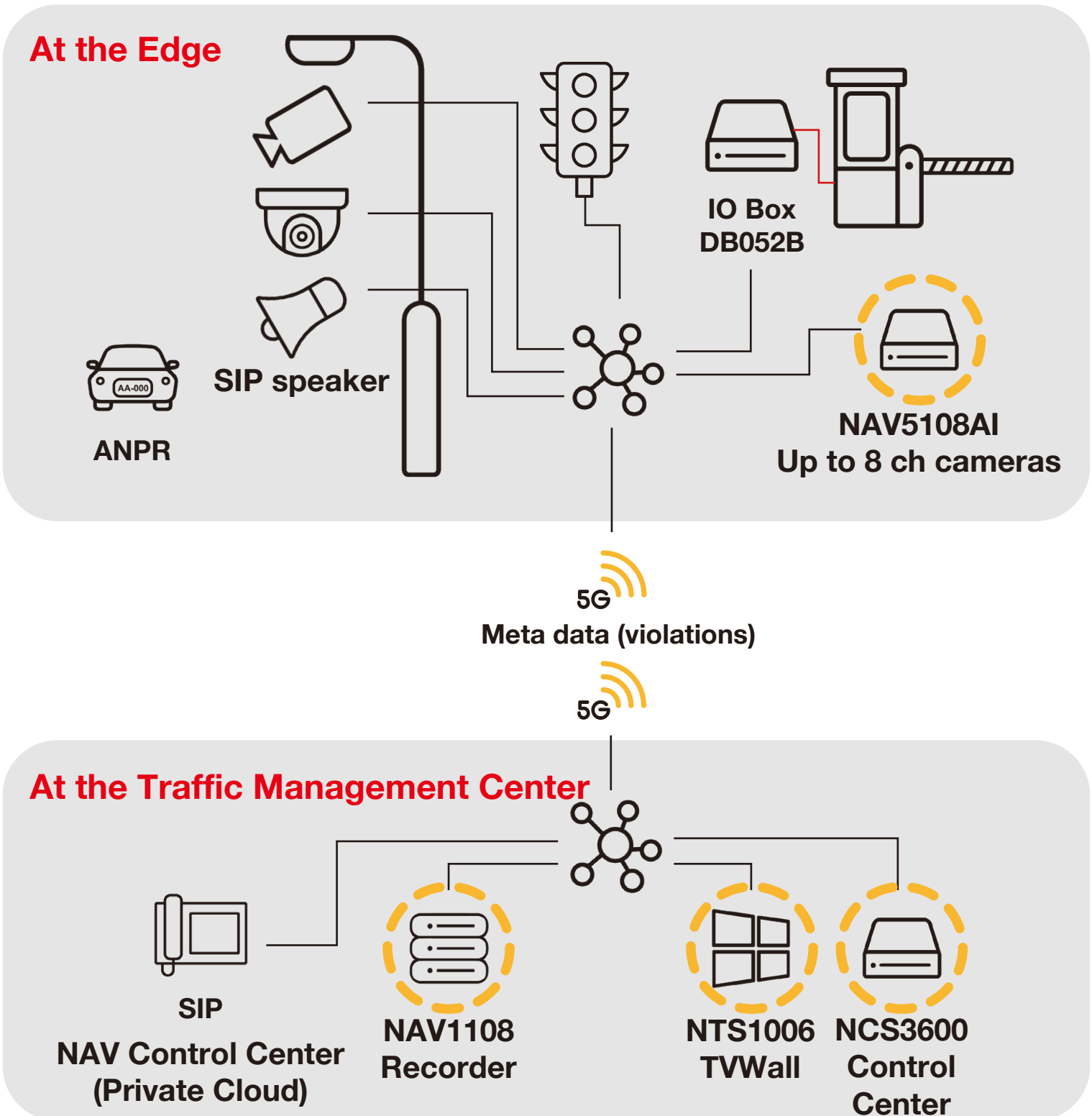
1. Estimate the average speed of vehicles through a given area.
2. Provide output for highway route ETA signage.

# Aida Power Recognition

Item	Aida power/Channel
License plate recognition (Parking)	1 Aida power
License plate recognition (Freeway)	2 Aida power
Traffic objects recognition	2 Aida power

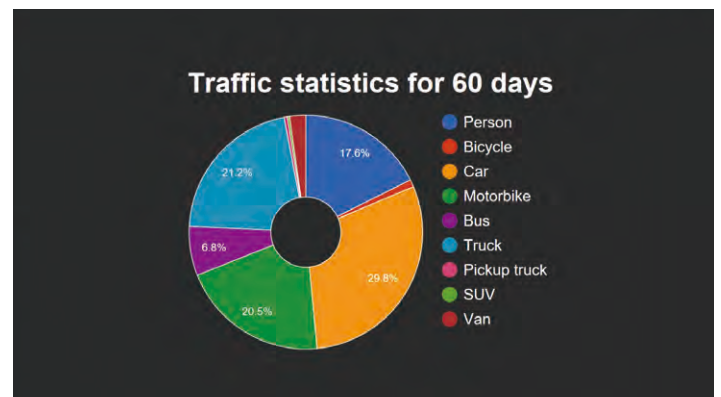
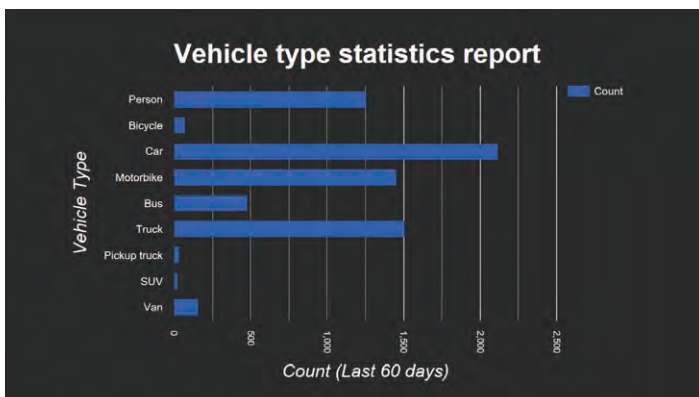
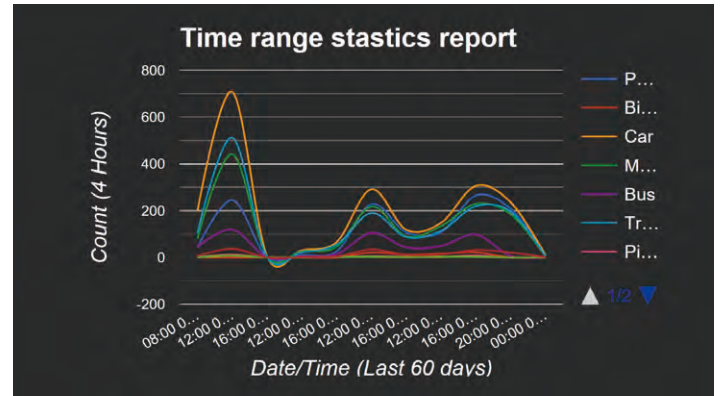
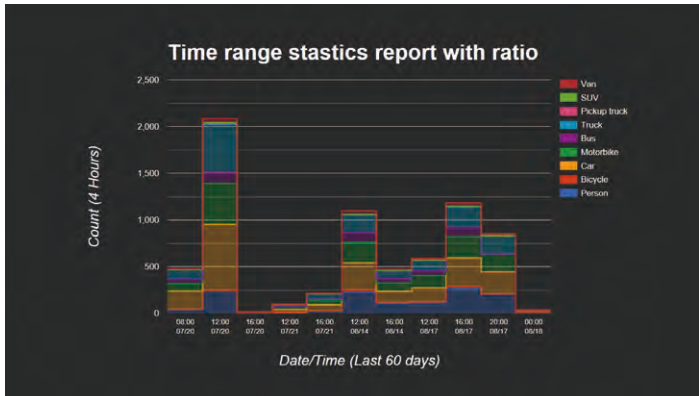
\*Aida power: Software unit for calculating hardware performance

## Aida Traffic Management Architecture Diagram



# Statistical Chart

1. Support vehicle types and demonstrate statistical graphs by time interval.
2. Support statistics chart of violation events.
3. Support hourly, 7 days, 30 days and 60 days interval to count several intersections.
4. Support line graph, pie graph and stride rate chart.



# AIANPR Aida license plate recognition

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The image visual recognition technology of traditional license plate recognition is on the 2D plane, and the object induction is too divergent to be accurately recognized. LILIN Aida license plate recognition develops object classification and identification technology by AI technology. Its recognition rate is up to 99.6%, and it can be accurately recognized even at high speed and multiple lanes. It also supports license plate recognition of super-inclined installation angles, multinational license plate recognition, and multi-color license plate recognition, and provides real-time analysis and alarm system, effectively helps governments to conduct smart traffic management.

## Aida license plate recognition

### Functions

Product code	AIANPR
Aida identity performance requirement	2 Aida power
Recognition speed	166 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Maximum object recognized in a frame	4 number plates / frame
Lane restriction	The number of lanes with unlimited recognizable range, the license plate width must be greater than 100 pixels
Recognition zone	4 zones
AI recognition resolution requirement	Plate width over 100 pixels
Object size filter	Supported
License plate background filter	Exclusive patent* Precisely recognize the number in license plate, filter the background text
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian
Country supported	Taiwan, Australia, Austria, Belgium, Italy, Croatia, France, Turkey, Germany, UK, Indonesia(support states), Japan(support city), Saudi Arabia, UAE, Iran, Iraq, Oman, Dubai, Malaysia, Hong-Kong, Macau, Vietnam, Singapore, USA 50 states, Guam, and Puerto Rico, India/Nepal,Thailand(support states)
Vehicle detection speed	200kmh/125mph
Recognizable license plate color	White on black, Yellow on black, Green on black, Black on White, Red on white, White on red, Green on white, White on green
States / provinces	USA, Middle East, Japan, Indonesia
Inclination angle of license plate	Tilt angle is less than 15 degrees
Camera installation angle	the angle of depression is less than 30 degrees downward, and the left and right sides need to be less than 30 degrees
Support "-" recognition for plates	Supported
Support OSD unicode for license plate	Supported
NAV detection area	Configurable
NAV the length of plate digits	Configurable
NAV exclusion list	Configurable
NAV smart search and playback	Support fuzzy comparison
NAV snapshots and playback	PIP and OSD text overlay
NAV alarm management on detection	Full screen alarm popup after plate is recognized, PC audio alarm, trigger IPC digital output(DO), send email notification, PTZ preset, LILIN IOBOX digital output, alarm snapshot and digital output LILIN notify manager
Support denial and allowed list	Supported
Support plate group creation	125 group
Alarm popup on e-map	Supported
License plate recognition schedule	Supported
Integration with access control system (optional)	Supported
License plate group import and export	Supported
Central management	Supported
Recognition report export	CSV file

### Exclusive value-added program (optional)

Can display multiple license plate recognized	Support 128 license plate server recognition and real-time display
Can do batch import of license plate group	Supported
Column type license plate recognition display	Time, name, channel, drive license plate group, recognition result, image thumbnail
Video capture	Supported
Video file download	Supported
Multiple license plate search	Supported
Car plate search mode	Start-stop times, NAV group, completed drive license plate, fuzzy search and end of license plate search

### Alarm notification

HTTP post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
HTTP	16
HTTPs push notification with JPEG snapshot	16
Digital output	Controllable via IP cameras or LILIN Network I/O Box

### System requirements

Suggested CPU	Intel® i7 or above
External graphic card	Intel® HD Graphics 630 or above
CPU	PMH-XM2280 or above
GPU	Intel® Movidius™ NCS2 or above
GPU	NVidia 1050 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC

\*Exclusive patent number: I702547

# AIFLOW Aida traffic flow management

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LILIN Aida traffic flow management precisely detects multiple objects, such as pedestrians, bicycles, cars, motorbike, bus, truck, trailer, TUK TUK, and pickup truck detection. Manage traffic flows in real-time and sends alarm notifications when traffic congestion is detected, effectively diverting city traffic. Besides, utilizing the NAV Client management system to obtain big data report.

## Aida traffic flow management

### Functions

Product code	AIFLOW
Aida identity performance requirement	2 Aida power
Recognition speed	250 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Support AI engine	Traffic management
Maximum objects recognized in a frame	24 objects / frame
Zone configuration	4 zones / per channel
Recognition resolution requirement	Recognize object size 100x100 pixels or above
Object size filter	Supported
Object type filter	Supported
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian

### Traffic flow management

Object recognition	Bicycle, car, motorbike, bus, train, truck, TUK TUK, pickup truck, fire engine, container, VAN, SUV, person, traffic light
Traffic light identification	Supported
Behavior counter	64 counter for behavior detection and cross channel
Recognition area selection	Support rectangle and four corners to move randomly to circle the identification area
Behavior detection	Traffic flow count, such as go straight, turn left, turn right, reverse detection, queue detection

### Statistics and counter reports

NAV statistics report	Vehicle flow, vehicle types, people counting, behavior counting, and color counting
NAV statistics report type	Web based pie chart, bar chart, and line chart JPEG snapshot supported
NAV statistical chart interval	7 days, 30 days, 60 days
NAV statistics summary	Camera, object classification, behavior summary report
NAV counter	Support warning line, warning area and alarm notification
Statistical report output	CSV file

### Alarm notification

HTTP post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
HTTP	16
HTTPs push notification with JPEG snapshot	16
Support Line notification	IFTTT
Digital output	Controllable via IP cameras or LILIN Network I/O Box
LILIN LED display	Supported

### System requirements

Suggested CPU	Intel® i7 or above
External graphic card	NVidia 2060 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC

# AIAREA Aida parking violation solution

www.meritlilin.com



LILIN Aida parking violation solution integrates the AI vehicle detection system and the alert area to accurately detect parking violations. Detect no-parking areas including hospitals, airports, schools, bus stations, etc. Besides, it also provides snapshots and recording to help government conduct the law enforcement.

## Aida parking violation solution

### Functions

Product code	AIAREA
Aida identity performance requirement	2 Aida power
Recognition speed	250 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Support AI engine	Traffic management
Maximum objects recognized in a frame	24 objects / frame
Zone configuration	4 zones / per channel
Recognition resolution requirement	Recognize object size 100x100 pixels or above
Object size filter	Supported
Object type filter	Supported
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian

### Parking violation solution

Object recognition	Bicycle, car, motorbike, bus, train, truck, TUK TUK, pickup truck, fire engine, container, VAN, SUV, person, traffic light
Traffic light identification	Supported
Behavior counter	64 counter for behavior detection and cross channel
Violation timer	64
Recognition area selection	Support rectangle and four corners to move randomly to circle the identification area
Behavior detection	Traffic flow count, such as go straight, turn left, turn right, reverse detection, queue detection

### Statistics and counter reports

NAV statistics report	Vehicle flow, vehicle types, people counting, behavior counting, and color counting
NAV statistics report type	Web based pie chart, bar chart, and line chart JPEG snapshot supported
NAV statistical chart interval	7 days, 30 days, 60 days
NAV statistics summary	Camera, object classification, behavior summary report
NAV counter	Support warning line, warning area and alarm notification
Statistical report output	CSV file

### Alarm notification

HTTP post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
LILIN LED display	Supported
HTTP	16
HTTPs push notification with JPEG snapshot	16
Support Line notification	IFTTT
Digital output	Controllable via IP cameras or LILIN Network I/O Box

### System requirements

Suggested CPU	Intel® i7 or above
External graphic card	NVidia 2060 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC



# AIVIO Aida traffic violation

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LILIN Aida traffic violation can detect traffic violations in real-time, such as running red traffic lights, wrong-way detection, no U-turn, no left turn detection, the truck violation for entering a city, and motorbike freeway entering detection. Effectively help government conduct the law enforcement.

## Aida traffic violation

### Functions

Product code	AIVIO
Aida identity performance requirement	2 Aida power
Recognition speed	250 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Support AI engine	Traffic management
Maximum objects recognized in a frame	24 objects / frame
Zone configuration	4 zones / per channel
Recognition resolution requirement	Recognize object size 100x100 pixels or above
Object size filter	Supported
Object type filter	Supported
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian

### Aida traffic violation

Object recognition	Bicycle, car, motorbike, bus, train, truck, TUK TUK, pickup truck, fire engine, container, VAN, SUV, person, traffic light
Traffic light identification	Supported
Behavior counter	64 counter for behavior detection and cross channel
Behavior Timer	64
Recognition area selection	Support rectangle and four corners to move randomly to circle the identification area
Violation detection	Detect traffic violations based on vehicle type and identification of traffic lights after triggering, such as running red traffic lights, wrong way detection, no U-turn, no left turn detection and red light right turn violation.

### Statistics and counter reports

NAV statistics report	Vehicle flow, vehicle types, people counting, behavior counting, and color counting
NAV statistics report type	Web based pie chart, bar chart, and line chart JPEG snapshot supported
NAV statistical chart interval	7 days, 30 days, 60 days
NAV statistics summary	Camera, object classification, or behavior summary report
NAV counter	Support warning line, warning area and alarm notification
Statistical report output	CSV file

### Alarm notification

HTTP post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
LILIN LED display	Supported
HTTP	16
HTTPs push notification with JPEG snapshot	16
Support Line notification	IFTTT
Digital output	Controllable via IP cameras or LILIN Network I/O Box

### System requirements

Suggested CPU	Intel® i7 or above
External graphic card	NVidia 2060 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC

# AISPC Parking space counting solution

www.meritlilin.com



LILIN Aida parking space counting solution effectively analyzes the number of parking spaces in each area. Besides, utilizing the NAV Client management system to obtain big data report.

## Parking space counting solution

### Functions

Product code	AISPC
Aida identity performance requirement	2 Aida power
Recognition speed	250 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Support AI engine	Traffic management
Maximum objects recognized in a frame	24 objects / frame
Zone configuration	4 zones / per channel
Recognition resolution requirement	Recognize object size 100x100 pixels or above
Object size filter	Supported
Object type filter	Supported
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian

## Parking space counting solution

Object recognition	Bicycle, car, motorbike, bus, train, truck, TUK TUK, pickup truck, fire engine, container, VAN, SUV, person, traffic light
Traffic light identification	Supported
Behavior counter	64 counter for behavior detection and cross channel
Recognition area selection	Support rectangle and four corners to move randomly to circle the identification area
Parking detection	Can detect the vehicle whether in the current parking space and counting according to vehicle types.

## Statistics and counter reports

NAV statistics report	Vehicle flow, vehicle types, people counting, behavior counting, and color counting
NAV statistics report type	Web based pie chart, bar chart, and line chart JPEG snapshot supported
NAV statistical chart interval	7 days, 30 days, 60 days
NAV statistics summary	Camera, object classification, or behavior summary report
NAV counter	Support warning line, warning area and alarm notification
Statistical report output	CSV file

## Alarm notification

HTTP post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
HTTP	16
HTTPs push notification with JPEG snapshot	16
Support Line notification	IFTTT
Digital output	Controllable via IP cameras or LILIN Network I/O Box
LILIN LED display	Supported
Multi-camera and multi-area vehicle vacancy guidance	LILIN LED display
Multiple cameras and multiple entrances and exits traffic flow display	LILIN LED display

## System requirements

Suggested CPU	Intel® i7 or above
External graphic card	NVidia 2060 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC

# AICAP People and car counting

www.meritlilin.com



LILIN people and car counting for premises' capacity solution effectively analyze the capacity of humans and cars in a premises area and provide traffic flow statistics for the control of traffic signals.

## People and car counting

### Functions

Product code	AICAP
Aida identity performance requirement	2 Aida power
Recognition speed	250 ms
Support image import	LILIN IP Cam , ONVIF IP Cam, RTSP, DHD, NVR, AVI video file
Support AI engine	Traffic management
Maximum objects recognized in a frame	24 objects / frame
Zone configuration	4 zones / per channel
Recognition resolution requirement	Recognize object size 100x100 pixels or above
Object size filter	Supported
Object type filter	Supported
Video resolution	1920 * 1080 or lower
User management with access rights	Three levels and multi-account
Recording	Navigator Corporate
Language supported	Traditional Chinese, English, Japanese, Italian

### People and car counting

Object recognition	Bicycle, car, motorbike, bus, train, truck, TUK TUK, pickup truck, fire engine, container, VAN, SUV, person, traffic light
Traffic light identification	Supported
Behavior counter	64 counter for behavior detection and cross channel
Recognition area selection	Support rectangle and four corners to move randomly to circle the identification area
People and car counting	Can count in and out of the recognition area independently of different objects. One channel supports 4 detection zones.

### Statistics and counter reports

NAV statistics report	Vehicle flow, vehicle types, people counting, behavior counting, and color counting
NAV statistics report type	Web based pie chart, bar chart, and line chart JPEG snapshot supported
NAV statistical chart interval	7 days, 30 days, 60 days
NAV statistics summary	Camera, object classification, or behavior summary report
NAV counter	Support warning line, warning area and alarm notification

### Alarm notification

HTTP Post notification	LILIN smart IO box(DB052E), LILIN LED display, third-party network device, or cloud
HTTP	16
HTTPs push notification with JPEG snapshot	16
Support Line notification	IFTTT
Digital output	Controllable via IP cameras or LILIN Network I/O Box
LILIN LED display	Supported
Multi-camera and multi-area vehicle vacancy guidance	LILIN LED display
Multiple cameras and multiple entrances and exits traffic flow display	LILIN LED display

### System requirements

Suggested CPU	Intel® i7 or above
External graphic card	NVidia 2060 4G or above
System memory	RAM 16G (recommended)
OS requirement	Windows 10 Enterprise SAC

### Exclusive value-added program (optional)

Global counter	Support multiple servers, multiple entrances and exits counting
WEB interface display	Supported
Statistics reports	Support multiple servers and multiple entrances to provide reports based on time
Multiple entry capacity display	Provide a WEB interface to display the multiple entry capacity

# NAV2400AI / NAV2800AI / NAV3400AI / NAV5108AI

## Aida ANPR Server

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Aida Server				
Model	NAV2400AI	NAV2800AI	NAV3400AI	NAV5108AI
LILIN Aida Servers' Performance	3 Aida power	5 Aida power	8 Aida power	16 Aida power
NAV input	Up to 4 channels 1080P	Up to 8 channels 1080P	Up to 4 channels 1080P	Up to 8 channels 1080P
Network video support	ONVIF Profile S, LILIN IP camera			
Network video Format	H.264 / H.265 / MJPEG			
Maximum Network Throughput	Upload: up to 500Mbps, Download: up to 500Mbps			
Split Screen	4	4, 9	4	4, 9
Dual stream technology (Video output)	Multi-channel displays D1 and full screen displays 1080P			
Multi-screen (Video output)	Dual-screen, maximum 4 channels			
Application/ Recording Mode	Alarm, motion, schedule, and manual			
Recording schedule	7 days x 24 hrs time table, recording mode configurable			
Recording speed	Maximum 1080p@120 fps, and ROI recording supported			
Recording Resolution	1920 x 1080, 1280 x 1024, 1280 x 768, (720 x 480 / 720 x 576), 320 x 240			
Alarm recording	AI event trigger, license plate recognition, remote alarm input, remote motion/ tripwire detection, remote tamper detection, audio detection, external IO device, motion detection, NAV alarm input command, video loss detection for alarm input to trigger recording			
Playback Search	Facial recognition search, time search, event search, date search, plate search, POS SmartSearch, motion SmartSearch, record tagging, AI event search			
Playback Resolution	1920 x 1080, 1280 x 1024, 1280 x 768, (720 x 480 / 720 x 576), 320 x 240			
Video speed	Maximum 1080p@120 fps			
Playback Speed	FR: 1/8, 1/4, 1/2, 1X, 2X, 4X, 8X, 16X 32X. FF: 1/8, 1/4, 1/2, 1X, 2X, 4X, 8X, 16X, 32X			
Backup / Video input	Maximum 4 channels, AVI file format supported	Maximum 8 channels, AVI file format supported	Maximum 4 channels, AVI file format supported	Maximum 8 channels, AVI file format supported
Digital output	Play sound, send letter, PTZ preset, send DO signal, single alarm screen, post-alarm record, pre-alarm record, advanced alarm output, alarm ACK, alarm capture image, text watermark, APP cloud notification.			
Alarm recording(Alarm / event)	Pre-alarm: 1 – 10 seconds and post-alarm: 1 sec – 59 minutes			
Alarm event actions	Various alarm log including video loss, stop recording, schedule, logon, operation log			
Alarm schedule	Controllable via IP cameras			
Video archiving & sync.	Individual camera configurable, scheduling and instant archiving			
Audio	PCM, two-way audio, audio recording			
Protocols	ARP, TCP/IP, HTTP, SMTP, DNS, PPPoE, ONVIF, RTSP			
Mobile phone	LILINViewer, iPhone and Android			
IP Scan	Supported, easy-to-setup for IP address			
VMS support	Supported NAV Client VMS software			
eMap	Supported			
CPU	Intel® Core™ i7-8700	Intel® Core™ i9-9900K	Intel® Core™ i7-8700	Intel® Core™ i9-9900K
RAM	16GB (2xDDR4 8GB)			
Chipset	Intel® HD Graphics 630		1 x GTX1650-O4G	1 x RTX2060 SUPER 8GB
HDMI output	1 x HDMI Port, (4096 x 2160@24Hz)	1 x HDMI Port, (4096 x 2160@24Hz)		
DVI/VGA output	N/A		1 x DVI-D Port, (1920 x 1080@60Hz)	N/A
DisplayPort output	1 x DisplayPort, (4096 x 2304@60Hz)		1 x DisplayPort, (4096 x 2304@60Hz)	3 x DisplayPort, (4096 x 2304@60Hz)
Audio (Hardware)	5 x Audio jack(s), 1 x S/PDIF			
USB port	Front panel: 2 x USB 2.0 Rear panel: 3 x USB 3.1 Gen 1, 1 x USB 3.1 Gen 1 (blue) USB Type-CTM, 2 x USB 3.1 Gen 2			
System FAN	2 x 60mm rear exhaust fans	1 x 60mm rear exhaust fans, 1x80mm front exhaust fans		2 x 120mm rear exhaust fans, 2 x 80mm front exhaust fans
SSD HDD	1 x SATA 500GB SSD (OS System), 1 x SATA 1TB HDD (recording), Max. support 2 x 3.5" SATA HDD			
WDT	NAV failover / NAV monitoring station			
Languages	Traditional Chinese, English, Spanish, German, French, Russian, Japanese, Portuguese, Italian, Simplified Chinese, Slovenian, Czech, Hungarian, Turkish, Arabic, Persian, Bengali, Vietnamese			
OS requirement	Windows 10 Enterprise SAC			
Power Consumption	500W Power Supply		700W Power Supply	
Power Supply	110V – 240V			
Operating Temperature	0°C – 60°C (32°F – 140°F)		10°C ~ 40°C(32°F ~ 104°F)	
Storage Temperature	-20°C – 80°C (32°F – 176°F)		0°C ~ 70°C(-4°F ~ 176°F)	
Relative Humidity	0% – 95% (non-condensing)		10% ~ 90% (non-condensing)	
Dimensions	88 (H) x 438 (W) x 451 (D) mm		132(H) x 425(W) x 509(D) mm	
Chassis	2U Chassis		3U Chassis	
Weight	9.52kg (21.00 lbs)		13kg (28.66 lbs)	
			17.1kg (37.69 lbs)	

Note: Please use 7200RPM WD Red Pro for non-RAID installation, WD Gold Enterprise HDDs for RAID installation, or other Enterprise HDDs.

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