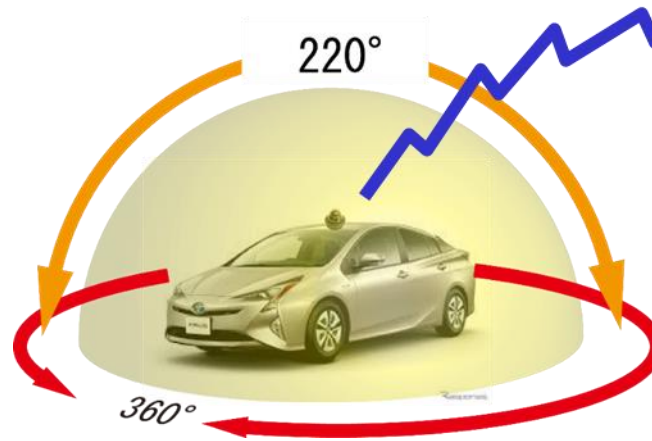


NEW!

Proposal for Rooftop type 360° Camera

Model : PLC220-12M



With a camera installed on the vehicle,
360° hemisphere view can be captured in high resolution.

Industry Highest Resolution:
12.3 mega pixels

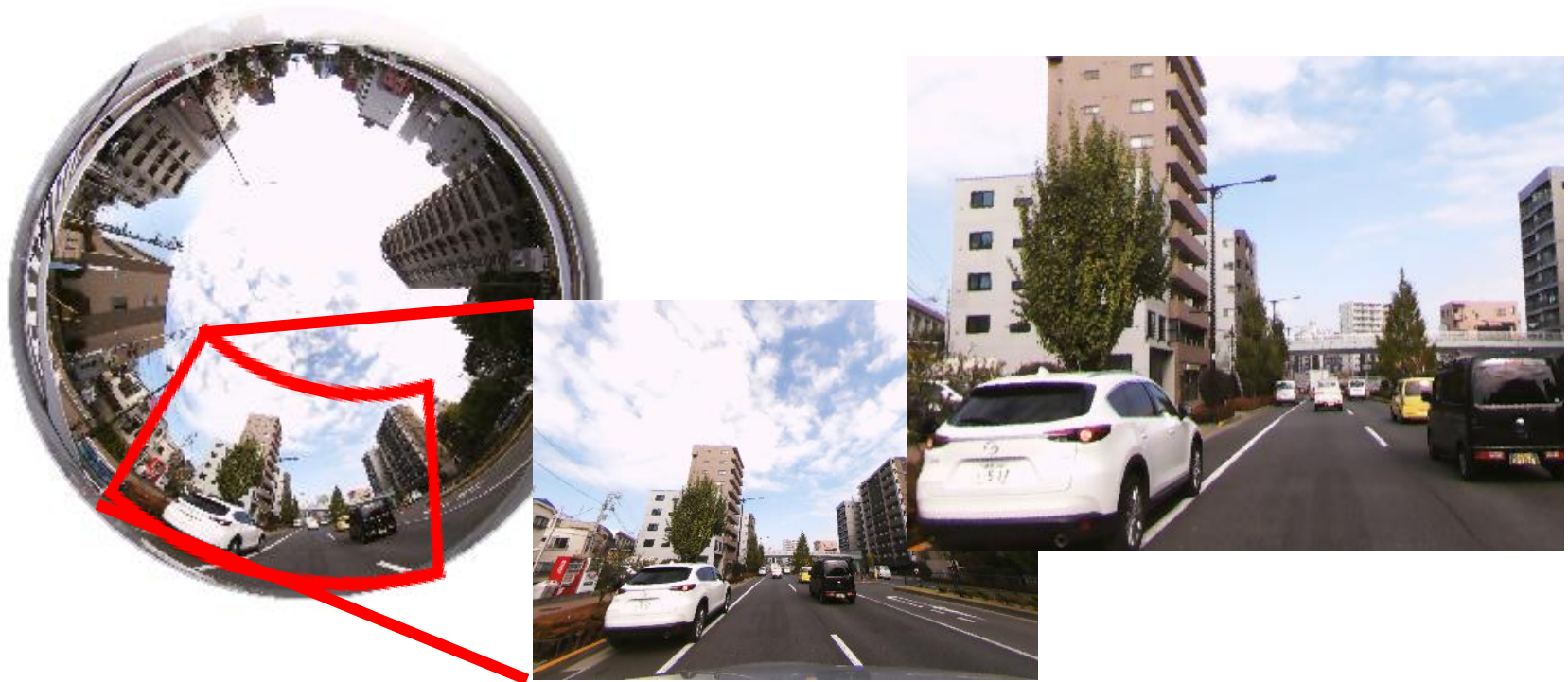
* Overview of the 360° Roof-top Camera

- With a specially designed fisheye lens, the camera installed on the roof can shoot the **360° hemisphere view of the vehicle**.
- With the depression angle (the angle below the lens reference plane) of 20° of the lens, **the road surface is in a view**.
- You can shoot in all directions with one camera. Since it is not a composition of images from multiple cameras, **a seamless view** is available. Image dewarping is very easy and smooth.
- Since it is a fisheye lens, there is **no need for a focusing mechanism or alignment work**. No PTZ mechanism assures **12 times higher durability**.
- The use of a glass lens provides **high reliability and high image quality**.
- Digital output of clear images from USB. Connect directly to a computer for operation and video confirmation. Even during image transmission, there is no image deterioration.
- **Easy connection** between the camera and a PC in a car with a single USB cable.
- Easy and simple installation with a strong adhesive tape or magnet.
- Water & dust proof **IP66**, anchi-shock **IK10** dome housing



* unique feature of PLC220-12M

A newly developed fisheye lens with a depression angle achieves high resolution without blurring the image even at the periphery of the lens.



360° entire surrounding area of camera can be captured.

Patent Pending No. 2022-193152

* unique feature of PLC220-12M

A newly developed fisheye lens with a depression angle achieves high resolution without blurring the image even at the fringe area of the lens.

Compare with other fish-eye camera

【a camera with other fisheye lens】

【PLC220-12M】

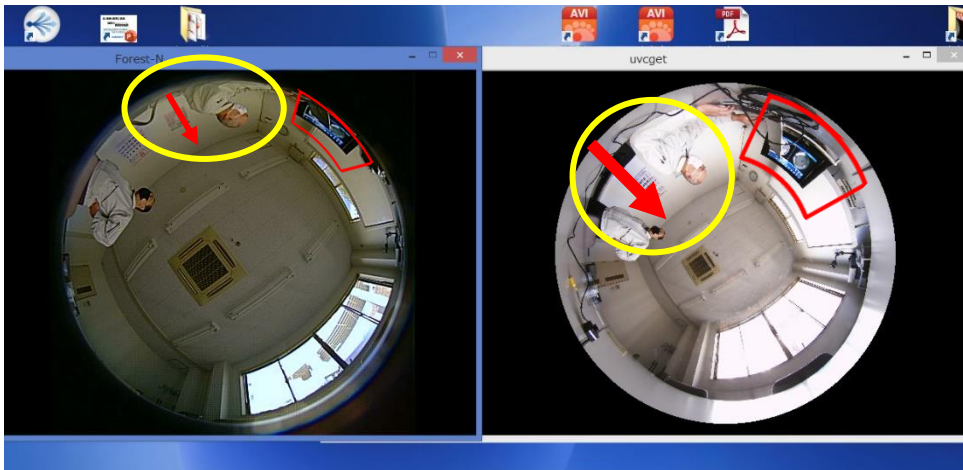
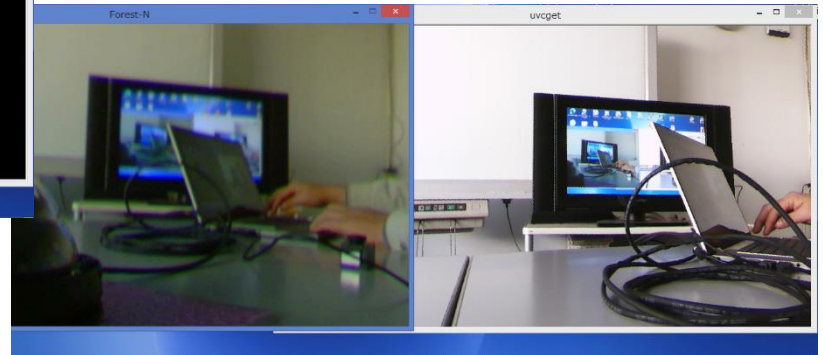


Image at the 360° fringe area
is very clear

Compare the resolution at the lens
fringe area

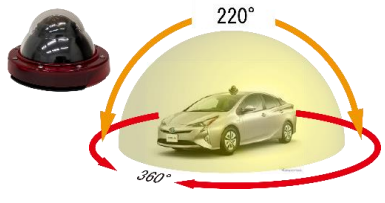
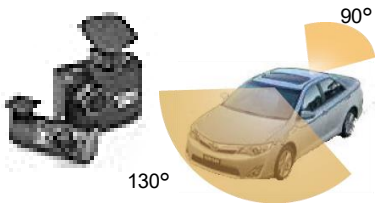
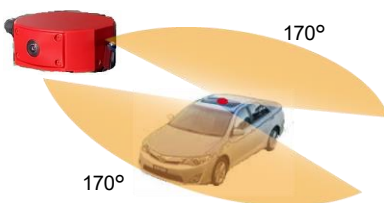
【conventional fisheye lens】

【PLC220-12M】



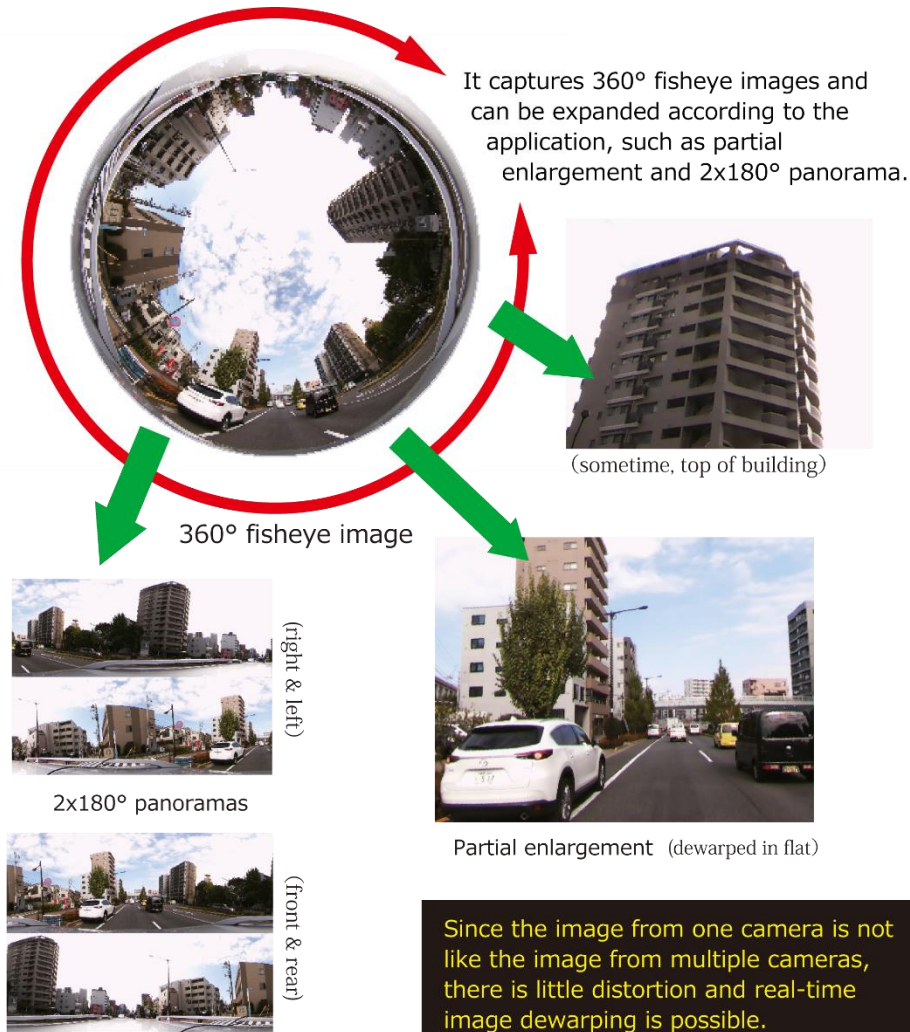
Enlarged to make the size
almost equivalent

Comparison of On-vehicle camera

	On-vehicle installation	Blue: advantages	Red: disadvantages	Green: concerns
Supplkier/Model	OPT Corporation : PLC220-12M	In-vehicle Dashcam from many suppliers, Dashcam	On-vehicle camera with different solution	
Appearance/ View angle				
Basic Structure	Fisheye lens with depression angle Installed on Vehicle. 360 degree all side of the camera is in view.	1~3 cameras in a car for front and rear view. 1~3 separate screens.	Two wide-angle cameras are installed back to back, and wide-angle (apprx. 170°) images are displayed on two screens.	Action camera: Images from two fisheye cameras (180°) are combined to create a global image.
Housing : would like to be less than H=130mm	small as $\phi=130\text{mm}$, H=89mm	Small and unobtrusive inside a car	Difficult to miniaturize, cable is thick Current product: $\phi 180\text{mm}$, H=70mm or more	Impossible to make smaller in height. H=160mm or more
Viewing range	220° x 360°: Captures images from above down to the road surface. Large, clear side views	View is limited to the front and rear. Separate video management = dual- screen display. Blind spots due to interior structures. Side blind spots.	Front and rear wide-angle images. Separate image management = dual- screen display. Blind spots on the sides	Even if you can take a global shot, it will be useless because the roof of the car will block it.
Movie resolution (Mega Pixel)	12.3	0.5~2 (enough for minimum size screen)	3	7.4
Vide format	AVI/M-JPEG	MP4	INSV	MP4 or INSV
Required Power	Powered by USB of your car's PC 5V, 2A Single cable connection required	Cigarette lighter 12V	Cigarette lighter 12V	Internal rechargeable battery
Recording and video transfer function	Long-term recording is possible using an in-car PC. Transfer to IP via the police system.	Transfer only via SD card. Self-contained recording. Due to the recording capacity of the SD card, not suitable for long-term recording	Record and save in the PC in a car, and transferred to headquarters via the PC's communication function.	SD card recording. Wi-Fi transfer or USB Type-C. Not suitable for long-term recording.
価格	US\$2,400 includes the dewarping software.	Cheap (US\$100-800) For personal users.	US\$800 excluding application software.	The camera alone costs about US\$250, but this is unrealistic for use in a car.

※ In addition to the above, there is a system used by Google View that synthesizes images from eight cameras (US\$113,000 per unit), and Facebook is considering a system using 17 composite cameras (US\$11,500).

Dewarping function for easy viewing of fisheye images

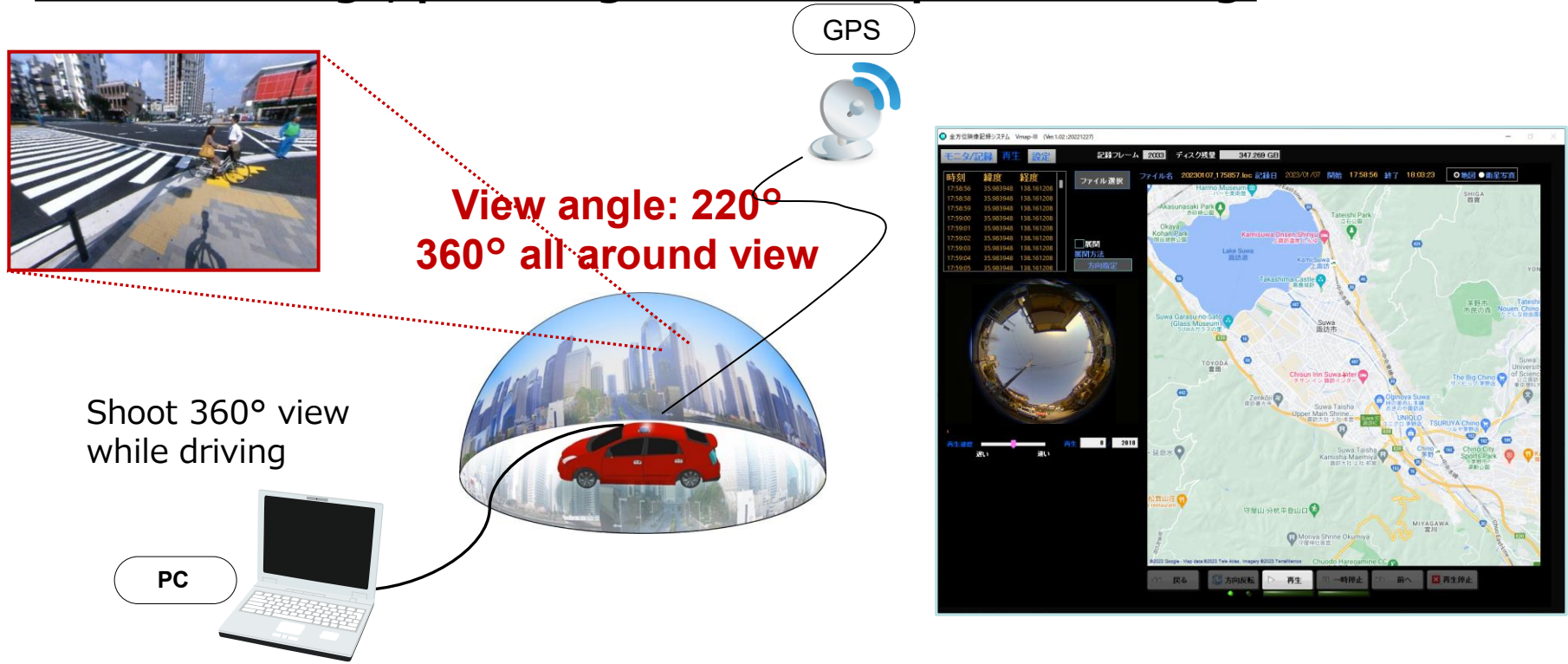


- Originally the camera takes 360° omnidirectional video, so you can zoom in and dewarp anywhere you want.
- Provide circular images, zoomed images, 2x180° panoramas, and 220° panoramas for expansion, and it is also possible to cut out and output a part by specifying the angle with electronic PTZ.

Also possible to dewarp the recorded videos.

Since the image from one camera is not like the image from multiple cameras, there is little distortion and real-time image dewarping is possible.

Obtaining location and time information from the GPS receiver with the video image, plot images on the map from GPS log.



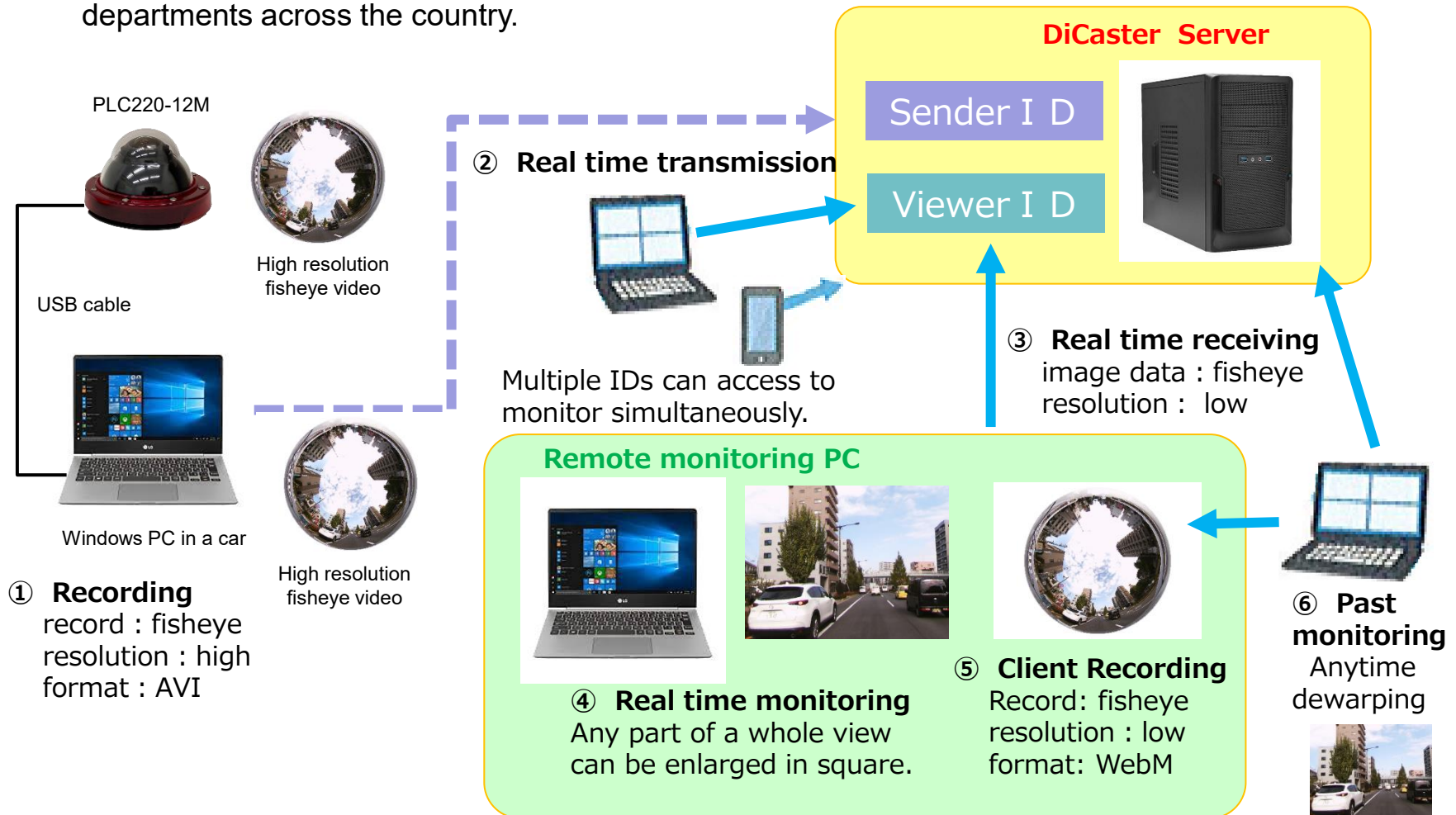
【very convenient with GPS information】

- ◆ Plot the shot images on the map from GPS logs.
- ◆ Click the tracking line or point on the map to display hemisphere images.
- ◆ Scroll and zoom in/out with a mouse.

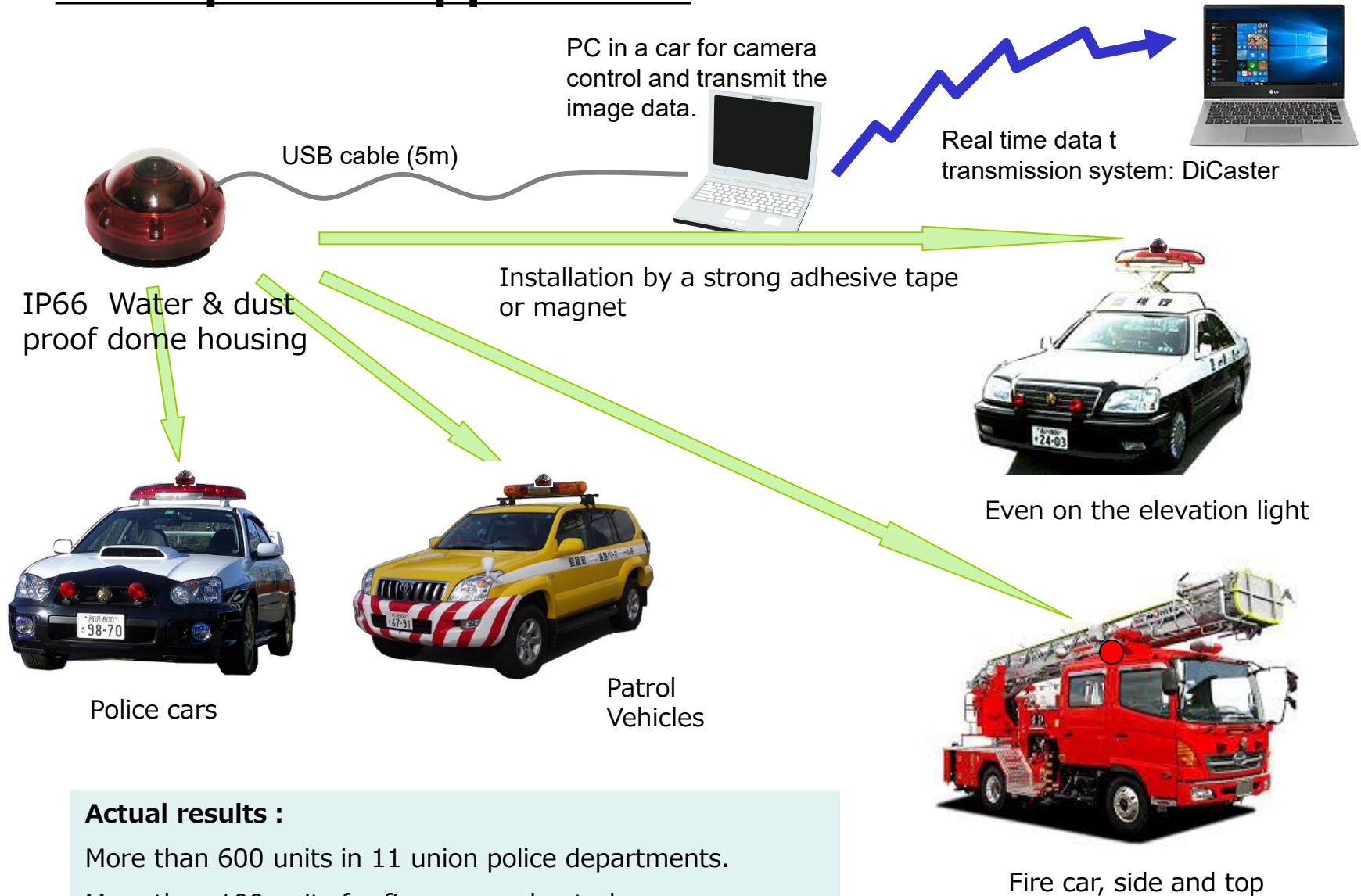
GPS system is an optional service.

Live video data transmission system enables remote monitoring.

- DiCaster® is the video transmission system provided by ENWA Co.Ltd (Oosaka) to fire departments across the country.



Examples of Application



Actual results :

More than 600 units in 11 union police departments.

More than 100 units for fire cars and patrol cars.

* Examples of application

- ◎ Police Car: to take the latest town images or live image of crime scene
Built on the patrol-lamp
Always record the 360 degree surround images with the GPS position information during the patrol.
Record images into the PC under the seat.
Send images to the head quarter for analysis and conducting.
- ◎ Fire Engine
- ◎ Security Company Car
- ◎ Road management company Car
- ◎ Tax, Track etc... as a Driver Recorder like

Possible to dewarp the image
on a real time basis.

Pictures supplied from Google
View are too old.

The cost is 1/10 of Google
View camera system.

Example: NEXCO East Japan

Omnidirectional Video Recording System

- Recording and playback on a tablet PC (with video mapping software pre-installed) loaded into the vehicle.
- System starts up with the PC ON, the GPS is activated, and recording begins
- When playing back, it connects to the Internet and displays the driving trajectory on a map



Please consider introducing a 360° vehicle roof-top camera

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