

# AI-based Future Traffic Forecasting Solution



/Machine Learning

/AI Technology

/Simulation

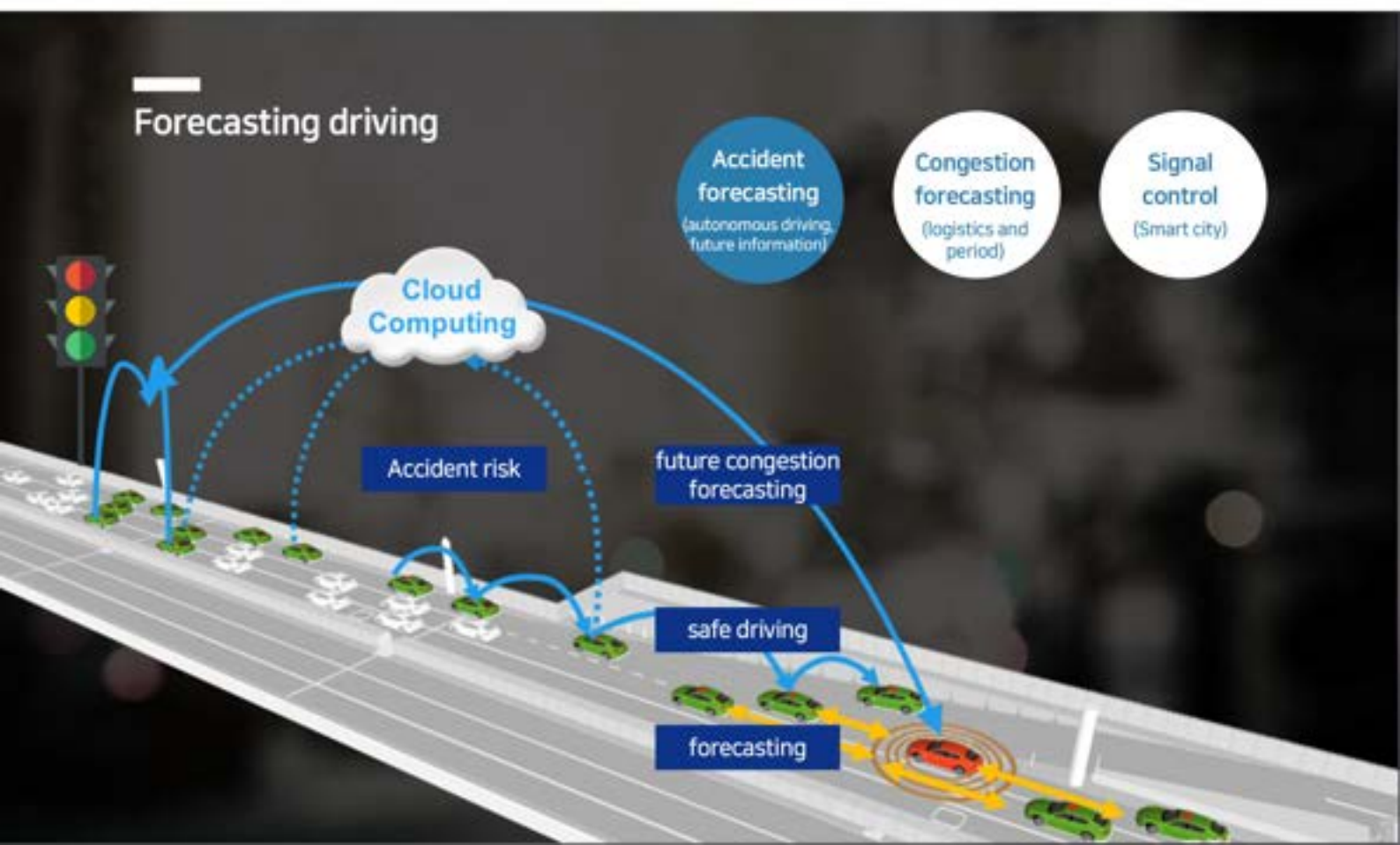
## Technology development and service for solving urban traffic issues

### Technology to forecast the future of transportation

- Solving the urban transport issues by facilitating the AI-based cloud resources
- Forecast the traffic demand to establish intelligent traffic signal control and plan
- Providing hazard information and traffic related information in order to provide safe routes to drivers
- Providing forecasting information on traffic hazard level for each vehicle lane on the autonomous driving cars

By forecasting the traffic situation (risk, congestion) of the future (after 2 minutes to 2 days), it may be possible to prepare for possible traffic issues by providing this future information to the applicable industry (automobiles, logistics, insurance, government - effective signal control) that requires the future traffic information

- Required forecastable information: Calculate the future traffic information by analyzing location, speed and traffic volume



## Product group

Providing future transport information on automobile manufacturer, logistics, government, insurance company, and emergency transport industry

### Service Architecture

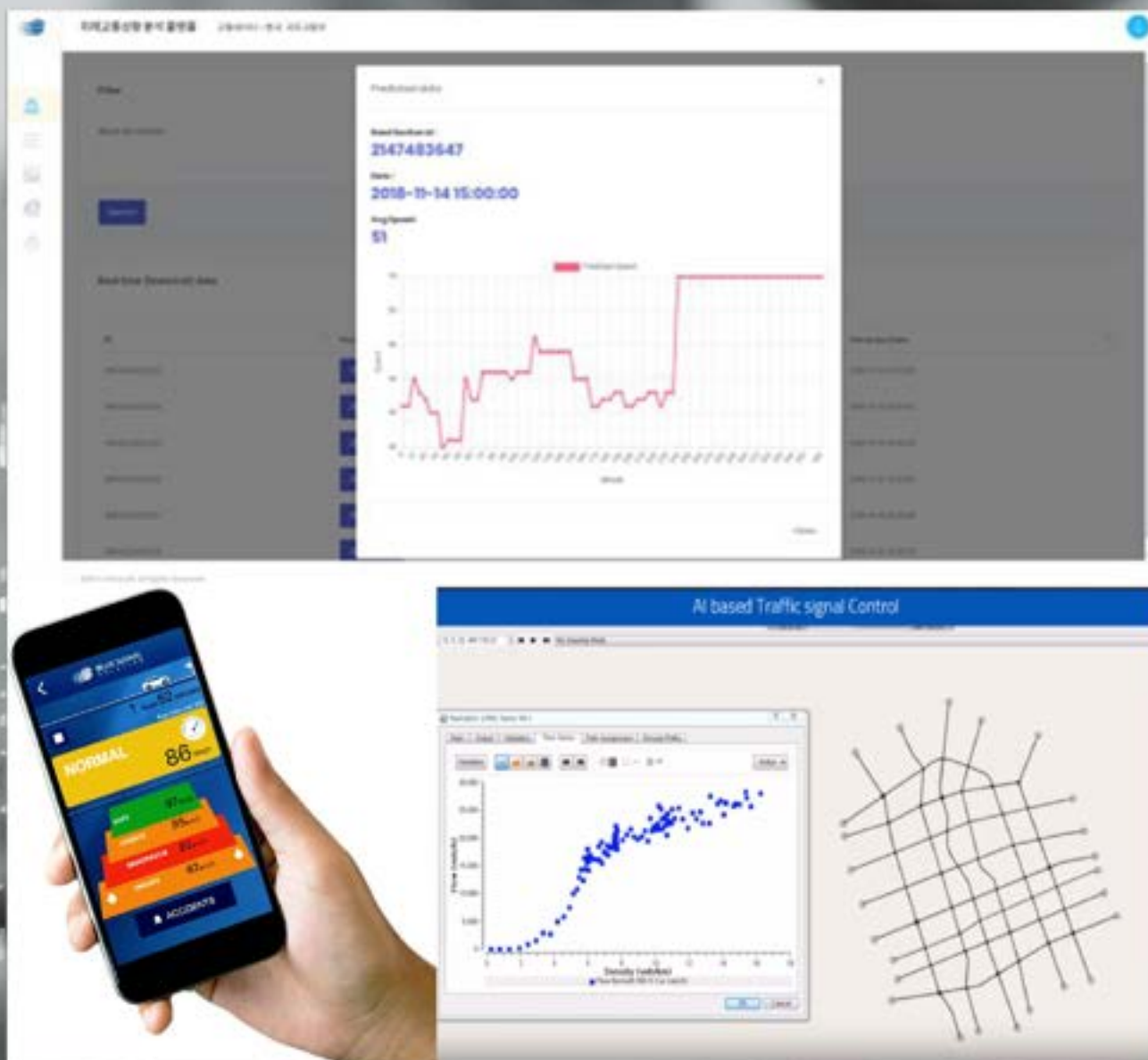


### Automobile: Navigation, HUD (Head Up Display)

#### HUD design of TPCW







## SMART CITY



## Result of Prediction



Total Average  
**94.28%**



**94% Accuracy in Prediction! Global Top-level Technology Certification**



## Solution of government for Smart City

By forecasting the future traffic volume for each direction in congested area or hazardous area based on the information in a way of calculating the time period for the signal control and deliver the same to the control center, it brings significant effect to the traffic congestion.





Calculation for  
optimal signal period



Forecasting for future  
traffic situation

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- By facilitating the accumulated traffic big data and cloud computing, the traffic condition is forecasted in real time through the machine running technique, and develop the technology to apply the forecasting information to the navigation for new broad traffic signal control or route guidance.

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- The artificial intelligence (AI) technology is applied to the traffic big data to forecast the traffic congestion that may occur in the future to reflect on operating the traffic signal.

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- Through the AI\_type algorithm development that may forecast the future traffic situation/ accident, all factors that provoke the traffic congestion that may occur, not the solution through modifying existing infra, by forecasting in advance to resolve, it provides the solution to resolve the traffic problems from their origin source.



# AI-based Future Traffic Forecasting Solution

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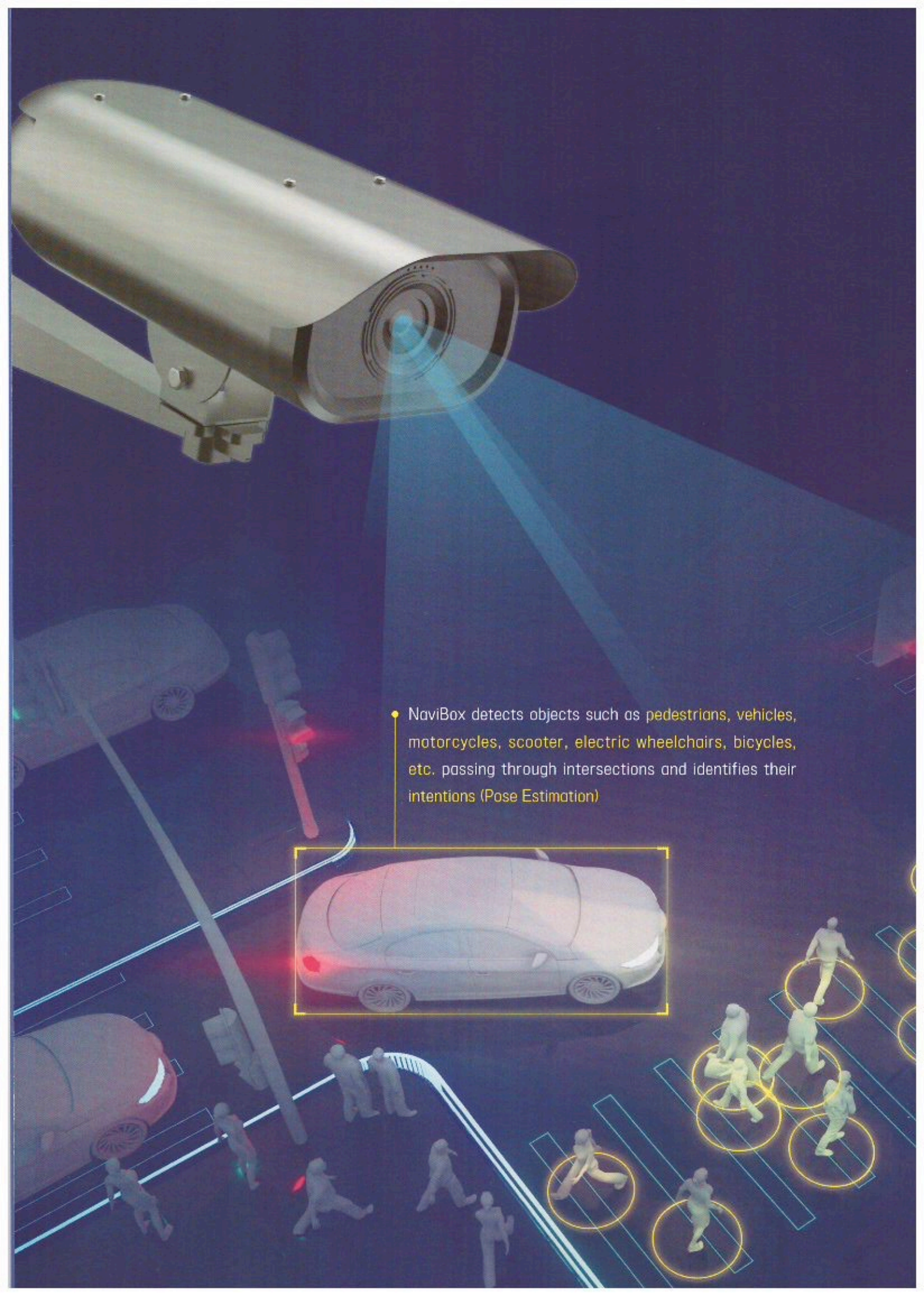
Artificial Intelligence CCTV to prevent pedestrian-vehicle accidents

## Edge-computing based **NaviBox**



The device prevents pedestrian-vehicle accidents by monitoring crossings in real time, predicting and warning various dangerous situations occurring at the intersections in advance





- NaviBox detects objects such as pedestrians, vehicles, motorcycles, scooter, electric wheelchairs, bicycles, etc. passing through intersections and identifies their intentions (Pose Estimation)



# NaviBox

NaviBox is the device that prevents pedestrian-vehicle accidents by monitoring crossings in real time, predicting and warning various dangerous situations occurring at intersections in advance.

It prevents possible accidents at intersections by predicting possible dangerous situations which may happen after 1-2 seconds.

## Dangerous situation to predict



- 1 Jaywalking pedestrians
- 2 Traffic violation vehicles
- 3 Collision due to failure to perceive moving objects  
(All moving objects including pedestrians moving when turning right)
- 4 Warning on risk of collision between vehicles from changing the line (Scheduled)

It mainly predicts and warns the collision points of moving objects by identifying the direction of the final target point of the object or the shape of the human joints



# NaviBox

## System Items

- 1 NaviBox Main Body
- 2 LED Display
- 3 Logo Projector
- 4 Super-oriented Speaker
- 5 Management Program

<NaviBox Main Body>



<LED Display>



<Logo Projector>



<Super-oriented Speaker>



<Management Program>

- MS Azure-based IoT hub, docker VM -





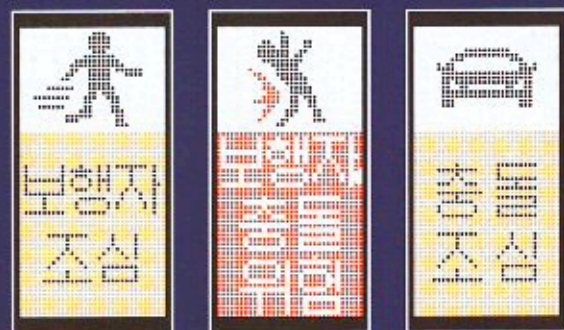


# Type of warning displayed on LED screen and logo projectors for warning pedestrians and vehicles

## <Logo Projector>



## <LED Display>



## Pedestrians

Warning with logo projector and super-directional speaker

(Focus only on the pedestrian location)







## Vehicles

When turning right,  
the LED screen shows up  
in front of the car

Later, it directly warns the car







Artificial Intelligence CCTV to prevent pedestrian-vehicle accidents

Edge-computing based **NaviBox**



NaviBox promises to develop into a valuable  
for reducing accidents and especially protecting growing children



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