oToBrite
歐特明電子

創新視覺AI實現交通事故歸零
Achieving Vision Zero through Vision-AI

全方位ADAS解決方案

Comprehensive ADAS solutions for passenger vehicles, commercial vehicles and two-wheelers

乘用車/商用車/二輪車

關於歐特明
About oToBrite

歐特明成立於2013年，是一家以視覺 AI為核心的先進駕駛輔助系統/自動駕駛解決方案領導廠商，研發及生產基地位於台灣新竹科學園區，具有多年車廠一階供應商經驗及IATF 16949認證無塵室工廠，透過全方位技術研發能力提供視覺 AI 算法、ECU/域控制器及車規相機模組產品。

Founded in 2013, oToBrite is a leading vison-AI ADAS/AD solutions provider. Based in Hsinchu Science Park, oToBrite has IATF 16949 certified clean room factory and many years of experience as an automotive Tier-1 supplier. Through comprehensive research and development capabilities, oToBrite provides vision-AI algorithm, ECU/domain controller and automotive-grade/special purpose camera products.

生產基地
Production base

歐特明無塵室工廠擁有IATF16949及多家車廠認證，透過自行研發的主動式5/6 軸調焦先進技術，可快速擴充產能，並能同時應付大量生產及少量多樣的客戶需求，搭配製造執行系統 (MES) 綁定各工作站，實現高直通率及低耗損率的高品質生產效能。

oToBrite has a clean room factory with IATF16949 certification and qualified by several car OEMs. Through advanced proprietary 5/6-axis active alignment technology, oToBrite can rapidly expand production capacity and has the flexibility to serve various customers no matter the scale of production. With manufacturing execution system (MES), oToBrite has achieved high-quality production efficiency with high first pass yield rate and low scrap rate.

客戶群 Customers

Car OEM / Business Partner

車集科技 · AUO · carmax · FOXTRON 鴻華先進科技 · GARMIN · 经纬恒润 JINGWEI HIRAIN · LUIS TECHNOLOGY · LUXGEN · MITSUBISHI MOTORS · CMC · XPENG · Qisda · ROSHO · TOYOTA · 總盈汽車

AD Ecosystem Partner

ADLINK LEADING EDGE COMPUTING · aetina · AXIOMTEK · AVerMedia · CARTKEN · EDOM TECHNOLOGY CO., LTD. · EverFocus · GOLIVE · kodiak · NEOUSYS TECHNOLOGY · Vecow

Strategic Partner

Kneron · SONY · life.augmented · Texas Instruments

照字母排序 In alphabetical order

三大核心技術
3 core technology

歐特明具有完整量產視覺AI的軟硬體技術，涵蓋光學、機構、電子、韌體、軟體及視覺AI模型開發，其中包含以下3大核心技術:

oToBrite has full-stack technology for mass production of vision-AI product, covering optics, mechanics, electronics, firmware, software, and vision-AI model design. The three core technologies are:

● 視覺AI模型設計技術 Vision-AI Model Design Technology

視覺AI模型為自行研發，可視客戶需求獨立銷售，已應用於乘用車、商用車及二輪車等不同市場，其中視覺AI模型已透過低位元跨平台最佳化作軟體IP授權，量產授權於超過40萬台車輛中。

The vision-AI model is self-developed, and it can be sold independently according to customer needs. It has been applied to different vehicle markets including passenger vehicles, commercial vehicles, and two-wheelers. The vision-AI models have been low-bit cross-platform optimized and licensed on over 400K vehicles.

—— 視覺AI模型已量產於以下平台 Vision-AI models have shipped in following platforms

Kneron MEDIATEK Qualcomm SigmaStar Texas Instruments

● AI邊緣運算系統設計技術 Edge AI System Design Technology

完整的軟硬整合及設計能力，可提高邊緣運算系統處理能力和效率，以實現運用超過10個異質核心處理超過30種不同類型感測器，包含相機模組、超音波雷達、毫米波雷達、GPS/IMU及各類車身CAN訊號，已量產超過20萬台具有高階視覺AI模型的AI邊緣運算系統。

With complete software and hardware integration and design capabilities, the processing capacity and efficiency of edge computing systems can be improved to enable the use of more than 10 heterogeneous cores to process more than 30 different types of sensors including camera modules, ultrasonic radar, millimeter-wave radar, GPS/IMU and various types of vehicle CAN signals. This enables the production of more than 200,000 AI edge computing systems with advanced vision AI models.

● 自動調焦技術 Active Alignment Technology

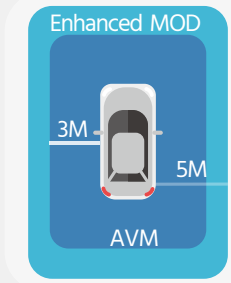
自行開發生產高階相機模組的自動調焦機台，除具備快速切換和擴充產能能力，也可提高生產效率以滿足不同市場的客製化需求，已可生產超過60種規格相機模組，且具備1個像素級別的偏移量品質。

oToBrite self-developed active alignment machine to produce high-end camera modules. It shortens production switching time and production expanding time with high production efficiency to meet various customization demands from different markets. It can produce over 60 different specifications of camera modules with a quality of 1-pixel shift.

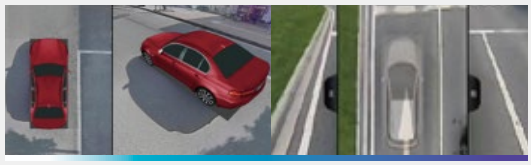
新一代環景系統
New Generation of AVM

進階版MOD可保護動態或靜態的用路人 Enhanced MOD* to Protect VRU**
比傳統MOD擁有更高的準確度與更低的誤報率
With high accuracy & low false alarm compared with traditional MOD

視覺AI技術可擴增更多ADAS功能 More ADAS Features with Vision-AI Technology
可擴增前車離去、開門警示、後方車側警示等ADAS功能
Lead vehicle start alert, Open door alert, Rear cross traffic alert, etc.



- 藉由不同視角提供多種模式
  Multiple Mode with Different Angle View



- 透明底盤
  Transparent Chassis

*MOD: Moving Object Detection
移動物體偵測

**VRU: vulnerable road users including children, pedestrians and two-wheelers rider
弱勢用路人包含孩童、行人及二輪車騎士

世界首創視覺AI自動停車系統
The World's First APA Product Using Vision-AI Technology

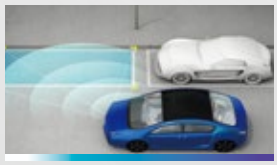
可識別停車格類型>100
Identifiable parking slot types

完全覆蓋停車場空間 Full Coverage
Even dead end parking space

物件類型包括低矮障礙物>10
Object classification even low-height obstacles

停車格偵測準確度的誤差範圍<15cm
Detection Accuracy

- 停車空間偵測
  Parking space detection



- 物件分類
  Object classification

一公里記憶式自動停車
From APA to 1km HPP (Home-Zone Parking Pilot)

台灣精品 2024 TAIWAN EXCELLENCE

可記憶一公里的自主停車路線 1km
Memorized valet parking route

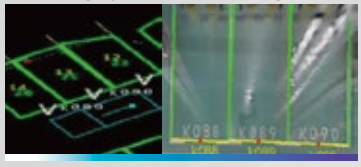
停車場無須重新建置 No Reconstruction
基於vSLAM技術而不需要額外在停車場的安裝佈建
Needed for the parking lots based on vSLAM technology

定位精準度誤差範圍<20cm
Localization accuracy

一次性建圖 One-time Mapping
支援代客泊車與手機召喚功能
To support valet parking and summon

- 自動繞行
  Autonomous circle

- 停車位號碼識別
  Parking spot number recognition



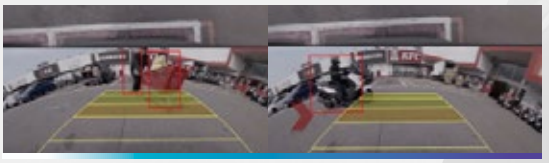
視覺AI 倒車影像系統 & 後方車側警示系統
Rear View & RCTA System

一個相機模組就可以擁有多樣視角 One Camera with Multi-Angle View
後方視角、車後側視角與俯視角
Rear view, corner view & bird view

高經濟效益與相容性廣的解決方案 Cost-Effective & Widely Compatible Solution
透過賦能車上原有的倒車影像系統,使其比超聲波雷達&傳統雷達解決方案更能保護弱勢用路人以及提供安全的停車體驗
To empower the existing rear view system with VRU* protection & safer parking experience compared to sonar & radar solution

多樣視角
Multi-angle view

弱勢用路人與車輛偵測
VRU* and vehicle detection



*VRU: vulnerable road users including children, pedestrians and two-wheelers rider
弱勢用路人包含孩童、行人及二輪車騎士

動靜態弱勢用路人與車輛偵測範圍
Static/moving VRU* & vehicle detection area

商用車 Commercial Vehicle

內輪差盲區偵測警示系統、車頭盲區偵測警示系統
Blind Spot Information System & Moving Off Information System

通過27種法規測試情境 27 Test cases Passed
符合聯合國規範
For UN R151 (BSIS) & UN R159 (MOIS) regulations

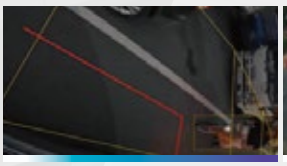
通過UN R151認證 1st UN R151 Certified
歐洲第一個利用視覺AI技術通過UN R151認證的BSIS解決方案
Vision-AI solution in Europe

弱勢用路人分類 VRU* Classification
比雷達解決方案擁有更高的準確率與更低的誤報率
High accuracy & low false alarm compared with radar solution

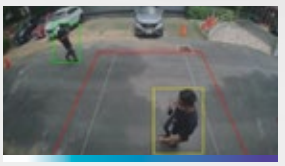
只需要一個系統 One System
一個系統即能實現 BSIS & MOIS
To support BSIS & MOIS

內輪差盲區偵測
BSIS

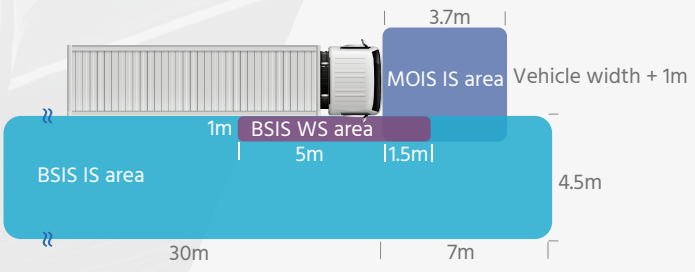
內輪差盲區偵測
BSIS



車頭盲區偵測
MOIS



*VRU: vulnerable road users including children, pedestrians and two-wheelers rider
弱勢用路人包含孩童、行人及二輪車騎士



全方位整合式大型商用車ADAS產品
All-in-one Heavy Commercial Vehicle ADAS Product - oToGuard

台灣精品 2024 TAIWAN EXCELLENCE

世界首創 The World's First
世界首創全方位整合式ADAS解決方案並且通過多項聯合國法規
ADAS total solutions in one system capable of passing several UN regulations

小於3毫秒的影像同步 <3ms Frame-sync
透過相機模組去實現事件觸發影像紀錄功能來幫助車隊管理
With all cameras to enable event-triggered video recording for fleet management

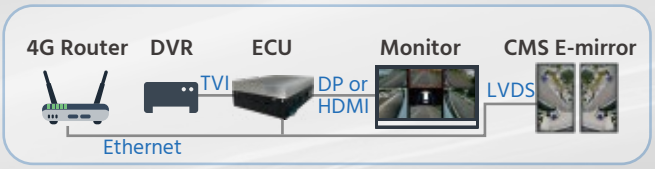
360度的保護 360 Degree Protection
藉由8顆相機模組可消除盲區與監控駕駛者的狀態
With 8 cameras to eliminate blind area and monitor drivers' status

可擴展至自動駕駛 L2以上 Level 2+ Scalability
在同一個硬體架構下即可透過軟體升級
The system is software upgradable to support Level 2+ ADAS

- 多種顯示模式結合多種ADAS功能
  Multiple display mode with several ADAS functions

- Level 0 : AVM, BSIS (UN R151)/BSD, DMS, FCW, LDW (UN R130), MOIS (UN R159)
- Leve 2+ (perception only) : ACC, AEB, LCA, LKA, etc.

- 靈活架構滿足真實場景
  Flexible Architecture to Meet Real Case Scenarios



大型商用車新一代環景系統
New Generation of AVM for Heavy Commercial Vehicle

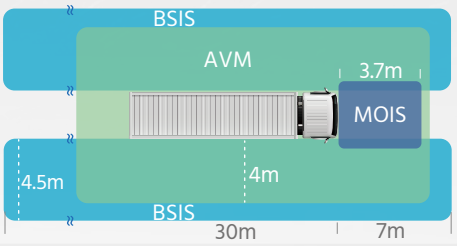
保護弱勢用路人 Vulnerable Road Users Protection
符合聯合國 with UN R151 (BSIS) & UN R159 (MOIS) 法規規範
With the capability to comply with UN R151 (BSIS) & UN R159 (MOIS)

所有相機模組皆能運用在視覺AI ADAS功能 All Cameras with Vision-AI ADAS purpose
現有的AVM產品僅能運用四顆魚眼相機模組去收錄影像
With all cameras to enable event-triggered video recording for fleet management

- 多種顯示模式結合多種ADAS功能
  Multiple display mode with several ADAS functions

- Level 0 : AVM, BSIS (UN R151)/BSD, MOIS (UN R159)

-低速模式 (時速20公里以下) -Low speed mode (≤20kph)
-高速模式 (時速超過20公里) -High speed mode (>20kph)
-轉彎模式 -Making turns mode



駕駛監控系統
Driver Monitor System

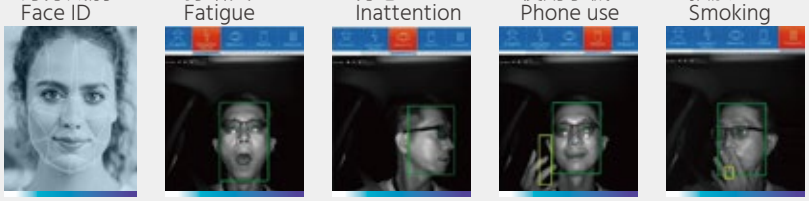
光照環境0~120K lux皆可運作 Working at 0~120k lux
light condition with proprietary optical system

小於4.5 度的誤差 <4.5 Degree Error
Head pose angle estimation with AI 3D face generation

同軸電纜供電 Power-over-coax
With excellent power management

達L3等級的太陽眼鏡也不影響偵測 Up to Level 3 Sunglasses
Supported and coated glasses

- 身分識別 Face ID
- 打哈欠 Fatigue
- 分心 Inattention
- 使用手機 Phone use
- 抽菸 Smoking



新型移動載具車規/自駕相機模組系列 New Mobility Automotive/AD Camera Series

全系列搭載高靈敏度CMOS感測器，為ADAS/自動駕駛辨識應用提供良好的影像品質。所有相機（iToF 除外）均為IP67/69K*、運作溫度範圍為 -40°C~+85°C

The entire series uses high-sensitivity CMOS sensors to perform good image quality for ADAS/autonomous driving detection purpose. All cameras (except iToF) are IP67/69K* with -40°C~+85°C operating temperature range.

1MP

1MP Camera
Sensor Type : ISX019
View Angle : 90° / 137° / 190°
Output Format : TVI (Differential) / LVDS (Max 96705 / TI 913)

1MP Camera
Sensor Type : OV9716
View Angle : 122.5° / 183.6°
Output Format : TVI (Differential)

2MP

2MP Camera
Sensor Type : IMX390
View Angle : 60° / 70° / 103° / 120° / 190°
Output Format : LVDS (TI 953 / Max 9295a)

2.5MP-3MP

2.5MP Camera
Sensor Type : ISX021
View Angle : 60° /103°/ 120° / 200°
Output Format : LVDS (TI 953 / Max 9295a)

3MP Camera
Sensor Type : ISX031
View Angle : 60° / 120° / 200°
Output Format : LVDS (TI 953 / Max 9295a)

5MP

5MP Camera
Sensor Type : IMX490
View Angle : 30° / 60° / 90° / 120°
Output Format : LVDS (TI 953 / Max 9295a)

8MP

8MP Camera
Sensor Type : IMX728
View Angle : 70° / 110°
Output Format : LVDS (Max 9295a/ Max96717)

DMS 1.5MP

DMS Camera 1.5MP
Sensor Type : VB56G4A
View Angle : 31°
Output Format : LVDS (TI 953)
LED : Two IR (940nm) LED

iToF Camera

Resolution : 640 x 480 (0.3Mp)
Sensor Type : Sony DepthSense® IMX570
View Angle : 62°(H) x 47°(V) / 90°(H) x 67°(V)
Interface : MIPI / LVDS (GMSL2) / GigE (support POE)
Sensing range : 0.3~7.2m
Illumination : 4 x VCSELs @ 940nm

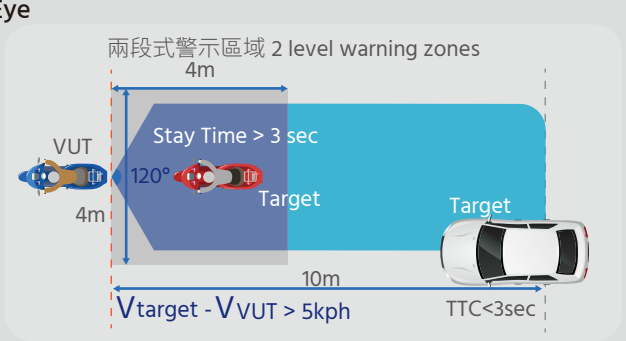
* by request

兩輪車 Two-Wheelers

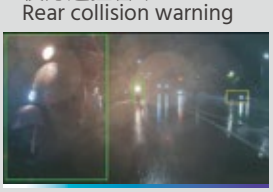
兩輪車騎士的防碰撞警示系統 - RiderEye
Collision Warning System for Two-Wheelers - RiderEye

輕量化與最先進的AI模型
Light-weight & Cutting-edge AI Model
克服充滿挑戰的環境
To overcome challenging environments

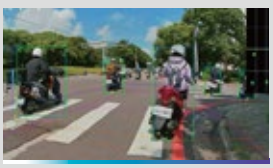
相容性廣的解決方案可增加騎士的安全性
Widely Compatible Solution to Enhance Riders' Safety
可用於既有安裝的行車紀錄器
For existing DVR



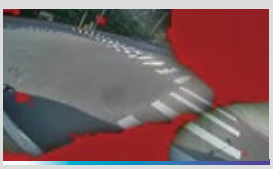
- 後方追撞警示 Rear collision warning



- 惡意駕駛行為追蹤 Malicious driving tracking



- 髒汙偵測 Dirt detection



driving life easier and safer

6F, No.18, Prosperity Rd.II,Science-Based Industrial Park,
Hsinchu,Taiwan, R.O.C

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