

MTEKVISION's DSM

(Driver State Monitoring, 智能驾驶员状态分析预警设备)

May 2019

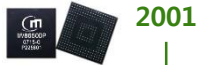
01 Overview

Company Name	Mtekvision Co., Ltd.
CEO	Sungbeum Kang
Est.	26 th Jan. 1999
HQ	Pangyo-ro 255beongil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13486, Rep. of KOREA
Capital	USD 3.5M
Product Domain	Semiconductor(CSP, Recognition Processor, ASIC) / CDR / DSMS / IoT Device
Business Territory	Consumer / Industrial / Automotive / Software Design Service

02 History - imaging technology for 21 years, DSM for 7 years

Business Preparation (1999-2001)

WW 1st Mobile VGA camera processor(MV303) launch



2001

Business Realization at Cellular Market (2002-2009)

1st MMP(MV8601) launch in KOR
1st CSP(MV9311) launch in KOR
Listed on KOSDAQ

2004



2002

1st 300K resolution CCP(MV305) launch in KOR



2008

Accumulative 300Mu shipment by Mobile IC



Business Transference (2010-2015)

Automotive platform launch
- CDR (Car Driving Recorder)
- DSMS (Driver State monitoring System)

2010



2011

1st Top-view camera IC shipment to Hyundai MOBIS in KOR



2015

Export DSMS to JPN market



2nd Business Preparation (2016-2018)

Vendor registration to HHI for Industrial IoT device

2016



2017

Launch Commercial vehicle DSMS



Business Realization at AI Camera platform (2019-2022)



Launch In-cabin camera platform for autonomous vehicles

2020

03 DSMS Ready Products

- ODM II - DSMS (Driver State Monitoring System)



Line-up

HVDSM (HD_Commercial)

USDSM (HD_Passenger)

Brief Specification

Operation Voltage	12/24 VDC
Recognition Distance	70±10Cm (Passenger Car) 100±10Cm (Commercial Car)
Option	GPS/Modem/Vibrator
Recognition Rate	95±5% (Sun/Glasses including)
Alarm Mode	Negligence/Drowsiness/Leave

Custom Design



VUEMATE II
(Dinalog_KOR)



AN-H030
(HORIBA_JPN)



AN-H030
(KEMEI_CHN)



VIVA7-7000
(Acecube_KOR)



VUEMATE III
(Dinalog_KOR)



Sleep X
(EVUE_KOR)

Common Design



For Commercial Vehicles

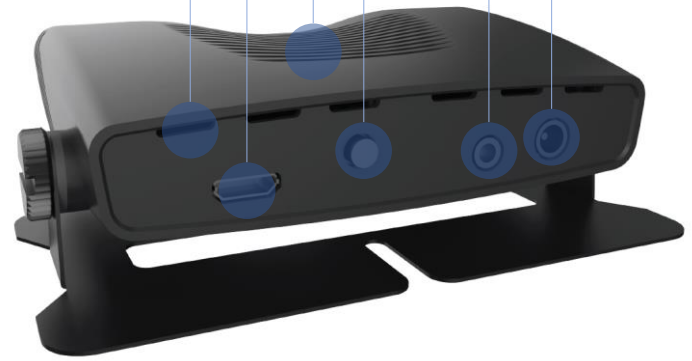


For Cars

Passenger Car



- Ventilation opening
- USB – viwer/firmware upgrade
- Ventilation opening
- Speaker Volume control
- GPS - Uart
- DC power



Commercial Car



05 Functions

Basic Function



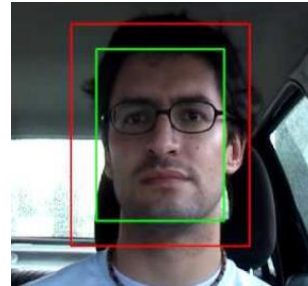
Fatigue



Distracted driving



yawning



Driver face recognition



Smoking



Mobile phone use

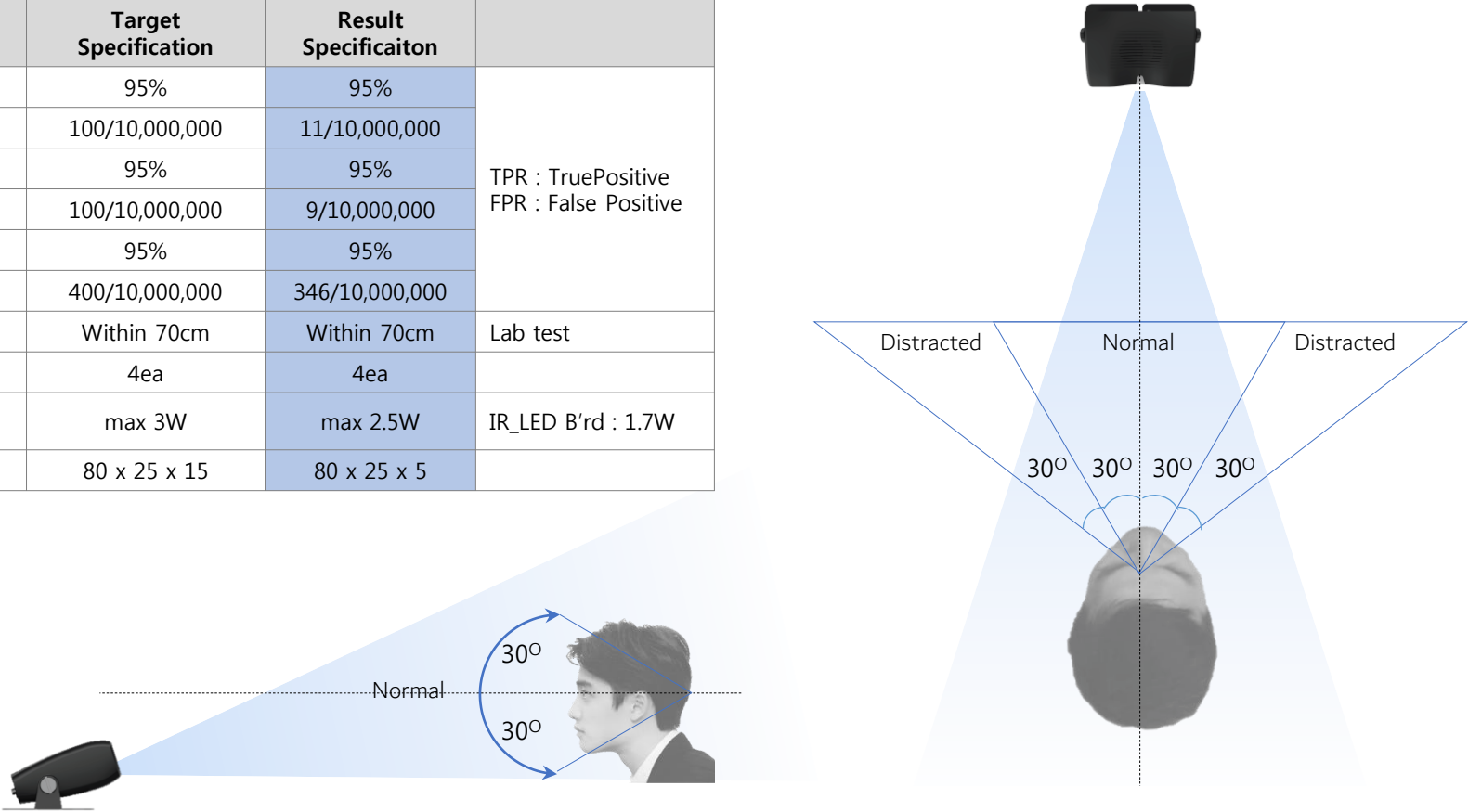


Government requirements

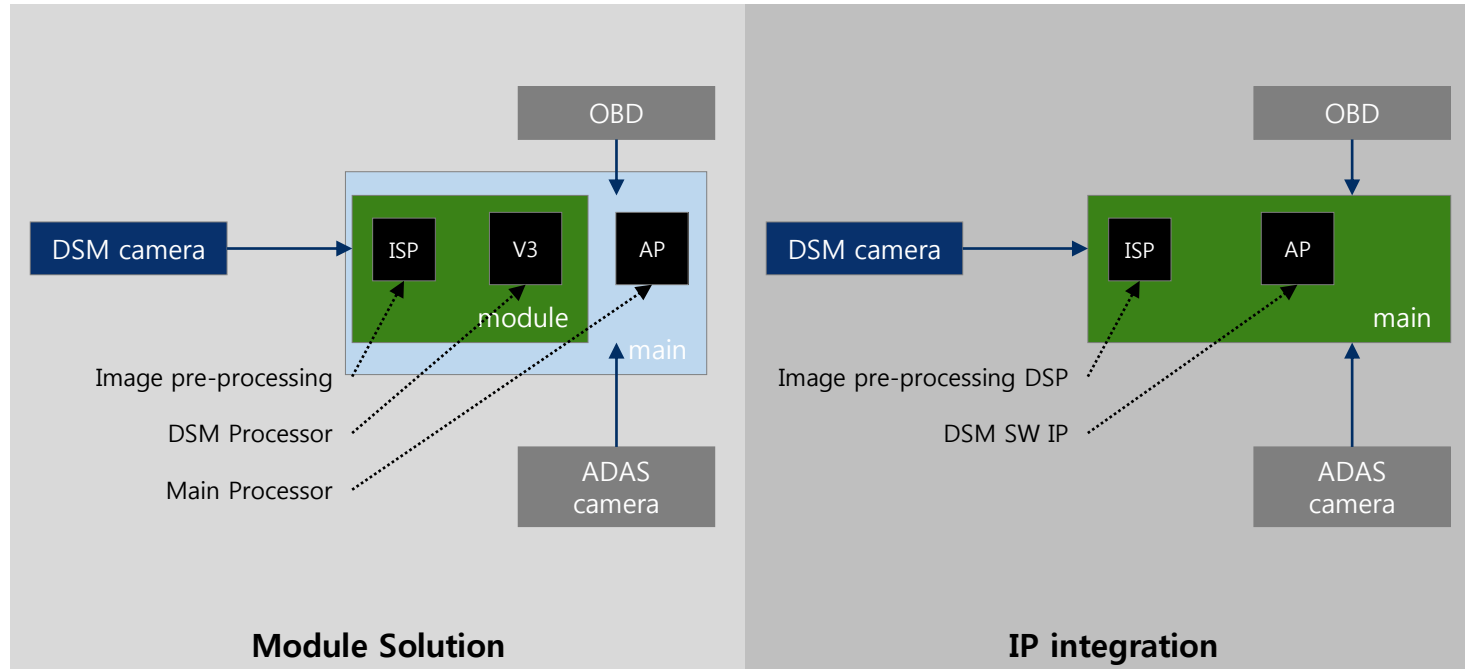


AI based recognition performance

ITEM		Target Specification		Result Specificaiton		
Software	Recognition Eye	TPR		95%	95%	TPR : TruePositive FPR : False Positive
		FPR		100/10,000,000	11/10,000,000	
	Recognition Fatigue	Open	TPR	95%	95%	
			FPR	100/10,000,000	9/10,000,000	
	Eye close	TPR	95%	95%		
FPR		400/10,000,000	346/10,000,000			
Hardware	Distance (cm)		Within 70cm	Within 70cm	Lab test	
	IR_LED(3W)		4ea	4ea		
	Power(W, 3.3V)		max 3W	max 2.5W	IR_LED B'rd : 1.7W	
	PBA size (mm)		80 x 25 x 15	80 x 25 x 5		



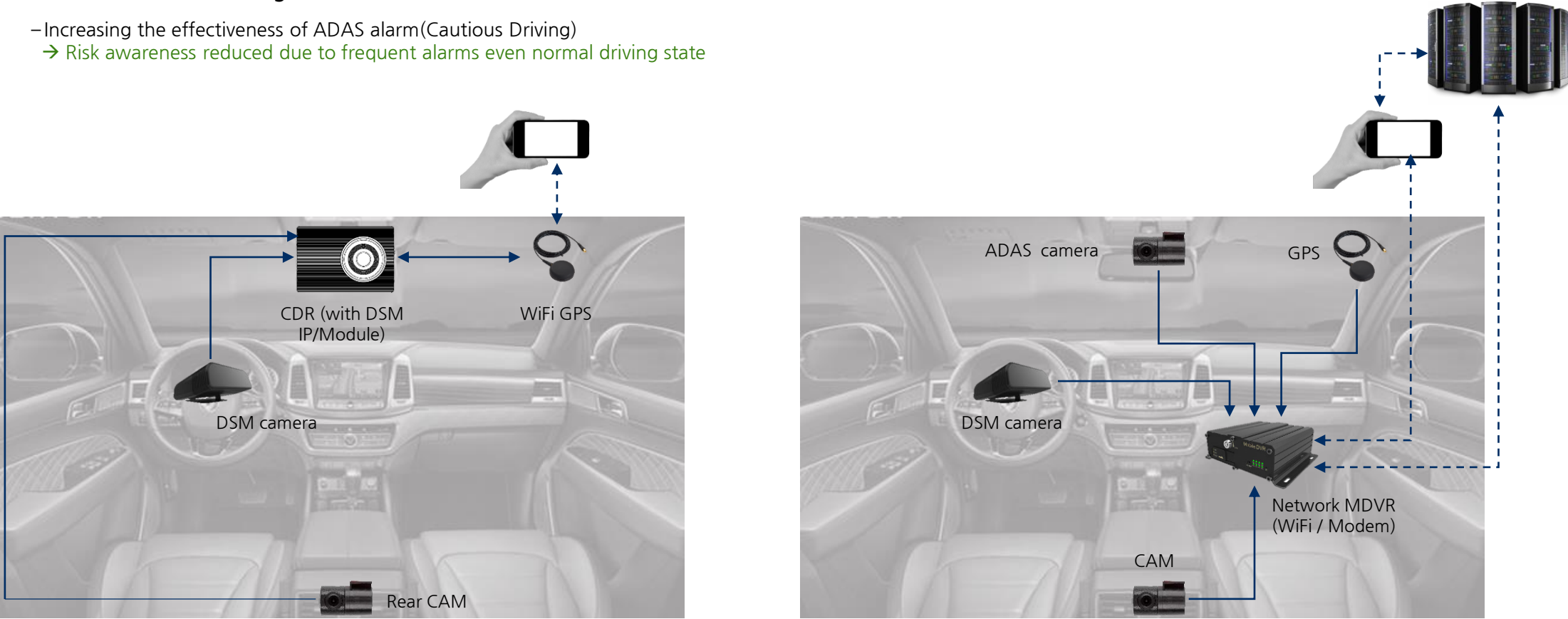
06 Module - IP Solution



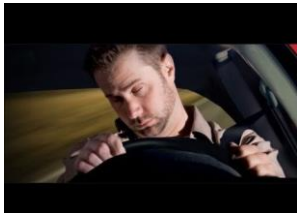
- 系统配置
- 1. DSM Camera
 - Sensor(M社), LED, Lens
- 2. Main part
 - V9351 (M社), AHD receiver
- 3. S/W IP (M社)
- 4. Reference Circuits

07 Safety Convergence Platform

- DSMS - ADAS Convergence
 - Increasing the effectiveness of ADAS alarm (Cautious Driving)
 - Risk awareness reduced due to frequent alarms even normal driving state



08 Roadmap : In cabin Safety



Fatigue



Distracted driving



yawning



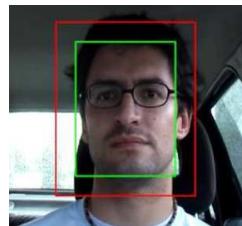
Eye tracking



Smoking



Mobile phone use



Driver face recognition



Embedded Deep learning

Embedded Deep learning

09 Major Customers

IC

CDR / DSMS

IoT & Etc.

Thank you

Mtekvision Co., Ltd.

Add. 6F, C's Tower, 58, Pangyo-ro 255beongil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13486, Rep. of KOREA

Sales Contact

Tel. +82-31-627-0100

Fax. +82-31-627-0199

Email. bizk@mtekvision.com