

Hikvision Light Mobile Surveillance Solution for Taxi & Online Car-hailing V2.1

1 Vertical Requirements Analysis

2 Solution Introduction

3 Solution Advantages

4 Representative Cases



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NEWS

Poland suffers deadly train collision

5 March 2012 | Europe

Two trains have collided in southern Poland, officials say.

Taxi-Library Home | World of Taxis | Business | Regulation | Homicide Prevention | Memoriam

Photo: The Blessing of the Taxi Fleet at San Francisco's St. Boniface Church is a reminder of the risks faced by taxi drivers.

Homicide prevention in taxis

[Preventing Violence Against Taxi and For-Hire Drivers](#)
April 2010

The U.S. Occupational Safety and Health Administration (OSHA) has issued new safety factors and preventive measures. From the fact sheet: "Taxi drivers are murdered on the job more often than other workers."

See also the similar May 2000 [violence prevention](#) document.

Chinese cities regulate car-hailing

2016-12-21 23:52:12 | Xinhua | Web Editor: Ding Xiaoxiao

Beijing, Shanghai and Guangzhou regulated car-hailing services Wednesday, keeping most of the strict requirements seen in previous drafts of the new rules.

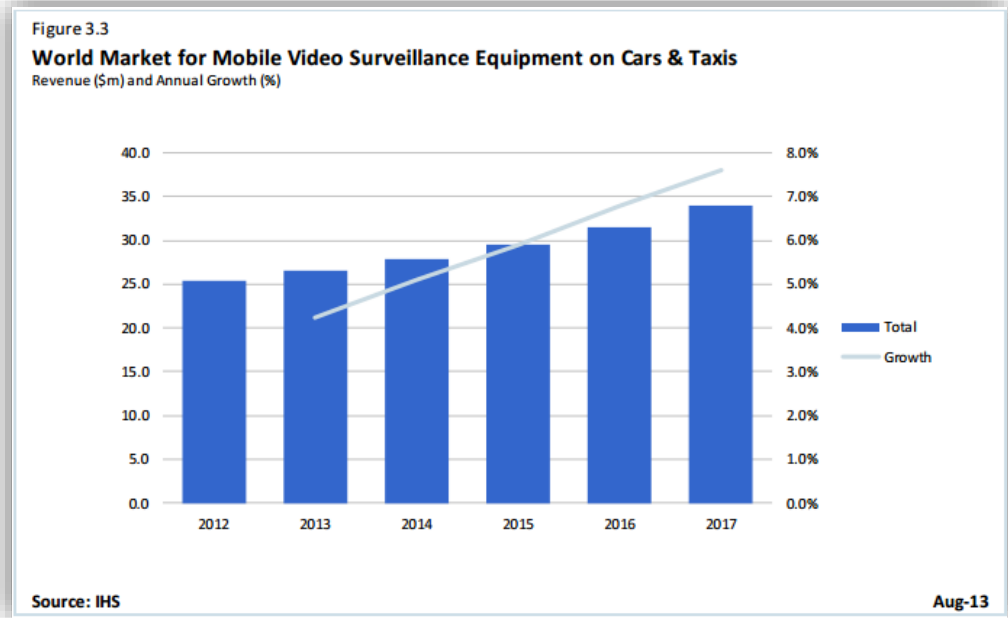
All the city governments continue to require drivers to be official residents of their cities and drive locally registered vehicles, making it very difficult for people and vehicles from other cities to work there.

Beijing and Shanghai have slightly lowered the requirements for vehicles which were raised substantially in the drafts, while Guangzhou kept the same requirements as in the draft.

The taxi and online car-hailing vertical is facing severe challenges, which calls for vehicle-mounted video surveillance to ensure security. Governments and industry associations are releasing regulations forcing mobile surveillance on commercial vehicles, school buses, engineering vans, etc.

Vertical Requirements Analysis- Market

Security Technology	2015-2020 CAGR China	2015-2020 CAGR U.S.	2015-2020 CAGR World
ACaaS	29.2%	18.2%	19.8%
Access Control	7.6%	6.6%	6.9%
Consumer Video Surveillance	45.8%	28.9%	28.1%
Enterprise Storage	25.3%	10.1%	15.5%
Entrance Control (Pedestrian)	7.8%	6.2%	6.0%
Entrance Control (Vehicle)	6.3%	2.9%	3.0%
Intruder Alarms	5.5%	5.8%	5.0%
Mobile Video and Body Worn Cameras	21.6%	10.2%	17.8%
Remote Monitoring Services	7.7%	3.6%	3.7%
Systems Integration	9.6%	2.2%	4.6%
Video Surveillance	10.6%	2.1%	6.3%
VSaaS	16.0%	22.2%	18.1%
Total	10.2%	4.4%	5.5%



As a result of the continuously increasing demand, the global mobile video surveillance market **keeps growing fast.**

Lack of video evidence on problems



- Video evidence is essential in case of accidents.
- In case of passenger leaving belongings on the car, video evidence is essential for seeking or solving disputes.

Risks need to be perceived and avoided



Driver, and sometimes passengers as well, is highly vulnerable. Risks need to be perceived and avoided:

- Real-time video on robbery, arson, murder...
- Panic alarm button for proactive protection
- Absent-minded driving, which may cause accident
- Abnormal driving path
- Mismatched driver

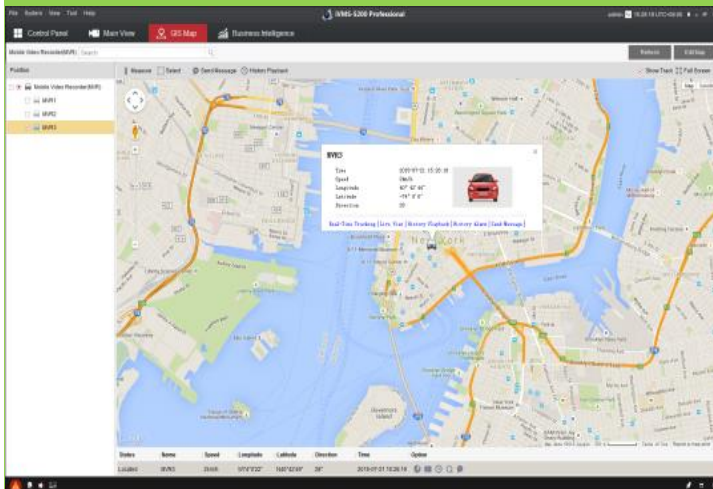
Driver service needs supervision and regulation



Supervision on drivers is required to regulate service:

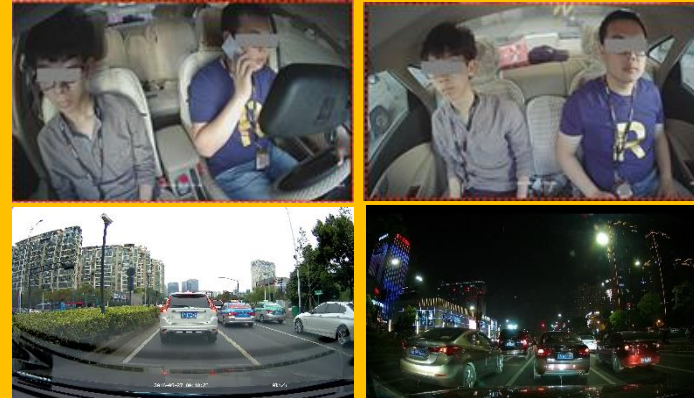
- Smoking
- Making phone calls while driving
- Sexual assault
- Speeding

GPS Positioning



- GIS Map locating
- History tracking

Remote Monitoring



- Real-time remote monitoring
- History playback
- Two-way audio

Alarm



- Panic button
- Fence crossing alarm, speeding alarm, deviation alarm
- Driver behavior analysis alarm
- Driver authentication

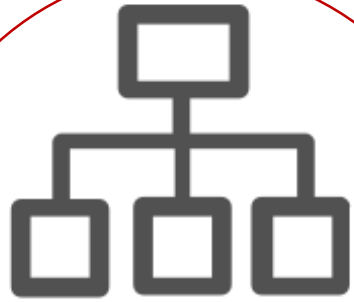
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System Structure

- Front-end
- Transmission network
- Central platform



Hardware & Deployment

- Driving recorder
- Mobile camera
- Driver behavior analysis camera



Positioning & Alarm

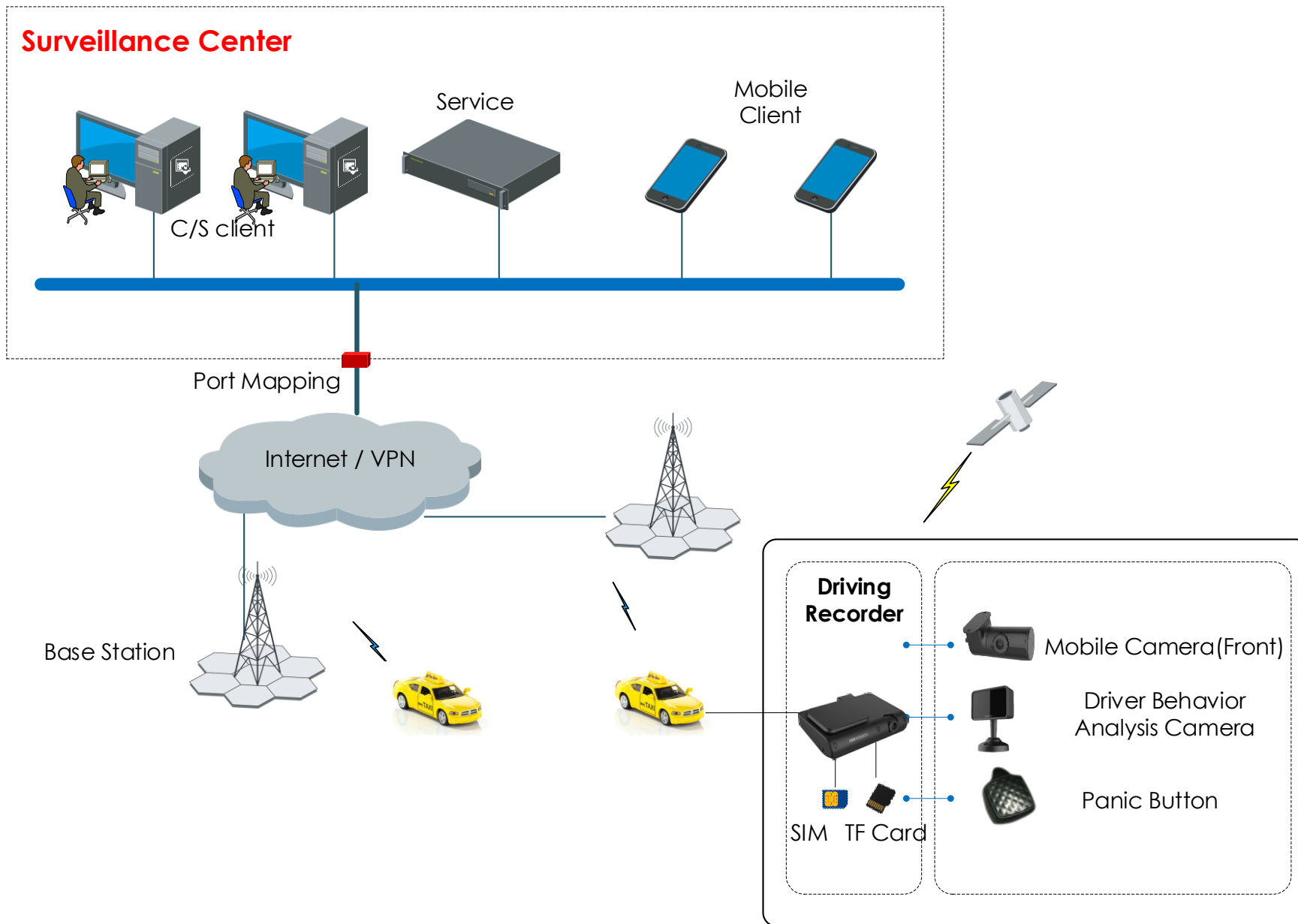
- Positioning and tracking
- GPS history playback
- Fence crossing alarm
- Deviation alarm
- Panic button
- Driver behavior analysis



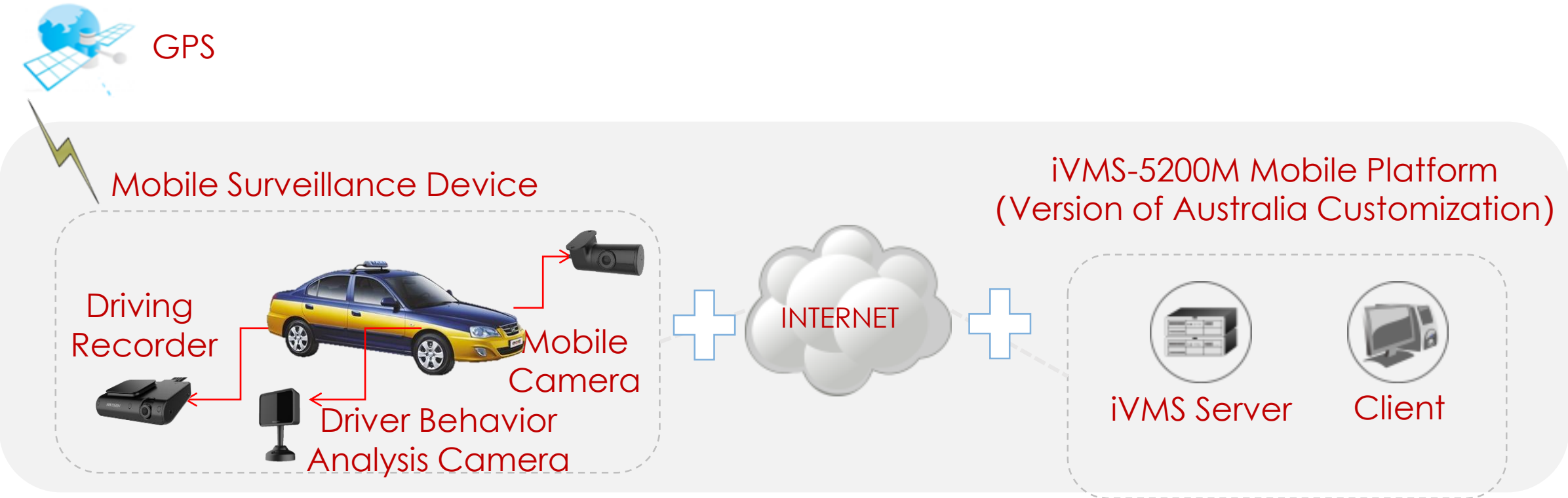
Driver Authentication

- Verify driver's identity by face recognition

System Structure



System Structure

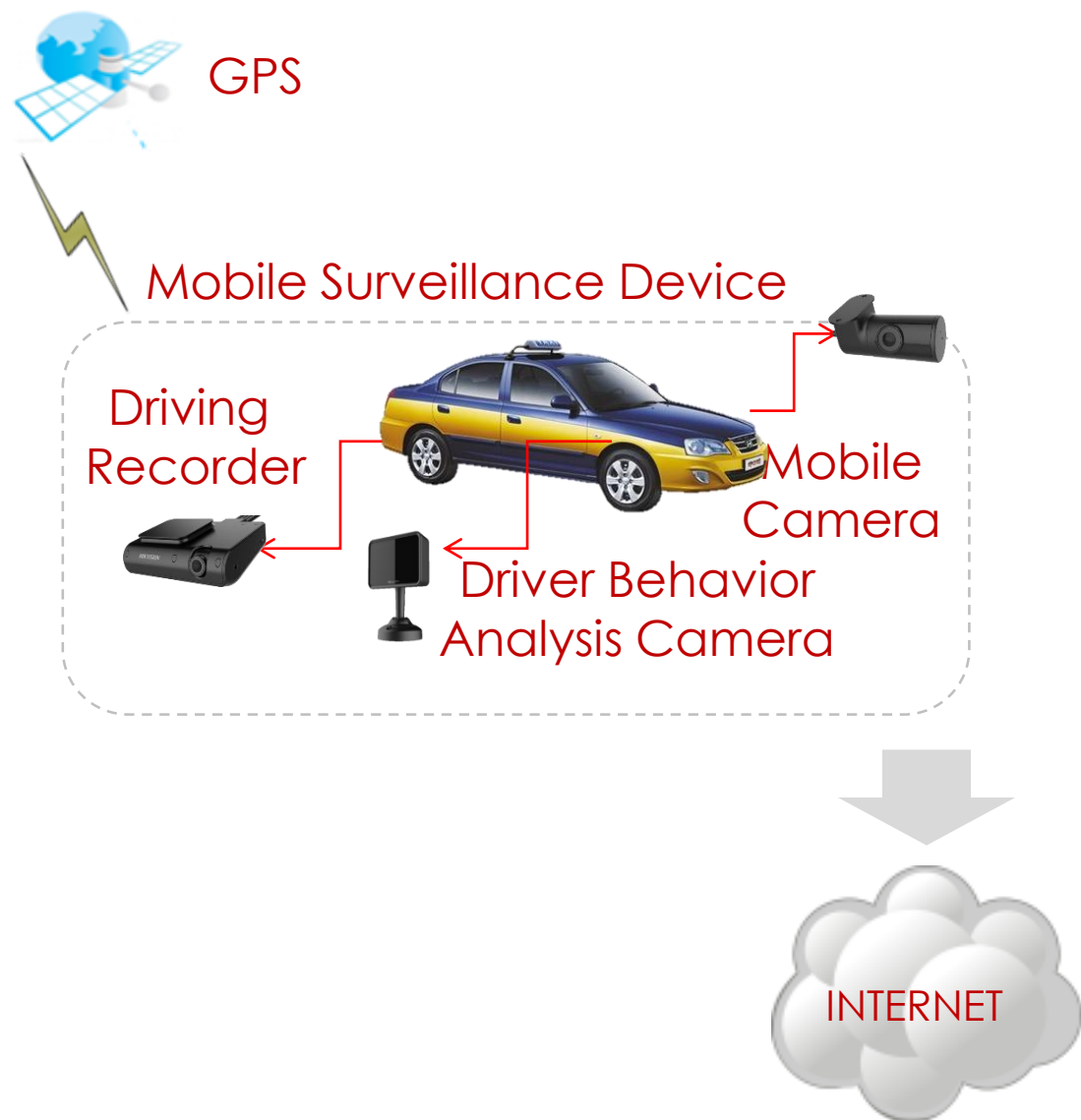


Three subsystem for the mobile surveillance system

Driving recorder & cameras installed on vehicle

3G/4G

iVMS software



Key Functions



HD **video** recording locally and support playback & download remotely as evidence



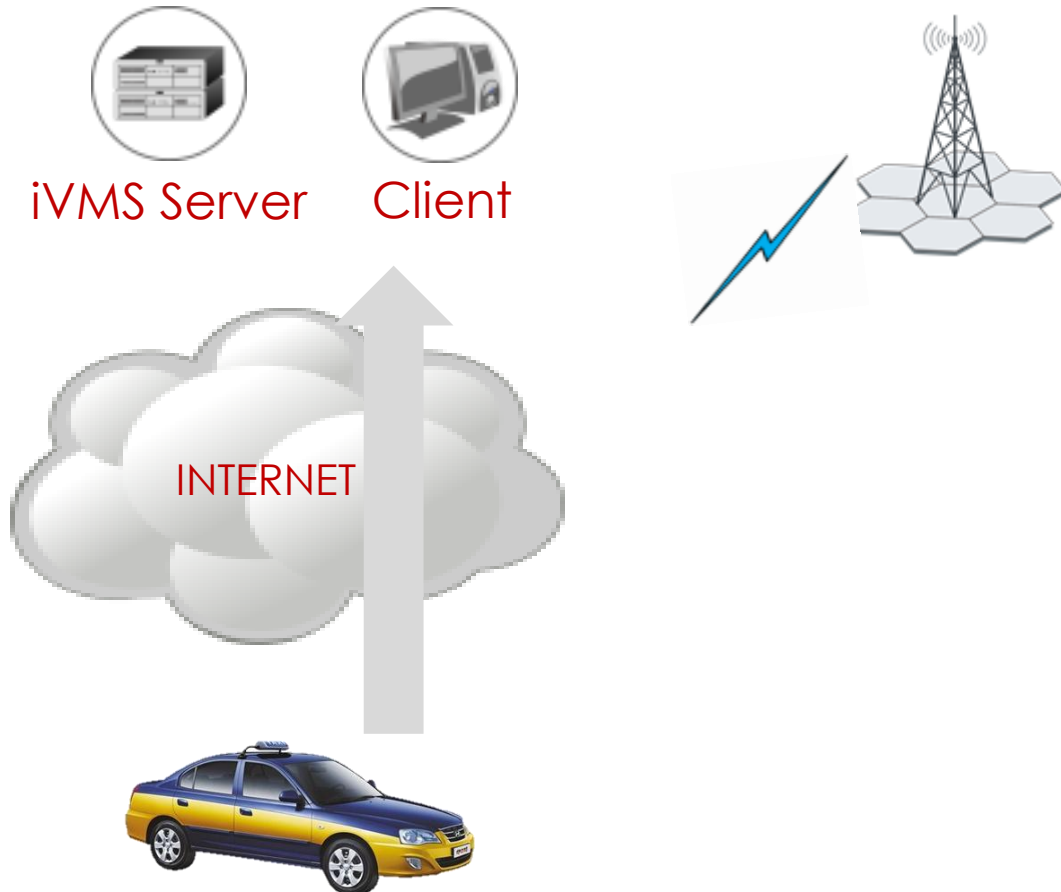
Locating **GPS** position and uploading to the center for real-time positing & route playback



Two-way audio communication between driver and center if needed



Real-time **Alarm** uploaded to center when triggered



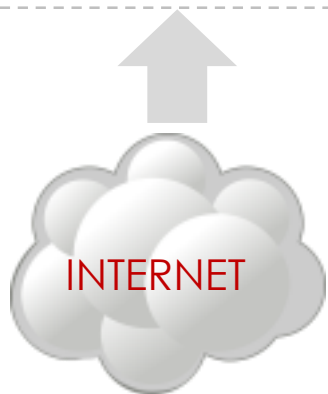
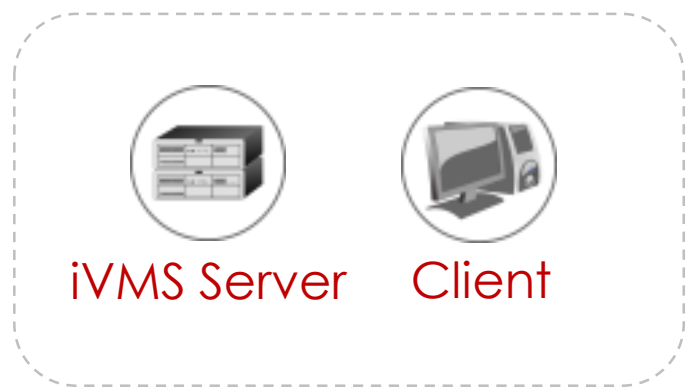
Key Functions

Insert SIM card and use the 3G/4G network to communicate between vehicles and center transferring below data:

- 1) Device registration data
- 2) Device heartbeat data
- 3) Live view & playback stream
- 4) GPS data
- 5) Alarm data

Key Functions

iVMS-5200M Mobile Platform
(Version of Australia Customization)



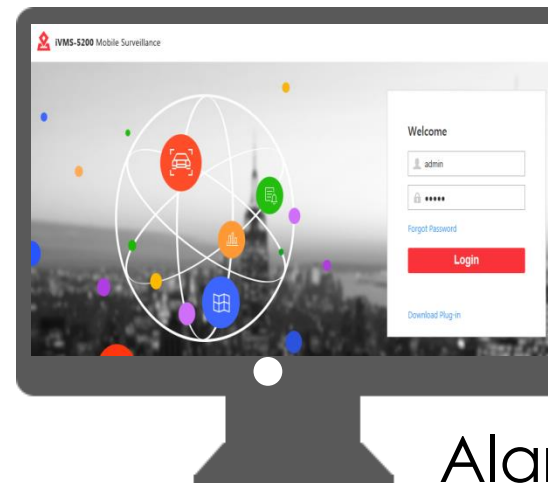
Real-time positioning
& route playback



Video live view & playback



Mobile App



Surveillance



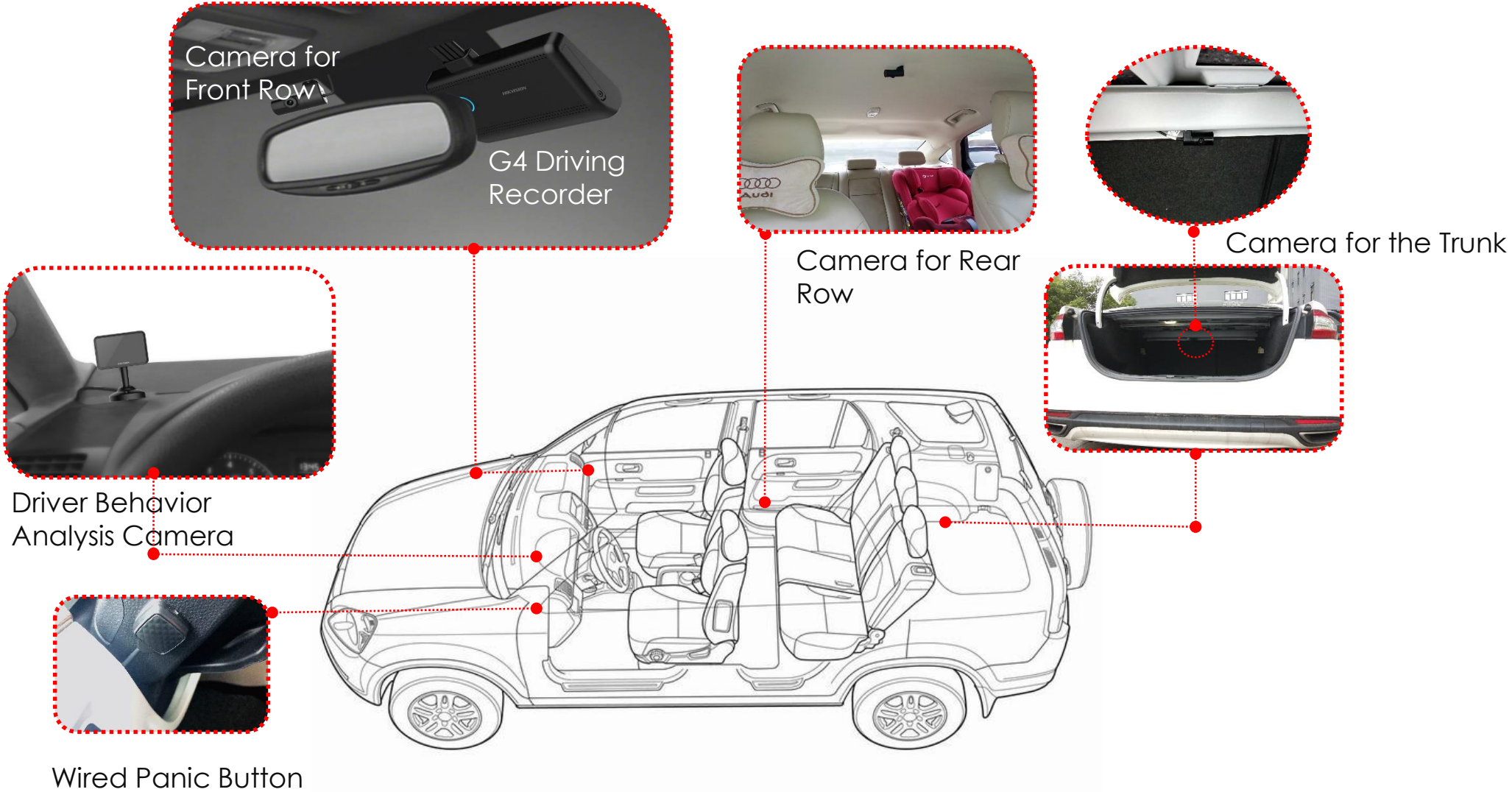
Statistics reports



Alarm receiving,
checking and
linkage

Hardware & Deployment

Easy Deployment



Driving Recorder



TF
128G
x2

Built-in
MIC/Speaker

Super Capacitor
Delayed
Shutdown

WDR
Low Illumination

4MP
@25fps
127° FOV

H.264/H.265

4G

Face
Comparison

Driver Behavior
Analysis

Collision
Detection

GPS/BDS

APP

Driving Recorder
AE-DI5042-G4(GPS+4G)(AI)



- 4MP sensor with resolution 1080P for picture taking, and video recording, up to support 1440P with customization.
- Supports GPS and BDS dual-mode positioning
- Supports direct linkage with mobile App with Bluetooth or WiFi
- Supports dual TF card with each Max. 128G
- Built-in gyro for collision-trigger emergency recording
- Supports 2 wired alarm input and 1 Bluetooth wireless alarm input. The alarm snapshot can upload to platform.
- Supports front-end driver face recognition attendance, dynamic auditing and people counting

Mobile Camera
AE-VC143T-ITS(2.1mm)



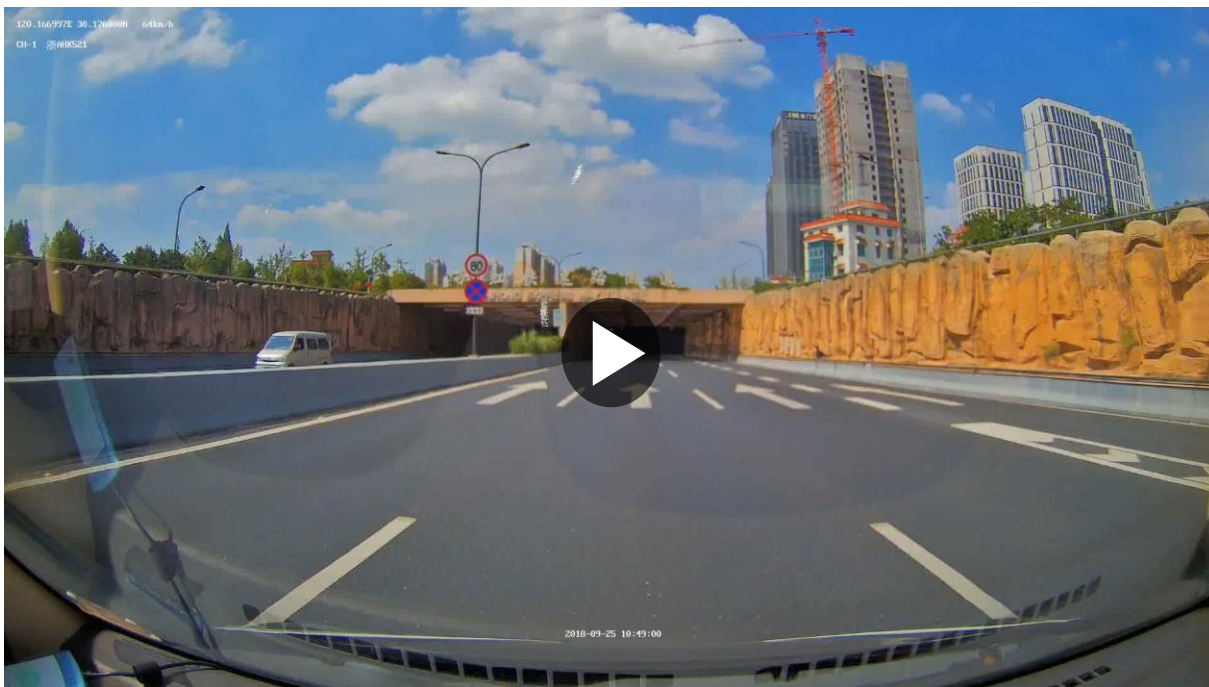
- Progressive Scan CMOS
- HDTVI
- 720P@25fps
- 0.1 Lux @ (F1.2, AGC ON) , 0 Lux with IR
- 5m IR
- Supports day/night mode automatic change
- Supports automatic white balance adjusting
- Built-in Mic & speaker
- Supports passenger people counting

Driver Behavior Analysis Camera
AE-VC154T-IT(6mm)



- Progressive Scan CMOS
- 720P@25fps
- 3m IR
- Supports day/night mode automatic change
- Supports automatic electronic shutter
- Supports AGC
- Supports face capturing and recognition and uploading
- Supports detection of driver absent-minded, making phone calls, tempering cameras

WDR, Automatic White Balance



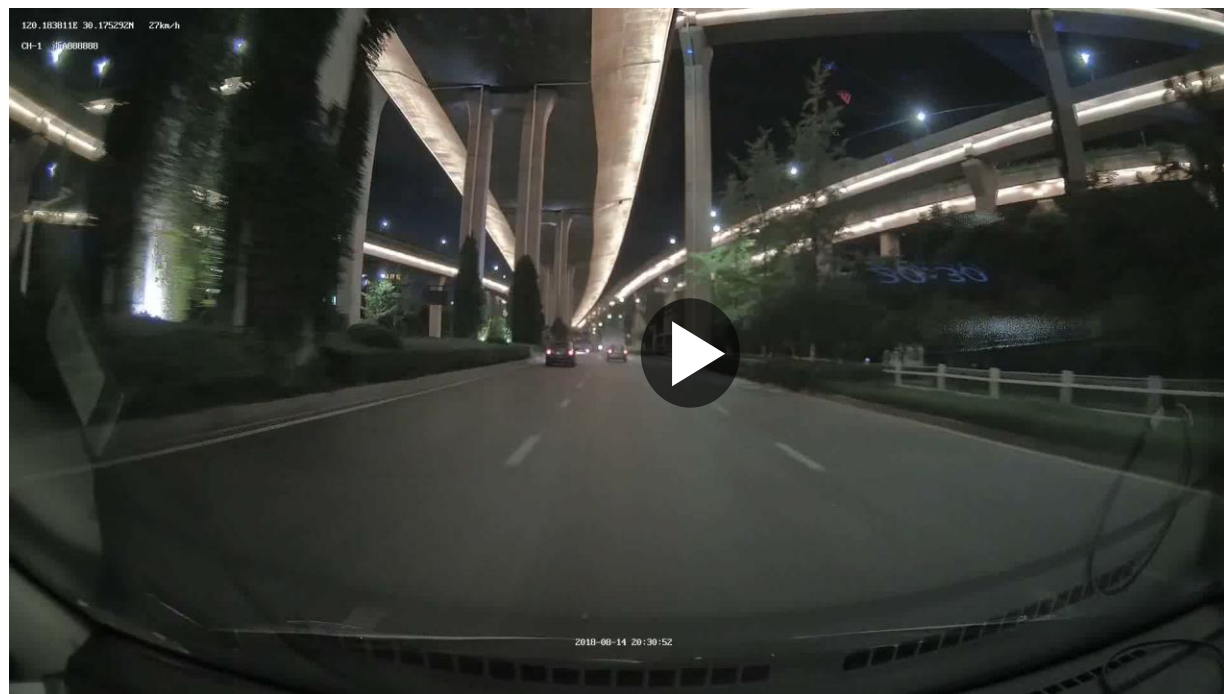
Entering a tunnel at sunny day



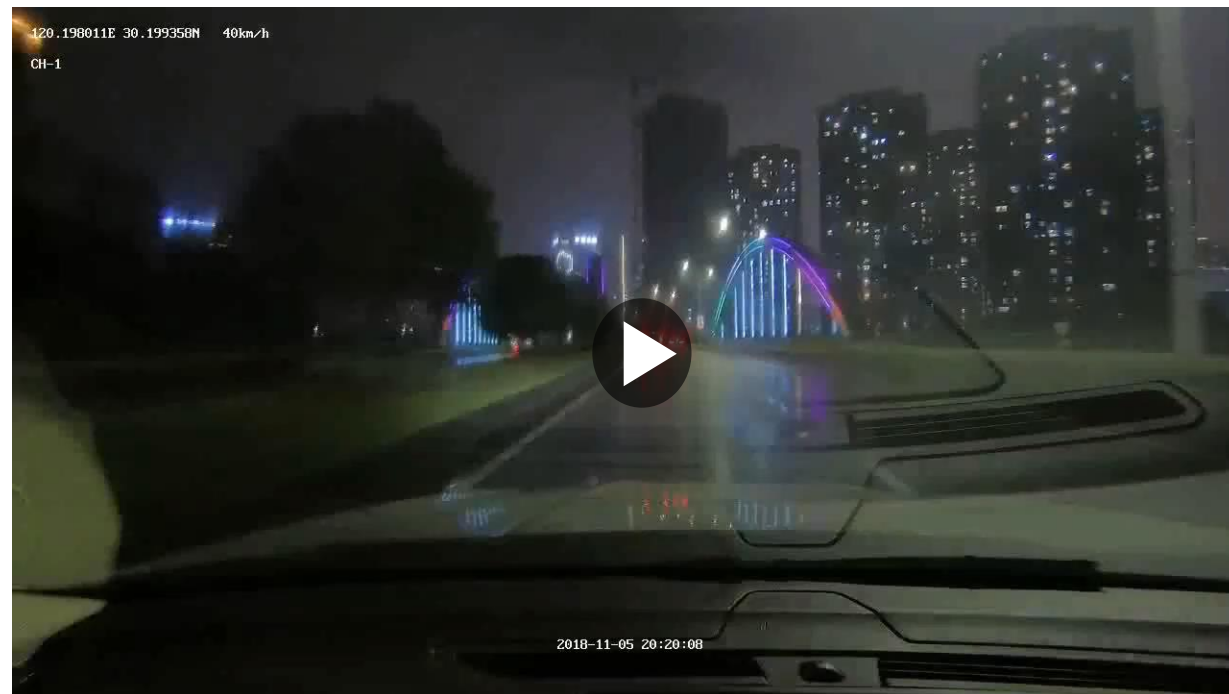
Entering a tunnel at rainy day

Recording Performance: Front Camera Night Time

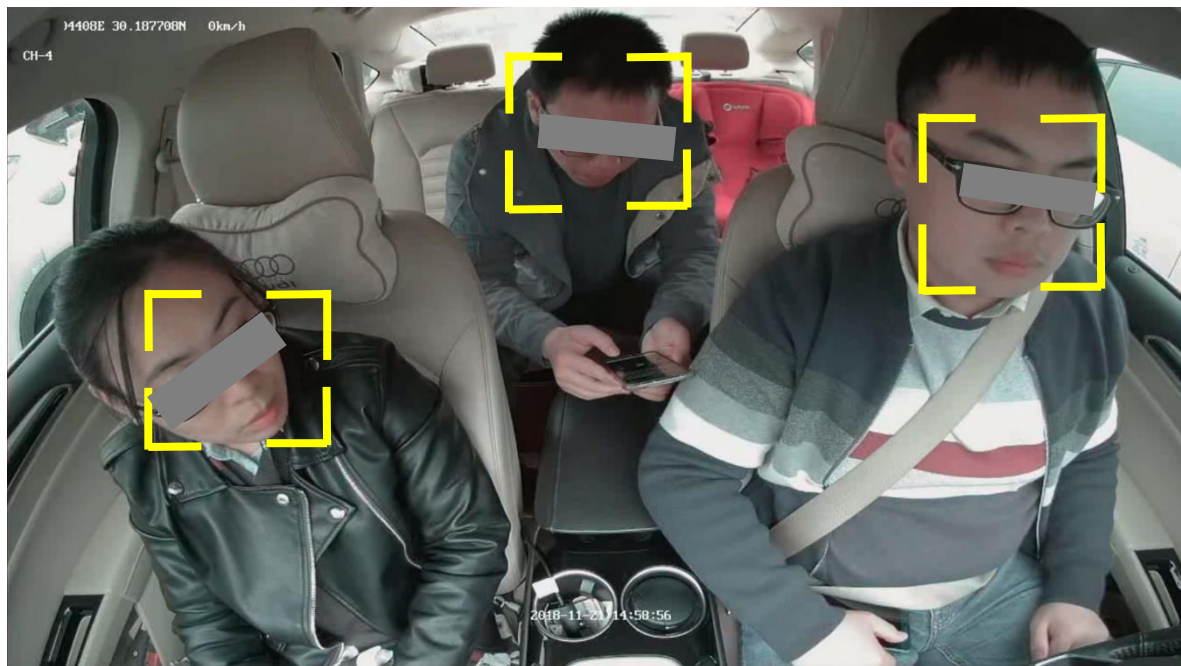
Strong Light Compensation, Low Illumination



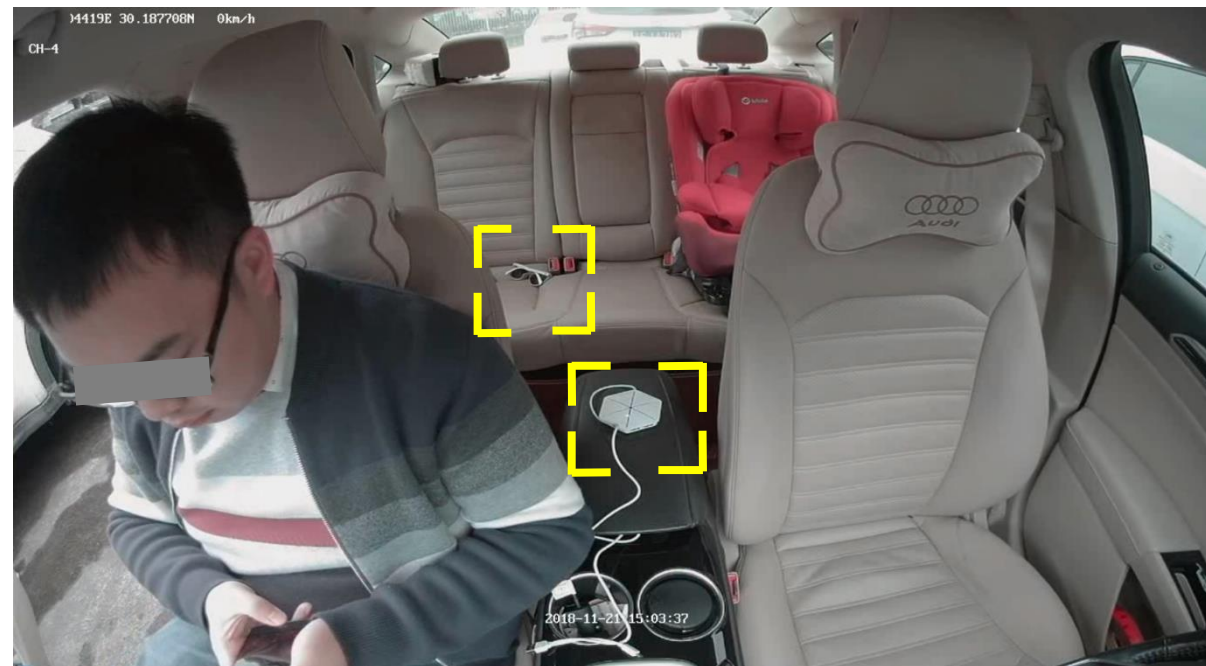
Under the highway at clear night



Neon light street at rainy night



Driver and passengers' faces clearly visible



Items clearly visible

Recording Performance: Trunk Camera



Automatically switches to color mode when trunk opened

Automatically switches to black/white mode when trunk closed

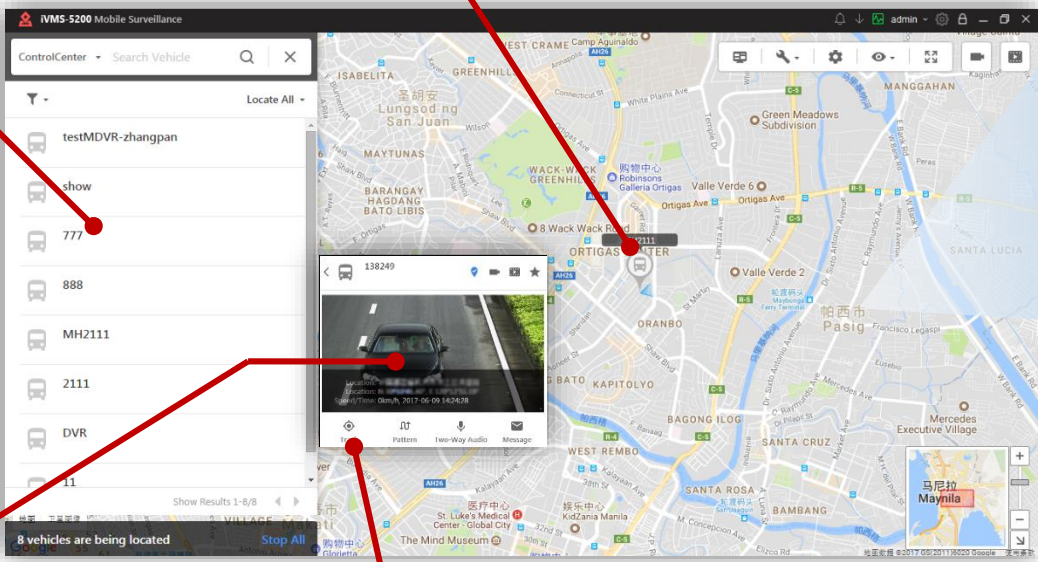


Positioning & Alarm

Real-time GPS Positioning & Tracking

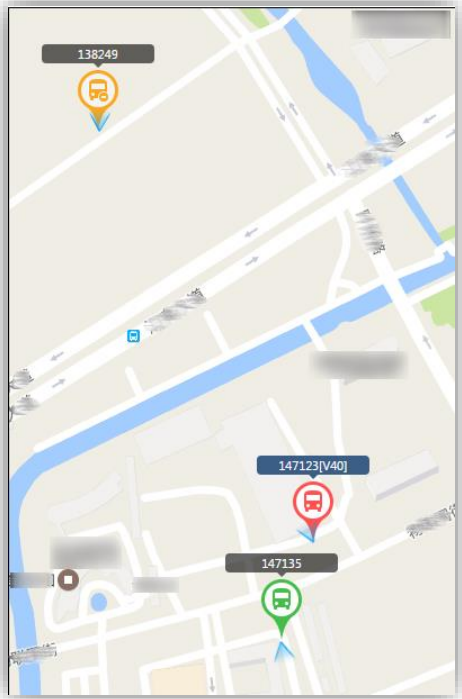


Real-time position on GIS Map (Google Map)

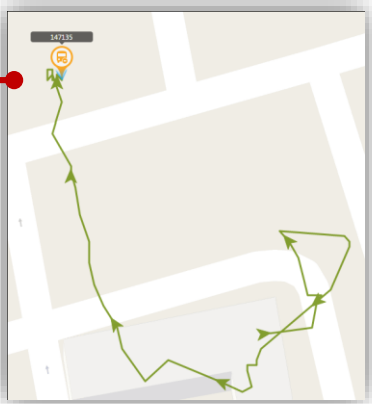


Select vehicles

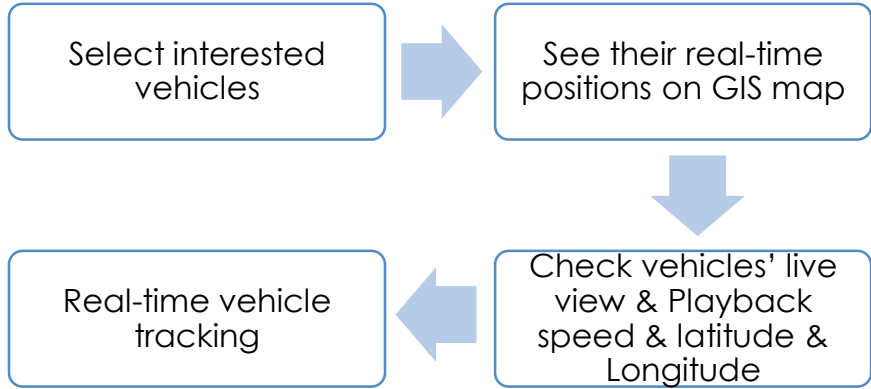
- Vehicle real-time status
- Live view & Playback
 - Latitude & Longitude
 - Speed



- Moving vehicle
- Stopped vehicle
- Vehicle in alarm
- Offline vehicle (show its last available position)

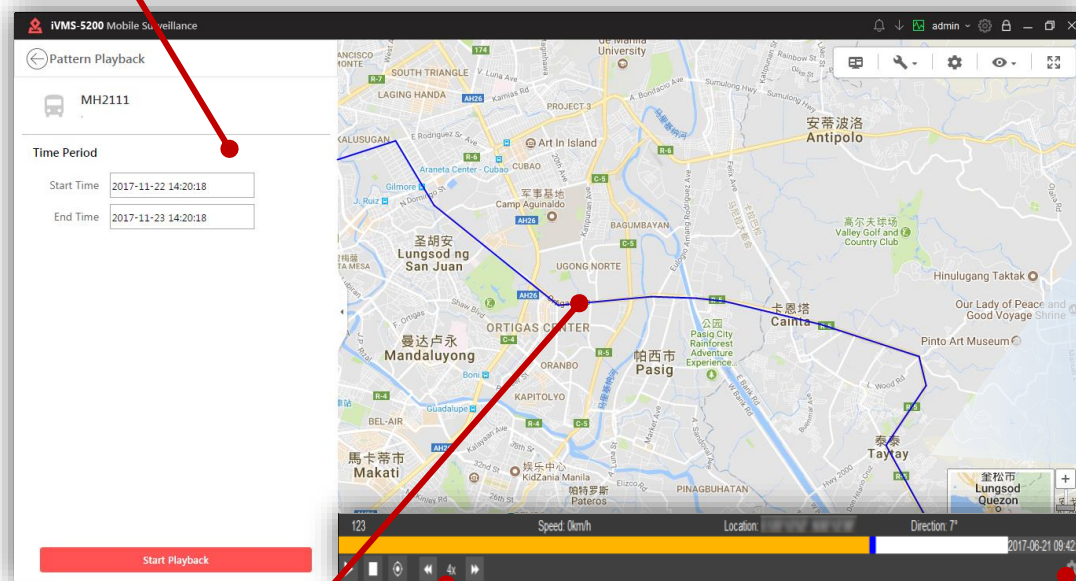


Real-time vehicle tracking, showing its route on the map; the arrow indicates the moving direction;



GPS History Playback

Select vehicle and period



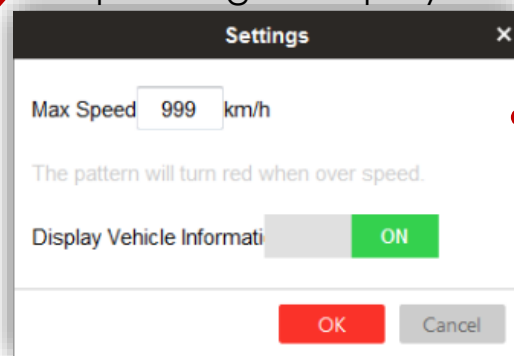
The history route is displayed in 3 colors

- The route in color █ indicates the route is not played back yet;
- The route in color █ indicates the route has been played back already;
- The route in color █ indicates speeding;

See its history track

Fast/slow playback

Define Max Speed to indicate speeding while playback



Select vehicle and period



See its history track

Fence Crossing Alarm



The online car-hailing vehicles are forbidden to go near the military controlled zone, so draw the region surrounding the zone on the map;

Draw the region and define the alarm type as "region enter"

One of the vehicles enters the military controlled zone surrounding area, and alarm is triggered and sent to monitor center;

Vehicle goes into the region and alarm is triggered

The supervision department needs to check why it goes there, and take reaction: could it be a bomb carrier?

Monitor center checks the situation and takes reaction



The Tokyo Taxi Company's taxis are forbidden to go out of Tokyo city, so draw the region of Tokyo city on the map;

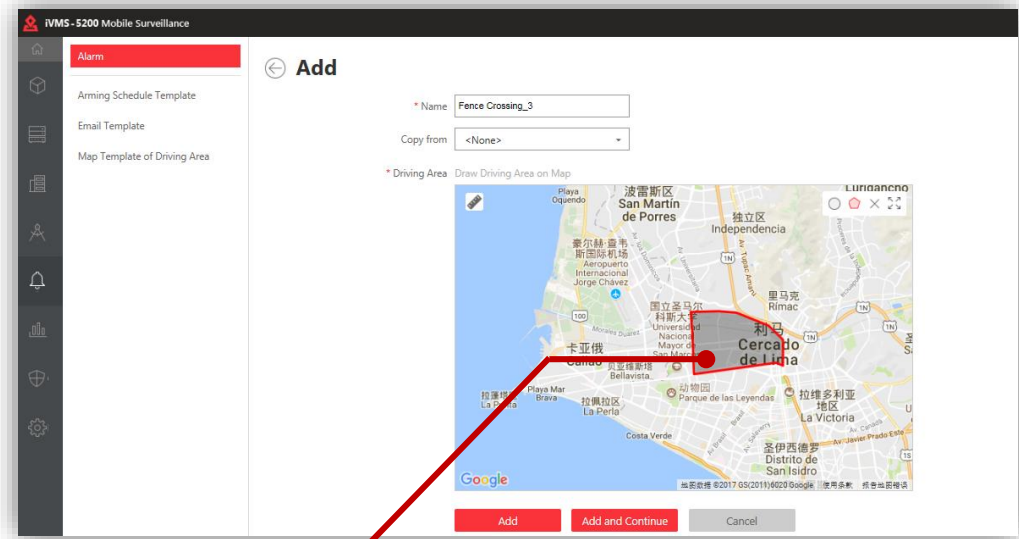
Draw the region and define the alarm type as "region exit"

One of the taxis goes out of Tokyo city, and alarm is triggered and sent to monitor center;

Vehicle goes out of the region and alarm is triggered

Taxi company needs to check why the taxi goes out of Tokyo city, and take reaction: Is it a carjacking?

Monitor center checks the situation and takes reaction

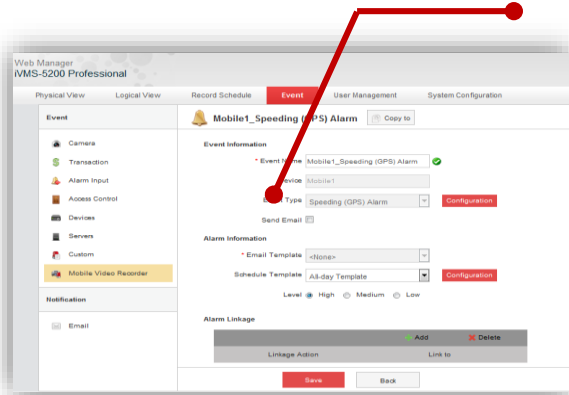


Draw an area (circle or polygon) and then define an alarm type:

- Region enter alarm: If the vehicle goes into this region, alarm will be triggered;
- Region exit alarm: If the vehicle goes out of this region, alarm will be triggered;

Speeding Alarm

Configure speeding alarm in the platform



In order to ensure safety, taxis are forbidden to exceed 80km/h (**user-defined speed limit**).

The taxi is travelling 100km/h, alarm is triggered.

Monitor center receives the alarm and starts two-way audio with the driver to remind him to slow down.

In the monthly/seasonal/yearly performance assessment, taxi company officer retrieves all the vehicles' **speeding alarm history** for reference.

Alarm configuration



Alarm triggered

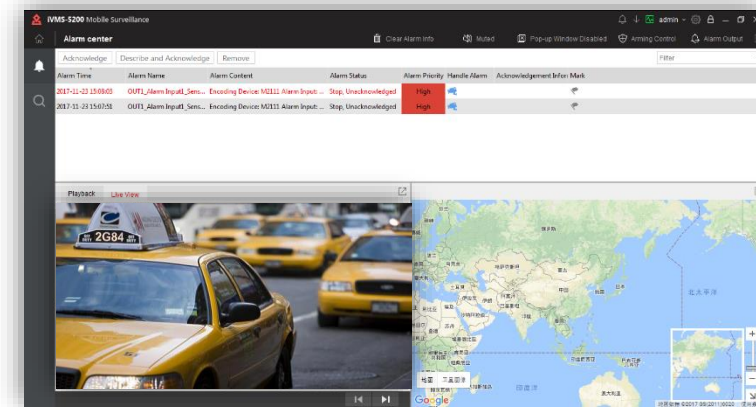


Two-way audio



Alarm history check

Panic Button



If incidents happen, driver or passenger can **press the panic button for help**:

- Carjacking
- Robbery
- Arson
- Sexual assault

Panic button pressed and alarm sent to monitor center;

Alarm item and position and corresponding video record/live view shown, and monitor center takes reaction on the emergency;

Configure panic alarm



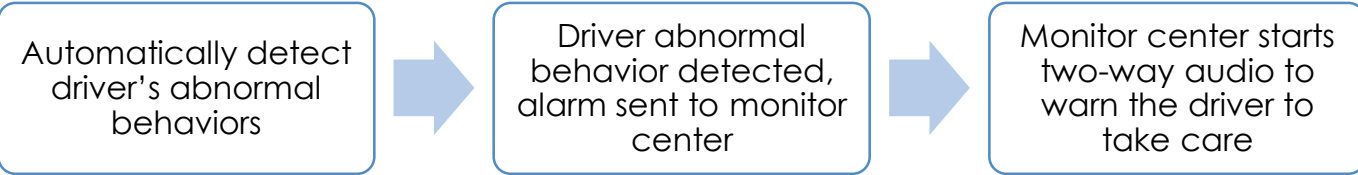
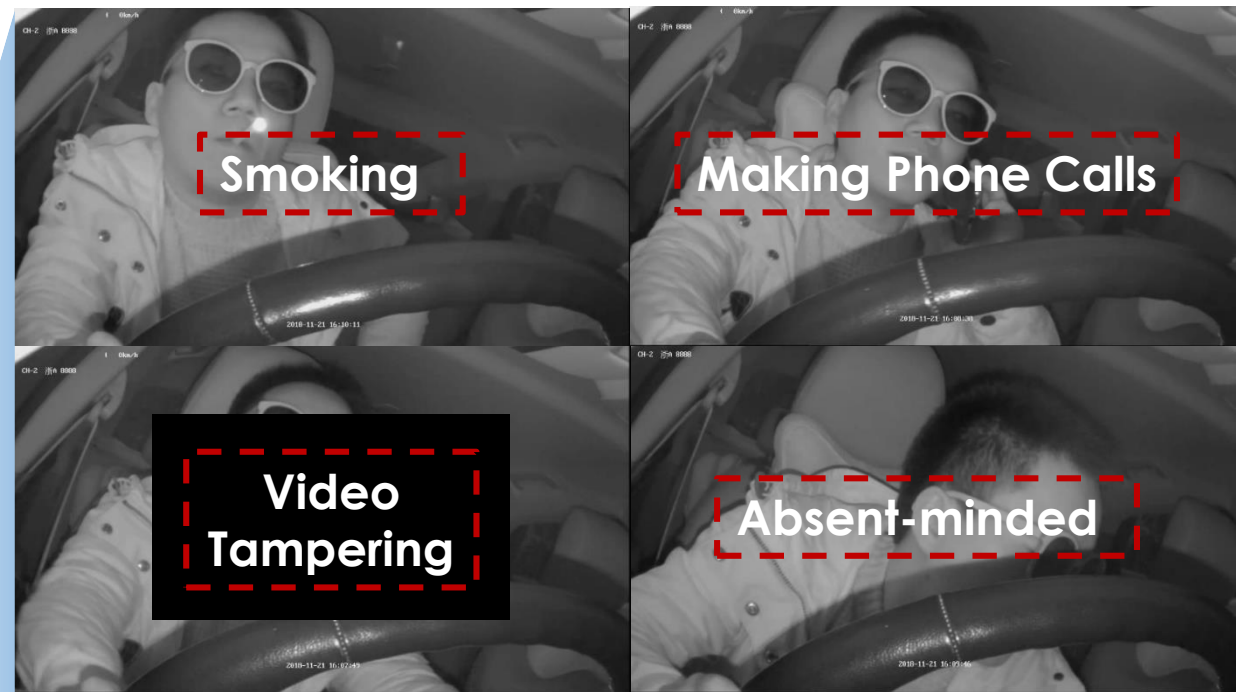
Alarm triggered



Monitor center takes reaction

Automatically analyzes driver's driving behavior and gives alarm if abnormal behavior detected.

Driver Behavior Analysis Camera



Video Tampering: Video tampering alarm will be triggered once there's no face detected in the view.

Driver Authentication

Driver Authentication- Risk of "Fake" Driver

All the guarantees of service security and quality will be **IN VAIN** if the driver isn't the genuine one.

I'm tired today. I'll have my friend take my place.



"Fake" Driver



Personal Information Archived in the Company



Qualified Car



Secured and Satisfactory Service



Skilled Driver



Pass Qualification Test



In order to ensure passenger safety and satisfactory, the taxi and online car hailing driver should be carefully and strictly qualified and archived. **Even though, what if the driver ISN'T the GENUINE one?**

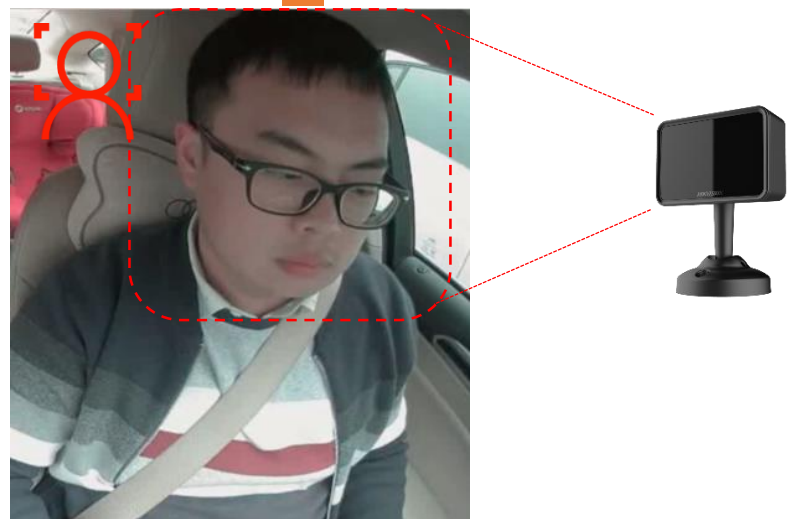
Driver Authentication- Hikvision's Solution



Supports assign multiple sets of driver license number & portrait to with one car license plate number, since one car may have multiple authorized drivers.

- Driver License Number
- Driver Portrait
- Car License Plate Number

①Verify the driver identity by face recognition **once the driver starts the engine**



①Verify the driver identity **every 20 minutes** to ensure no driver switching.

Control Center Officer



Assign driver with car

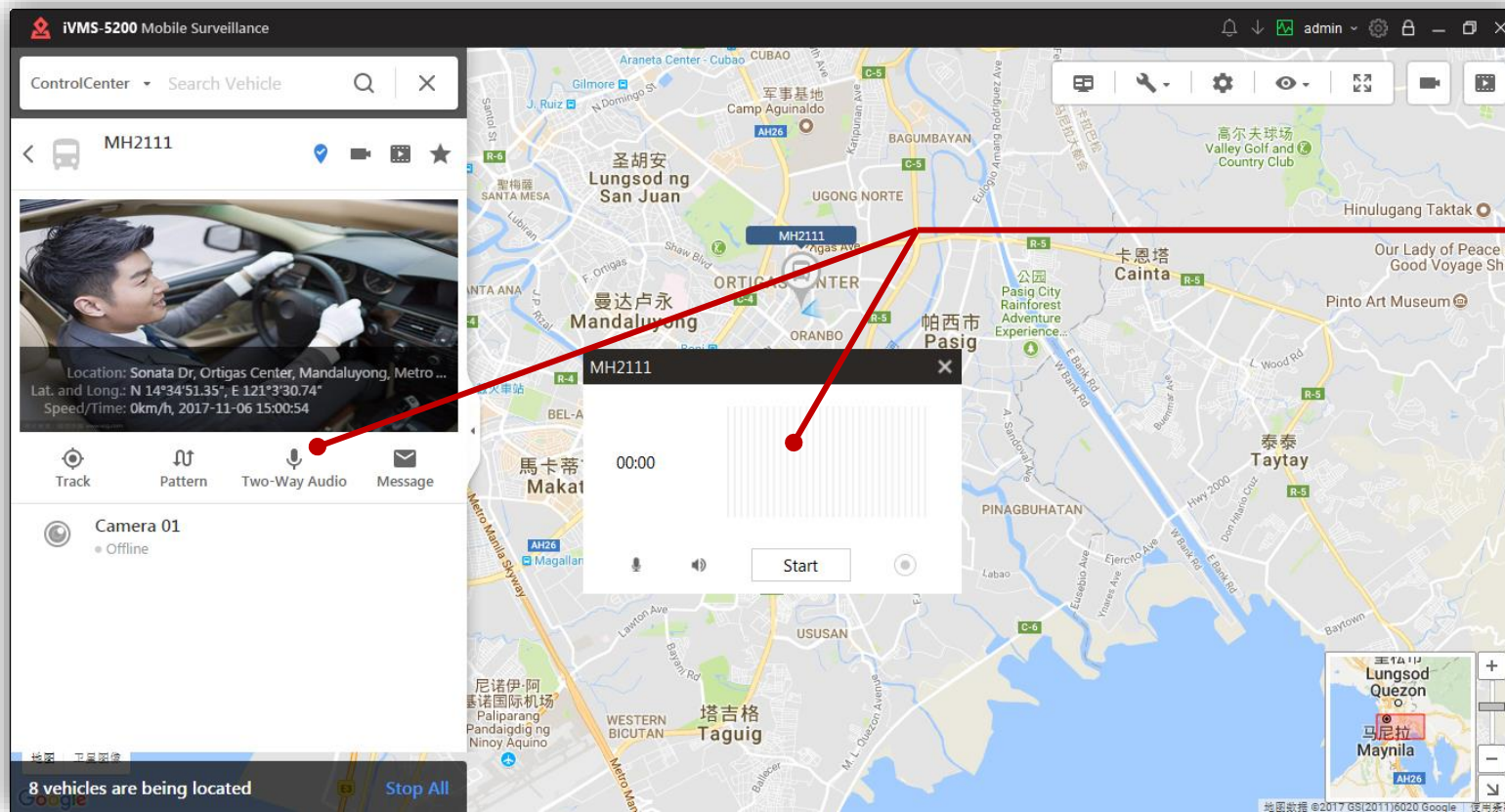


Face recognition driver authentication

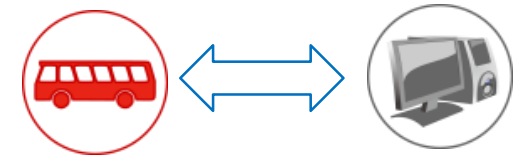
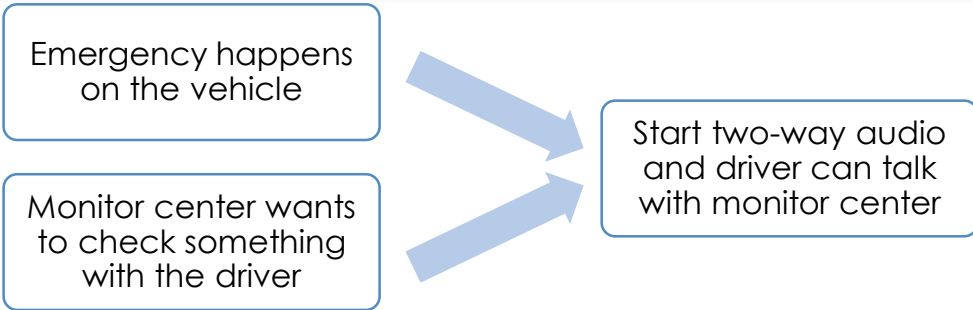


Control center officer remote checks the situation in case of driver authentication failing.

Other Key Functions



Start two-way audio



Health Monitoring

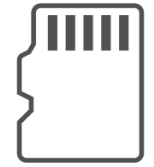
How to get awareness and take quick reaction to these errors?



Device Offline



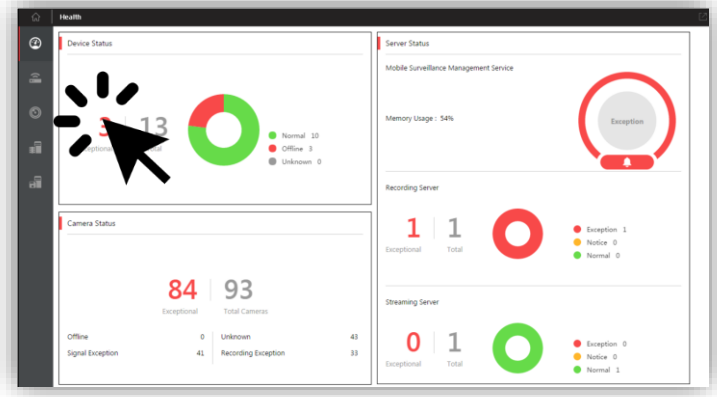
Camera No Signal



Recording Exceptions



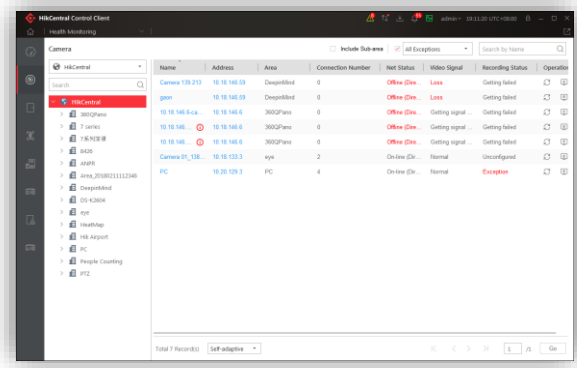
1. Check the health monitoring module



- Centralized display of health data of the overall system in dashboard, easily justify the health status of the system



2. Click for details checking on abnormal items

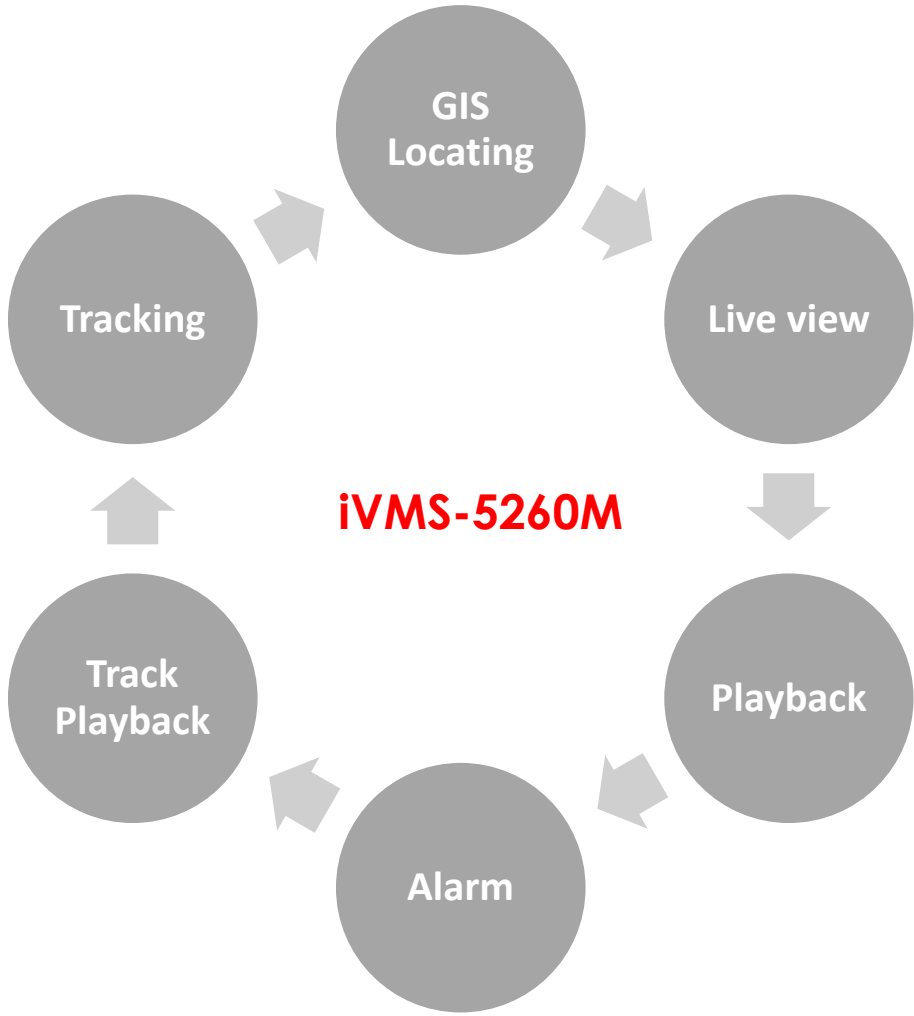


- List of the abnormal items will be shown here

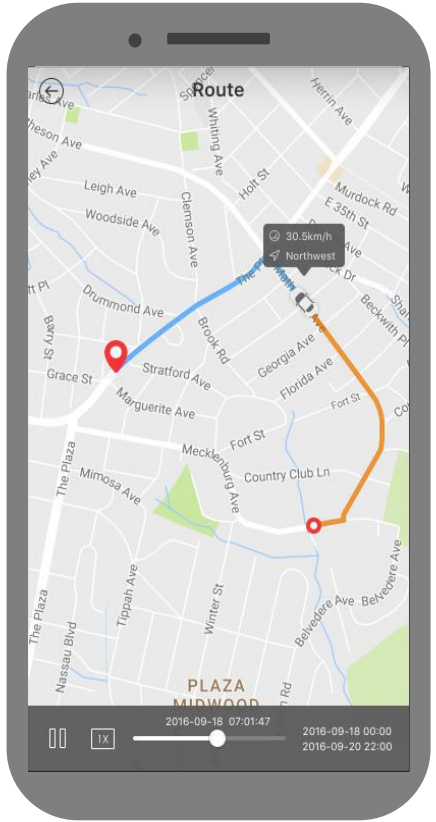
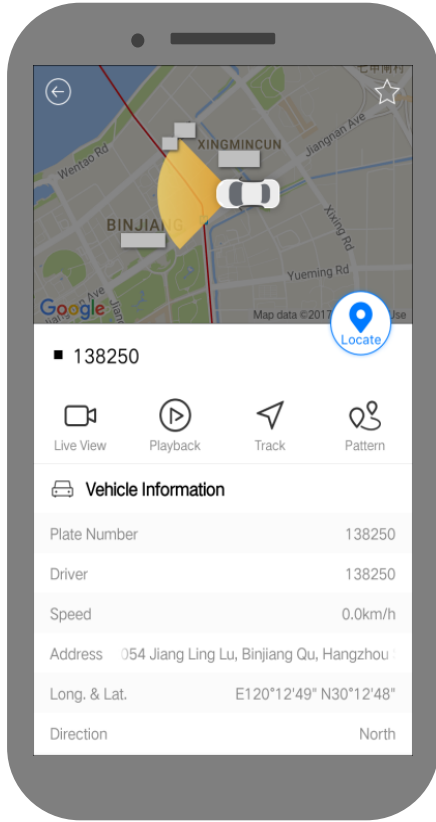
3. Fix the problems

- Network accessible?
- Power on?
- User name & password correct?
- TF card normal?





iVMS-5260M



System Requirement:



iOS 7.0 and above (since iPhone 4S).



Android 4.0 and above.

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Cost Effective



Comparing to conventional mobile surveillance equipment, the driving recorder is a lighter solution and more cost-effective.

Easy to Install



Small devices with sucker mounting & car cigarette lighter powering & easy wiring, very easy to install.

Easy to Use



Direct linkage between driving recorder and mobile phone and use mobile App for configuration.


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A photograph showing a long line of taxis on a city street. Each taxi has a HIKVISION surveillance camera mounted on its roof. The taxis are in various colors, including red, white, and yellow. The background shows a city street with a concrete barrier and buildings.

Our solution hits the Thailand conventional mobile surveillance, selling out more than 5,000 sets in less than half year.

Chengdu God Horse Online Car-hailing Project

HIKVISION

More than a 300 sets of devices are deployed in Chengdu (One of West China's major cities) protecting luxurious cars like Tesla Model S/X, BMW i3.



见远行更远

See Far, Go Further

