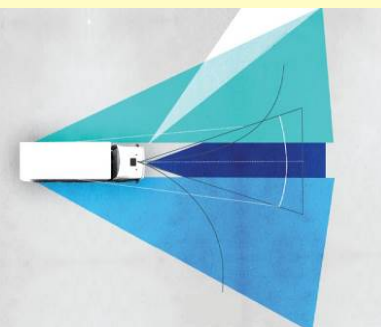# Neolec International Inc.

Driving Behavior Analyzer

Mobileye
Live Saving

LDW
FCW
PCW
SLI
Shield+

Neolec

International

Inc.

世環國際股份有限公司

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http://www.neolec.com.tw

Mobileye
An Intel Company

AUTHORISED DISTRIBUTOR

Thomas Kuo   2018-4-30

Facts & Figures

WORLD HEALTH ORGANIZATION

About **1.24 million people die** each year as a result of road traffic crashes. **That is more than 2 deaths every minute**

50% of all road traffic deaths are amongst **vulnerable road users, pedestrians, cyclists and motorcyclists**

Between **20 to 50 million** **more people suffer non-fatal injuries**, with many incurring a disability as a result of their injury

National estimates have illustrated that **road traffic crashes cost countries between 1-3% of their gross national product**

The human factor is responsible for 93% of collisions

Sources: VTRC – Virginia
Transportation Research Council
NHTSA –

www.nhtsa.dot.gov/people/injury
/research/UDAshortrpt
/background.html

7% Others

93 % Human Factor

20% Others

80% 3 Second ahead In-attentiveness
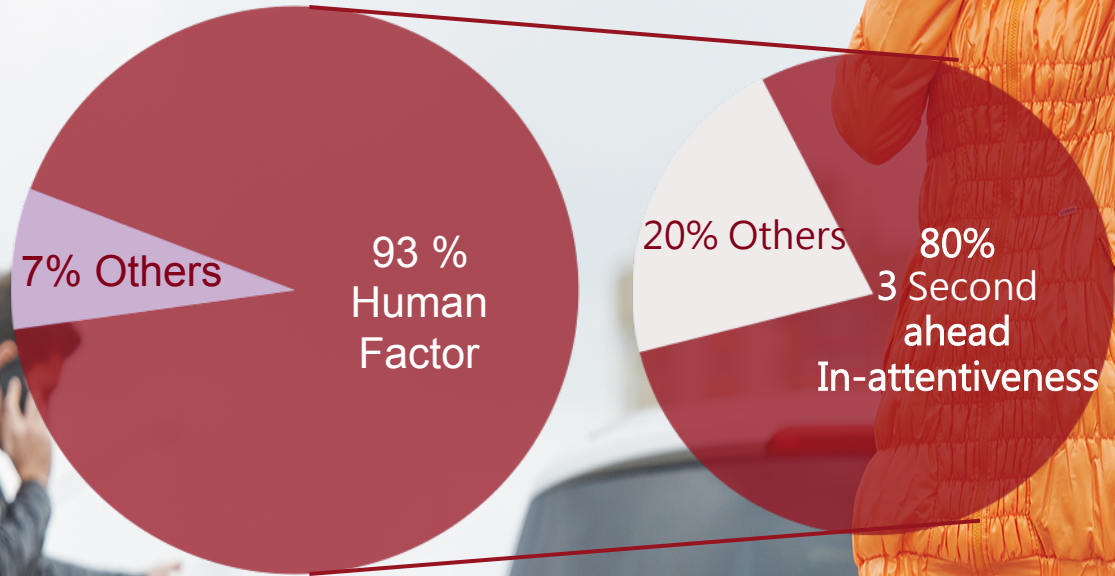
In February of 2009, the French insurance firm AXA Winterthur's Swiss Branch conducted a study on the link between collisions and cases of whiplash.

1.5 seconds early warning can prevent 90% of rear end collisions, 2.0 seconds warning can prevent almost all crashes!

Collision probability

[%]

Kreuzungsunfälle
Gegenverkehrsunfälle
Auffahrunfälle

Early warning time
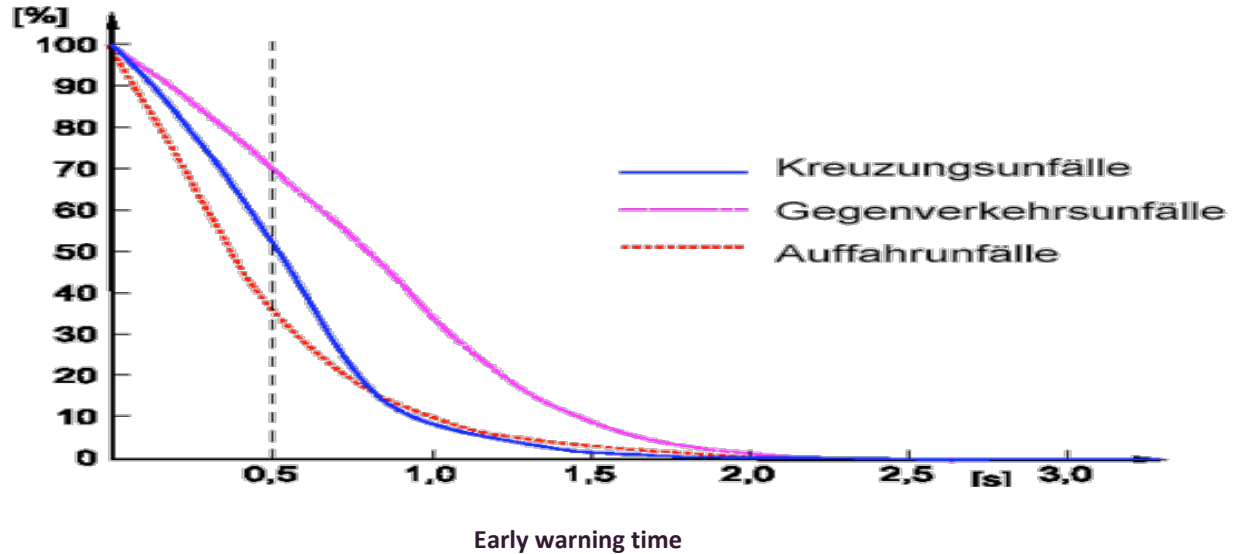
Is the global pioneer in the development of collision avoidance systems based on artificial vision technology

100+ distributors globally

600+ employees worldwide

Operating in **48** countries

Adopted by **most** of the world's major auto manufacturers

Publicly traded on the **NYSE:** MBLY

Mobileye 630 Features

LDW
Lane
Departure
Warning

HMW
Headway
Monitorinng &
Warning

FCW/UFCW
Forward
Collision
Warning
Urban FCW

SLI
Speed
Limit
Identification

PCW
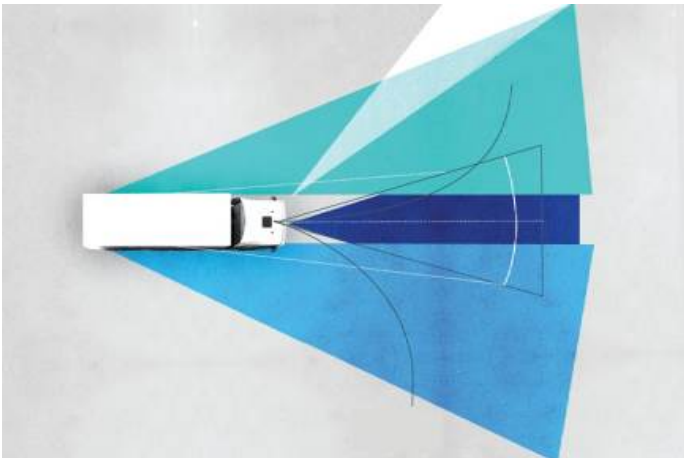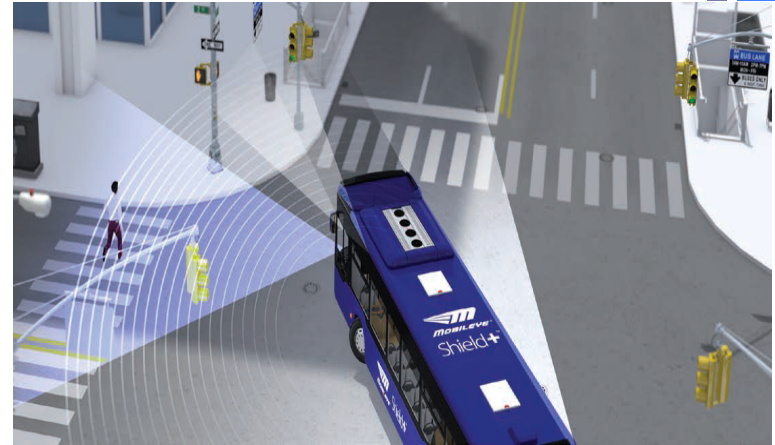Pedestrian
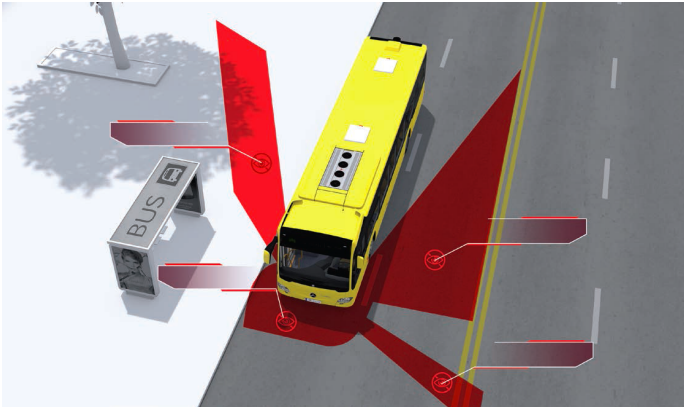Collision
Warning

IHC
Intelligent
Headlight
Control

Mobileye Shield +
Blind Spot Detection

Neolec "Drivinng Behavior Analyzer" System Structure

Mobileye Collision Prevention System

Output signals
- Vehicle info : brake/speed/left、right direction light
- LDW Lane Departure Warning
- FCW Forward Collision warninng
- HMW Headway Monitoring & warning
- SLI Speed Limit Idetification

CAN Bus

DBA

世環國際 Neolec
駕駛行為分析器
型號：DBA-100V01

Driving behavior analyzing

RS 232
Bluetooth

FMS data center or cloud storage and monitoring.

Data 999

3G/4G

Data 888

Telematics

車機
3G/4G 模組

DBA (Driving Behavior Analyzer) Provides

世環國際 Neolec
駕駛行為分析器
型號：DBA-100V01
F/W Update
Vcc
CAN
RS232

Data 999 (6 alerts)
The alerts will be sent to the data center or cloud server to restore and generate report for management reference．

Data 888 (5 instant alerts)
According to the preset parameters and definition of "Dangerous Pattern"，the alert will be sent instantly while the conditions are matched．This alert will allow the manager to take immediate action(such as call the driver) to prevent any potential danger happened.

Data 700/760
Mobileye Raw Data provides basic vehicle info to allow 3rd party tot develop other applications, most popular example is integrated with DVR to capture image before and after the alert happened．

Neolec DBA Can Be Applied to varies ocassionns

| Business \ Ocassion	Data Type			
	999	888	700	760
Fleet w FMS	Generate periodical report	Fleet manager or owner can intervene when alert 888 appeared	X	
Fleet w/o FMS	Cloud service as virtual FMS			
Insurance Company	U B I 3.X	Real time insurance fee adjustment		
Authority	Monitoring those who has bad records drivers			
Telematics/DVR suppliers	X		When integrated with DVR, the trans. fee of video is much much cheaper.	Provide basic vehicle info such as speed, brake direction light, headlight and wiper signal.

U B I (Usage Based Insurance) 3.0 vs 3.X
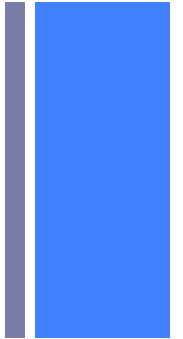
UBI 3.0 Now

- OBD
- G sensor
- Milage
- Period(dawn or midnight)
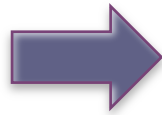
UBI 3.X in the Future

- OBD(Speed, Brake, Direction light)
- G sensor (rapid accelerate/decelerate)
- Milage
- Period
- LDW (Fatigue driving, dis-attraction)
- HMW (Un-safe tailing distance or tailgate on purpose)
- Improper overtake（over speed, weave in and out of the driving line）

DBA Driver Behavior Report

Date	Time	Location (GPS log)	Alert Type	Description of Alert	Score	Weight	Sub T/L
107-01-01	9:08	台16/W56.4K（龍井）	999-HMW	Un-safe tailing distance	1	1	1
107-01-01	10:23	國道1/N182.7K（台中市大雅區）999-LDW/R		Left LDW	1	1	1
107-01-02	18:29	國道1/S237.1K（斗南）	999-LDW/L	Left LDW	1	1	1
107-01-02	21:05	五福二路132好（高雄市鹽埕區）888-SPM-LDW		Multiple LDW in short period	3	3	9
107-01-04	6:23	五福二路132好（高雄市鹽埕區）999-UFCW		Urban FCW	1	1	1
107-01-05	18:02	(GPS Log)	888-CHMW	Continue un-safe tailing distance last for 44 seconds	3	3	9
107-01-06	7:36	(GPS Log)	999-CI-HMW	Un-safe tailing distance – cut in	1	0	0
		(GPS Log)	888-FLC	Multiple lane changing within short period	3	3	9
		(GPS Log)	999-CI-HMW	未保持安全跟車距離警示 -- 它車切入	1	0	0
		(GPS Log)	999-UFCW	市區前方碰撞警示	1	1	1
		(GPS Log)	999-CI-HMW	未保持安全跟車距離警示 -- 它車切入	1	0	0
		(GPS Log)	888-CHMW	連續未保持安全跟車距離警示，總計1:46	3	3	9
		(GPS Log)	888-MHMW	跟車距離最低 0.4秒	3	5	15
		(GPS Log)	999-HMW	未保持安全跟車距離警示	1	1	1
		(GPS Log)	999-HMW	未保持安全跟車距離警示	1	1	1
		(GPS Log)	999-CI-HMW	未保持安全跟車距離警示 -- 它車切入	1	0	0
107年1月總計					26	58	Score after weighted

+ Neolec DBA Collaborate with Big data

- **Before：Only Vehicle Data**   Big data technology is now mature and widely utilize in various categories, but in traffic safety is still stick with tachygraphy data collection (brake, speed, direction light, GPS log, etc....) Recent years, for UBI 3.0, gravity sensor or even Gyro sensor were adopted to provide rapid accelerate, decelerate data to determine the driver behavior is danger or not.

> **Rapid accelerate, decelerate, turn**   ← Can it be objectively to determine driver havior ?

- **Now：Data based on driver behavior**   Neolec DBA receives data from Mobileye Collision Warning System and applied innovative algorithm to predict potential dangerous event, sending immediate alert to the fleet manager or owner, so that he/she can take immediate action to avoid accident happened. We analyze driving data on going then give Pre-Caution in stead of analyze tachygraphy/G sensor data after crashes.

- **Future：Share Data, Share Safety**   With accumulated analyzed data：
  1. The fleet manager will predominate the driver conditions(bad temper, overtime, distraction) so that he/she can make better pre-arrangement dipatching optimal drivers.
  2. For insurance company, claim will be reduced, profit increased → lower down client insurance fee or client expand coverage of insurance. → Become a win-win business model.
  3. To the transportation authority, provide a safer enviroment to road users is always the first and constant priority. Adopting Neolec DBA will be better monitoring those bad drivers or bad fleet. An improve regulation can be programmed to better manage those who regularly violate traffic regulation.
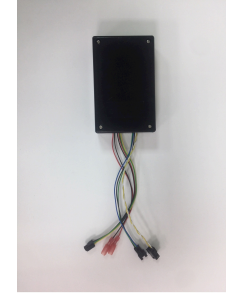
Mobileye Units Sold
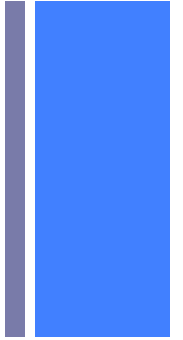
More than 20M units sold as of Dec. 2016

These are all our potential customers.

Customized solution to resolve interference among Telematics, DVR & Mobileye System

Mobileye Global Partners

Japan Isuzu DM
ELF Equipped with Mobileye 630

Japan Fuso(Mitsubishi/Damiler) Equipped with Mobileye 630 DM

Thank You !