



AUTOMATIC NUMBER PLATE RECOGNITION (HIGH SPEED)

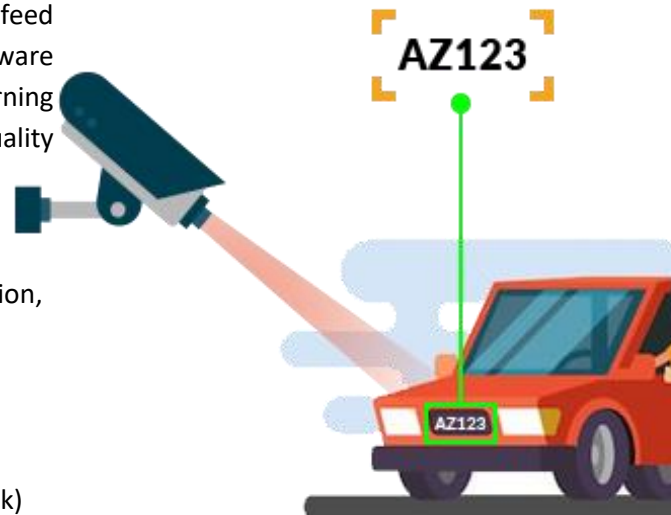
TECHNICAL DATASHEET

At a Glance

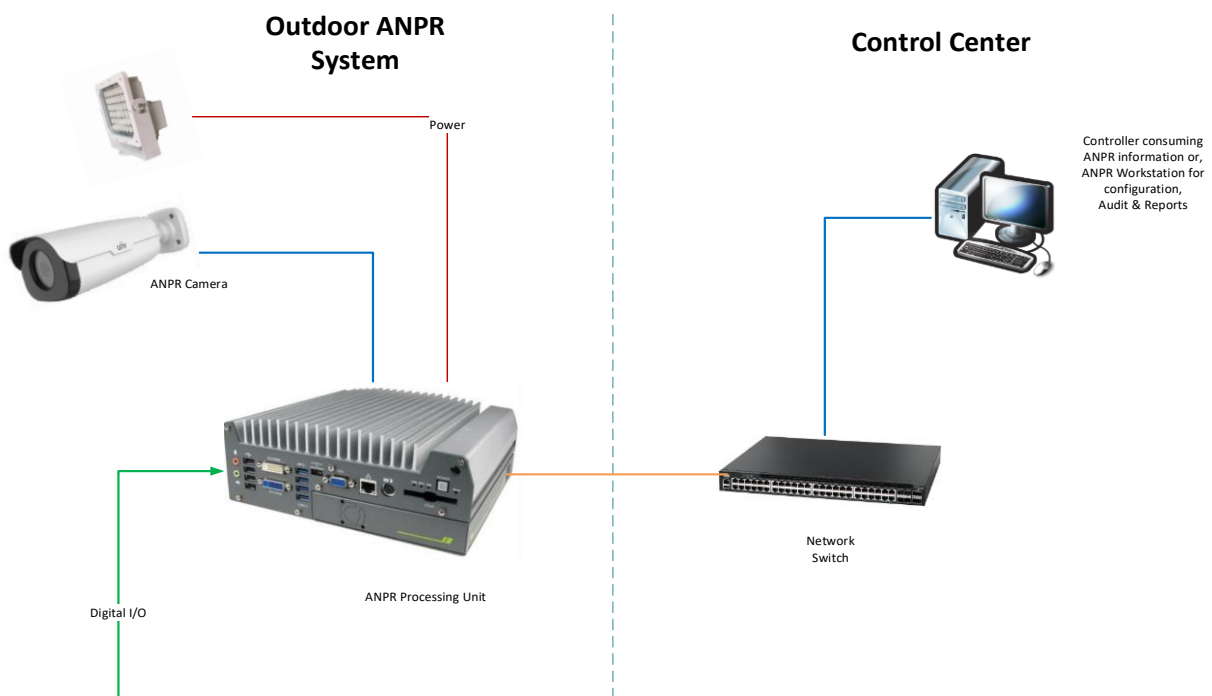
The Automatic Number Plate Recognition (ANPR) System tailored for high speed applications enable high-performance automatic detection and recognition of number plates in real-time by analysing live camera feed specifically for gantry locations. This AI-driven system combines hardware and software with sophisticated Computer Vision and Machine Learning technology to recognize vehicle number plate and collects high-quality images of number plates along with timestamps.

Key feature:

- Used for High-Speed Gantry scenario e.g. Section speed detection, RADAR triggered ANPR System, HSWIM integrated ANPR, etc
- Capture vehicle Number Plate at speeds beyond 120 Kmph
- Real time detection and recognition of number plates
- Recognition of two-line non-Standard Number Plates
- Optional Value Add: Recognise vehicle class (Car/Bus/LCV/Truck)
- Capture number plate along with the vehicle image
- Easy to integrate with 3rd party applications
- 24/7 operation and minimal maintenance



Typical ANPR Architecture



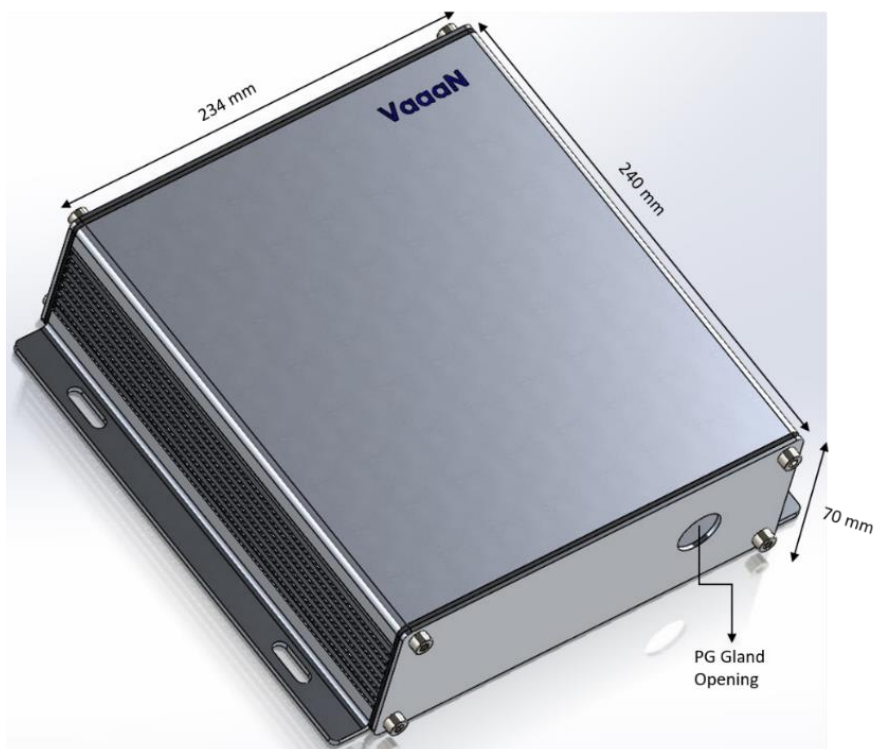
ANPR Typical Specification

Features and Performance	
Working Distance	Up to 8-40 m
Coverage	1 lane per unit
Typical Accuracy	Capture > 95% OCR > 85%
Plate Color	Recognizable at daytime or with adequate ambient during night
Camera	
Image Sensor	2 MP (1/1.8" CMOS), Max. 1920*1080
Lens	8~32mm @ F1.4, angle of view:42.5°~13.4°;
Frame rate	50Hz: 1920*1080@50fps 60Hz: 1920*1080@60fps
Supplement Light	3 LED supplement lights, 850 nm, angle: 40°
Streaming	RTSP
Communication Interface	1 RJ45 10M/100M/1000M self-adaptive Ethernet interfaces
Video Compression	H.265/H.264/MJPEG
Power Supply	DC 24V; Max. 15W
Operating Temperature	-30 °C to +70 °C (-22 °F to +158 °F)
Operating Humidity	5% to 95%@+40 °C (+104 °F), non-condensing
Protection Level	IP66
Controller	
GPU	NVIDIA Pascal™ architecture with 256 NVIDIA CUDA cores
	1.3 TFLOPS (FP16)
CPU	Dual-core Denver 2 64-bit CPU and quad-core ARM A57 complex
Memory	8 GB 128-bit LPDDR4
	1866MHz - 59.7 GB/s
Storage	32 GB eMMC 5.1
Connectivity	Wi-Fi onboard 10/100/1000 BASE-T Ethernet
Display	HDMI 2.0 / eDP 1.4 / 2x DSI / 2x DP 1.2
UPHY	Gen 2 1x4 + 1x1 OR 2x1 + 1x2, USB 3.0 + USB 2.0
Size (L x W x H)	240 mm x 234 mm x 70mm
Trigger Mode	
By Video	Continuous video analysis with automatic vehicle detection
By External Interfaces	I/O, RS-485, GPIO (triggered by external sources eg Magnetic Loop)

Supplement Light

Light type	IR light
Wavelength	≥850 nm (Infrared)
LED lamp beads	16
Colour Temperature	5000K-7000K
Angle of Light	40°
Effective Distance	16-25 m
Day and night function	Support automatic start-up at low illumination
Service Life	≥50000H
Power Supply	AC220V±20%, 47Hz~63Hz
Consumption	Max.36W
Operating Temperature	-40°C~+70°C
Operating Humidity	10%~90%, no condensation
Weatherproof rating	IP66
Dimension	128mm(D)×216mm(H)×159mm(W)

Dimensions



Typical ANPR Events

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DEP ANPR Sample Data






DL3CCQ3903

Transaction ID	55	Time Stamp	10:47:54
Lane ID	1	Plate Color	White
Location	Prahladpur	Plate Type	Standard

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DEP ANPR Sample Data


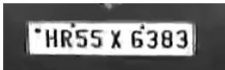
DL1LAC3720

Transaction ID	56	Time Stamp	10:48:13
Lane ID	1	Plate Color	Yellow
Location	Prahladpur	Plate Type	Standard

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DEP ANPR Sample Data


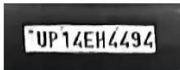
HR55X6383

Transaction ID	61	Time Stamp	22:24:42
Lane ID	1	Plate Color	Unknown
Location	Prahladpur	Plate Type	Standard

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DEP ANPR Sample Data

UP14EH4494

Transaction ID	62	Time Stamp	22:25:11
Lane ID	1	Plate Color	Unknown
Location	Prahladpur	Plate Type	Non-Standard

AUTOMATIC NUMBER PLATE RECOGNITION

SERVER BASED

TECHNICAL DATASHEET



At a Glance

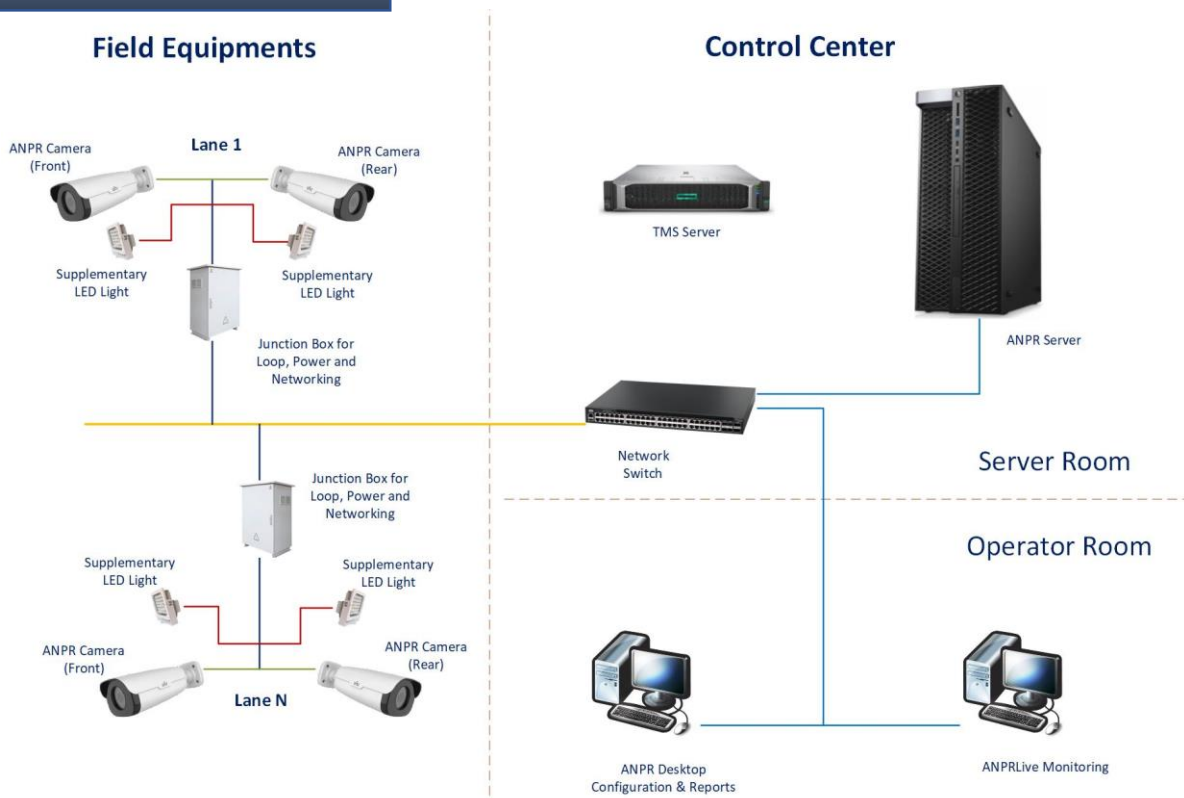
The server based Automatic Number Plate Recognition (ANPR) system is tailored for highway applications. It enables high-performance automatic detection and recognition of number plates in real-time by analysing live camera feed. This AI-driven system with sophisticated Computer Vision and Machine Learning technology to recognize vehicle number plate and collects high-quality images of number plates along with timestamps.

Key feature:

- Used for vehicle number plate detection & recognition which can be further utilized for various applications e.g., section speed detection, RADAR triggered for Spot Speed Detection, HSWIM integrated ANPR, etc
- Capture number plate along with the vehicle image, Real time detection and recognition (OCR) of number plates, Recognition of two-line & non-Standard Number Plates
- Value Adds: Recognise vehicle class (Car/Bus/LCV/Truck), Recognize Yellow/White number plate colour with light, Hot-list vehicle alarms, etc
- Easy to use Auditing & Reporting Modules
- Control room application integration for e-challaning, ICCC, Vahaan, etc
- Robust 24x7 operations, low maintenance



Typical ANPR Architecture



ANPR Typical Specification

Camera (Typical Specifications)	
Image Sensor	1/1.8" CMOS, Max.1920 * 1080
Lens	8~32mm @ F1.4, angle of view:42.5°~13.4°; 5.3~13mm @ F1.5~F2.8, angle of view: 85°~31°
Frame rate	1920*1080 @ 50fps
Supplement Light	3 LED supplement lights, 850 nm, Angle: 40°
Streaming Protocols	TCP/IP, HTTP, HTTPS, FTP, DNS, DDNS, RTP, RTSP, RTCP, NTP, IPv6, UDP
Video Compression	H.265 +/H.265/H.264 +/H.264/MPEG, Resolution: 1920x1080
System Compatibility	ONVIF (Profile S, Profile G, Profile T, Profile Q), API
Power Supply	DC 24V Max. 15 W
Protection Level	IP66
Operating Temperature	-30°C to +70°C
Operating Humidity	5% to 95%@+40 °C (+104 °F), non condensing
Supplement Light (Typical specifications)	
LED Type	15 pieces dot matrix array LED, SMT LEDs
Wavelength	850 nm
IR Range	150 meters
Angle of Light	15 – 30 degrees
Effective Distance	150 meters standard or, as per site conditions
Day and night function	Auto (built in photocell)
Environmental	IP 66
Power Supply	DC 12V / 24V / 48V PoE / AC 100-270V
Consumption	80 W
Operating Temperature	-50° to 60°C
Vandal Proof	IK10
EMC	CE, FCC
Dimension	180mm(L)x140mm(W)x120mm (H)
ANPR Server (Typical specifications)	
Processor	Intel Xeon Processor W-2295 18C 3.0GHz
Operating System	Ubuntu Linux 18.04
Memory	64GB 2x16GB DDR4 2933MHz RDIMM ECC Memory
Graphics	Nvidia Quadro RTX5000 16GB
Storage	3.5" 8TB 7200rpm SATA Enterprise Hard Drive
I/O Ports	USB 3.1 Gen 1 Type A (6); Serial (1); RJ45 Network (1); PS2 (2); Audio Line out (1); Audio Line in/Microphone (1)

Typical ANPR Reports



Duhai Toll Plaza EPE

ANPR Transaction Detail Report

Plaza Name :- Duhai Toll Plaza EPE
 Start date :- 17/11/2022 12:00 AM
 End date :- 17/11/2022 11:59 PM

Vehicle Class :- All
 Lane :- Lane5
 MOP :- All

Transaction Id	Source	Direction	Plate Image	Actual Image	ANPR Sequence	ANPR Plate Number	TC Plate Number	Class Name	MOP	Creation Date
403959	L5-P3	North-South			217781	RJ32GB9790	HR26EQ4099	Undefined	ETC	11/17/2022 9:04:25AM
403970	L5-P3	North-South			217782	HR26EQ4099	RJ32GC4595	Undefined	ETC	11/17/2022 9:05:36AM
403971	L5-P3	North-South			217784	HR38AB8708	HR38AB8708	Undefined	ETC	11/17/2022 9:05:58AM
403972	L5-P3	North-South			217785	DL9CAC8709	DL9CAC8709	Undefined	ETC	11/17/2022 9:07:02AM
403973	L5-P3	North-South			217785	DL9CAC8709	DL9CAC8709	Undefined	ETC	11/17/2022 9:07:12AM
403974	L5-P3	North-South			217786	UP14CL6296	UP14CL6296	Undefined	ETC	11/17/2022 9:07:21AM



Duhai Toll Plaza EPE

ANPR Transaction Detail Report

Plaza Name :- Duhai Toll Plaza EPE
 Start date :- 17/11/2022 12:00 AM
 End date :- 17/11/2022 11:59 PM

Vehicle Class :- All
 Lane :- Lane5
 MOP :- All

Transaction Id	Source	Direction	Plate Image	Actual Image	ANPR Sequence	ANPR Plate Number	TC Plate Number	Class Name	MOP	Creation Date
404088	L5-P3	North-South			218511	UP12AT873	UP12BT7125	Undefined	ETC	11/18/2022 12:53:55AM
404089	L5-P3	North-South			218513	UP12BT4874	UP12BT4874	Undefined	ETC	11/18/2022 12:54:19AM
404070	L5-P3	North-South			218513	UP12BT4874	UP12BT4874	Undefined	ETC	11/18/2022 12:55:21AM
404071	L5-P3	North-South			218514	UP14KT08232	UP14KT08232	Undefined	ETC	11/18/2022 12:55:47AM
404072	L5-P3	North-South			218516	UP14KT9203	UP14KT9203	Undefined	ETC	11/18/2022 12:57:56AM
404073	L5-P3	North-South			218516	UP14KT9203	UP14KT9203	Undefined	ETC	11/18/2022 1:06:39AM



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