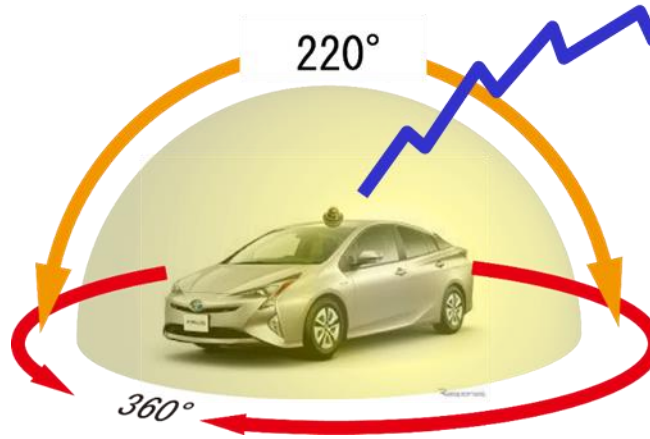


NEW!

Proposal for Rooftop type 360° Camera

Model : PLC220-12M



220°



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

Industry Highest Resolution:
12.3 mega pixels

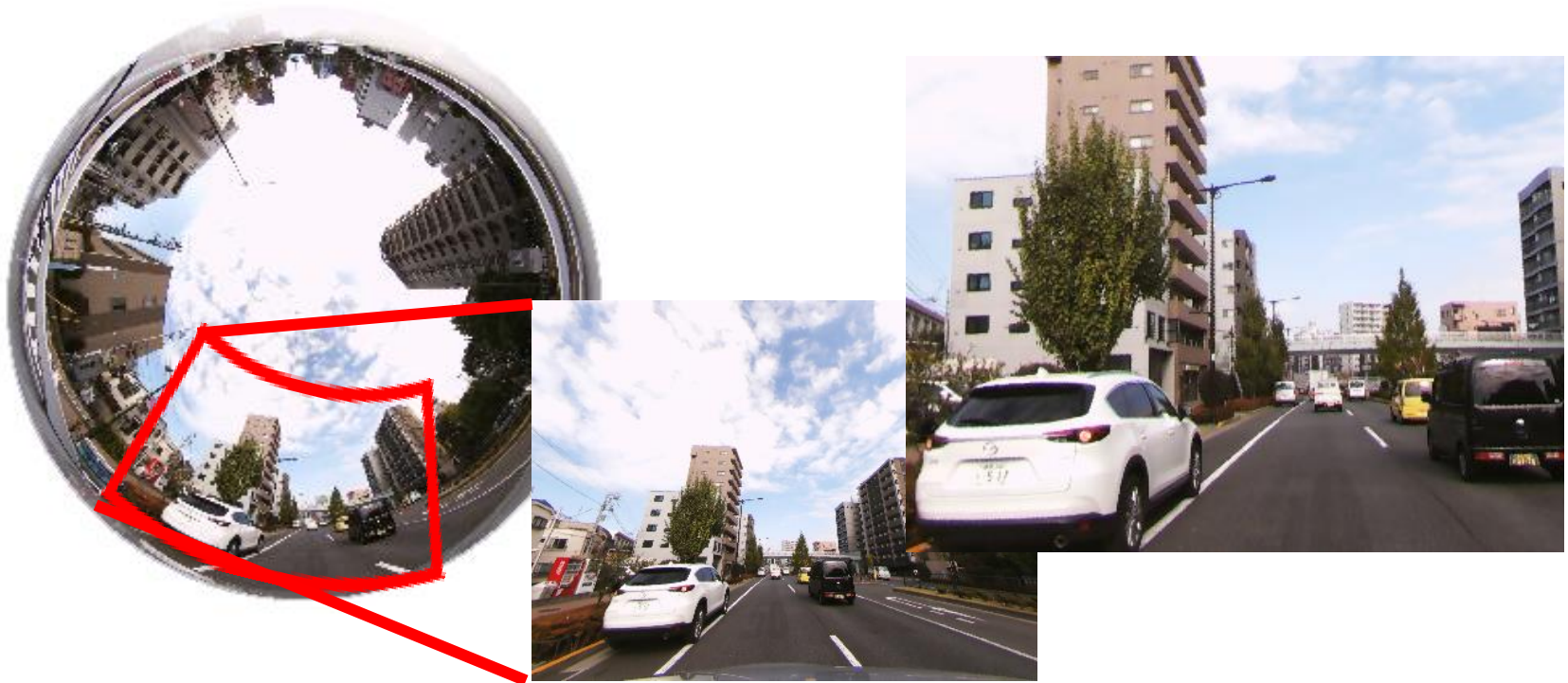
* Overview of the 360° Roof-top Camera

- 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】

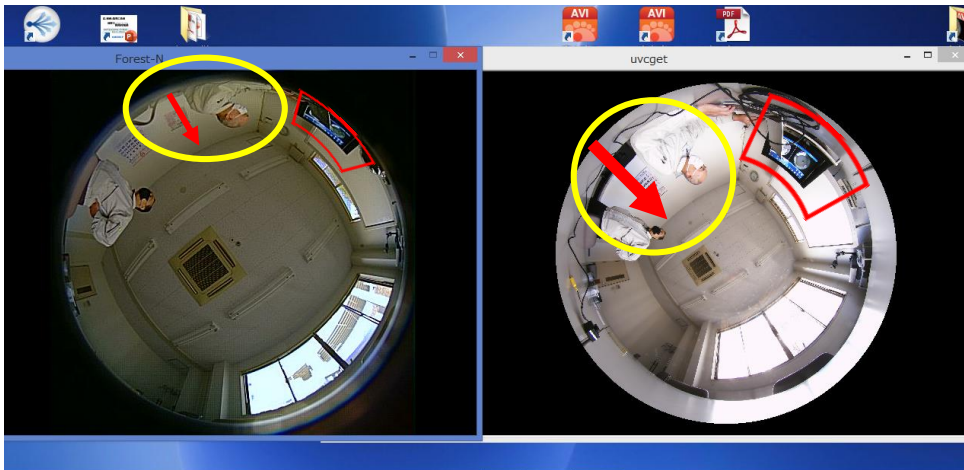
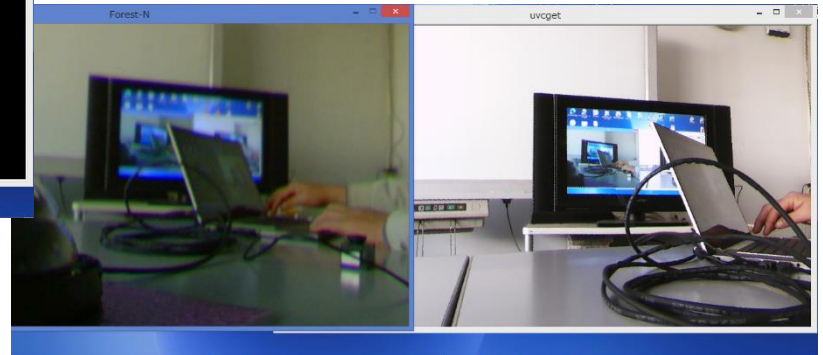


Image at the 360° fringe area
is very clear

Compare the resolution at the lens
fringe area

【conventional fisheye lens】

【PLC220-12M】



Enlarged to make the size
almost equivalent

* Comparison with other solutions

Rooftop type 360° camera PLC220-12M

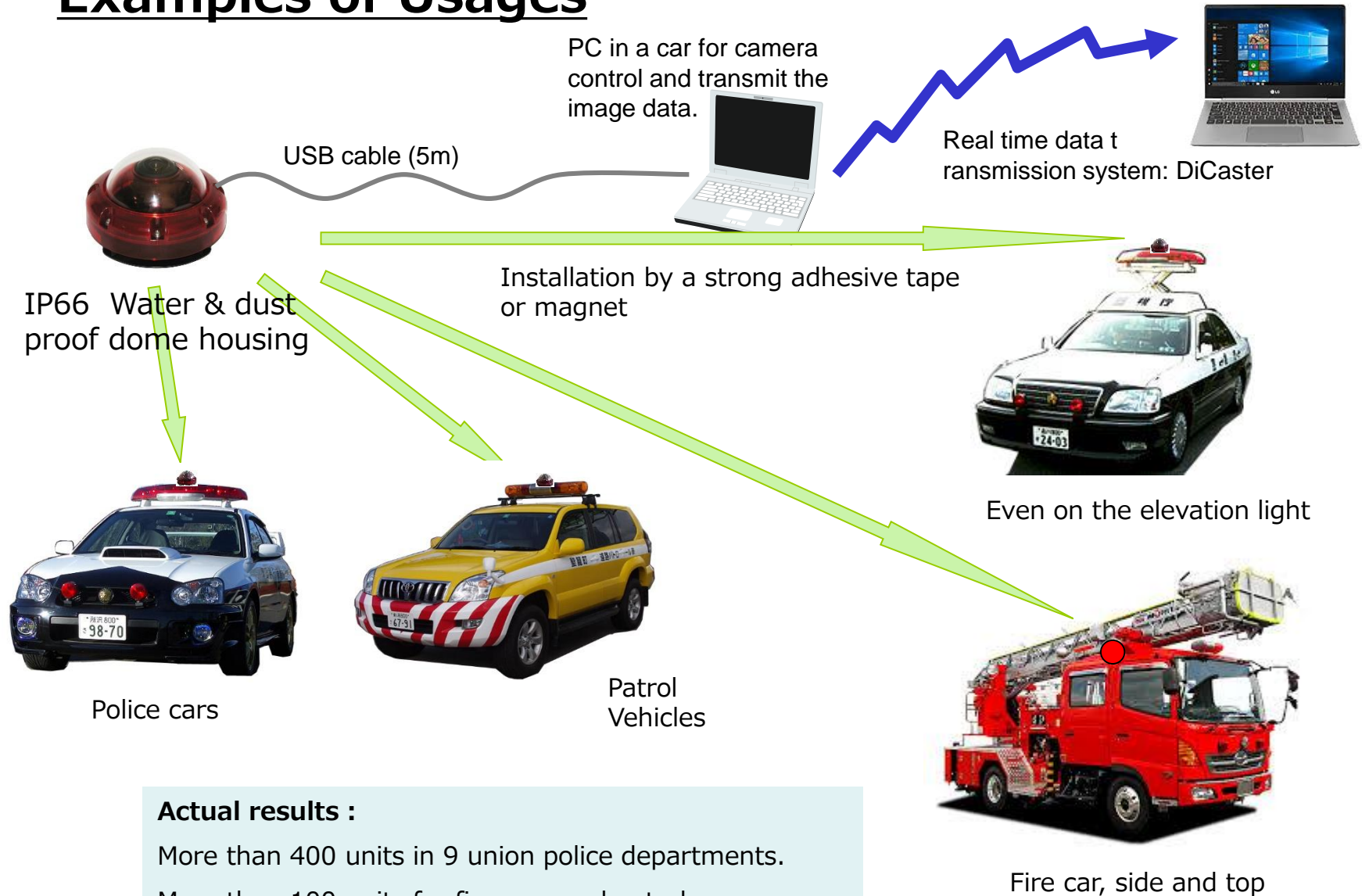
Red : Advantage

Blue : Disadvantage

Green : Concern

	Previous 3MP model NM33D-M-PLV	New 12.3MP model PLC220-12M	Drive Recorder	Other solutions		
				Reflector	2 optical systems	Other fisheye
				ex : PALNON lens	ex : Ricoh Theta	ex : Hikvision 12M
Basic Construction	A fisheye lens with depression angle. 360° around a car	A fisheye lens with depression angle. 360° around a car	Front view and rear view with 2 cameras	Around view not including a sky	Full-sphere shooting by synthesizing 180° images with two optical systems	A network camera of 180° view angle.
Housing Required less H=130mm	small : H=79mm φ132mm	small : H=89mm φ132mm	Quite small, inconspicuous even in the car	Since the optical system is complicated, can not be made in small. H=180mm or more	Can not be in small in height. H=160mm or more	Impossible to be in small φ160mm or more
Shooting Range	Around 360° and 20° lower than roof.	Around 360° and 20° lower than roof.	Limited in Front and rear.	All sides and some lower than roof.	A global image is kicked by the ceiling of the car.	Higher than the roof only.
Movie Resolution (Mega Pixel)	3	12.3	0.5~ 2	~2.2	7.4	12.4
Power Source	Only one USB cable from PC in the car	Only one USB cable from PC in the car	Cigarette lighter	Cigarette lighter	Battery or other power sourcing	Only one LAN cable from PoE hub
Data Transfer method	Data stored in a PC and transferred via some data transfer system.	Data stored in a PC and transferred via some data transfer system.	By SD memory card only	Data stored in a PC and transferred via some data transfer system.	(supposedly) Data stored in a PC and transferred via some data transfer system.	A car installation model is not available
others	More than 500 police cars in Japan	Better resolution and brightness	Equipped with an SD card for self-contained recording	Not applied	An action camera with a short recording	Focus alignment mechanism , no durability
	Depression angle	Better resolution of fringe area	Cheap, good for a consumer			No products available

Examples of Usages

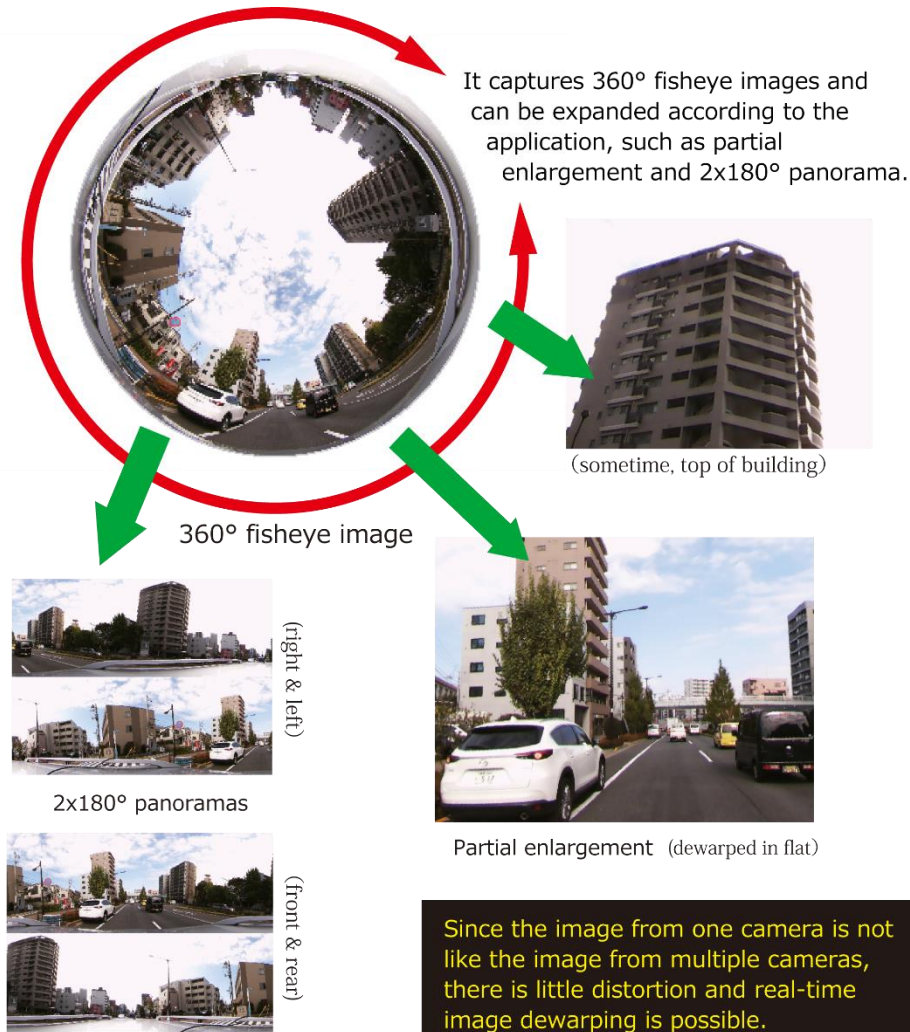


Actual results :

More than 400 units in 9 union police departments.

More than 100 units for fire cars and patrol cars.

Dewarping function for easy viewing of fisheye images

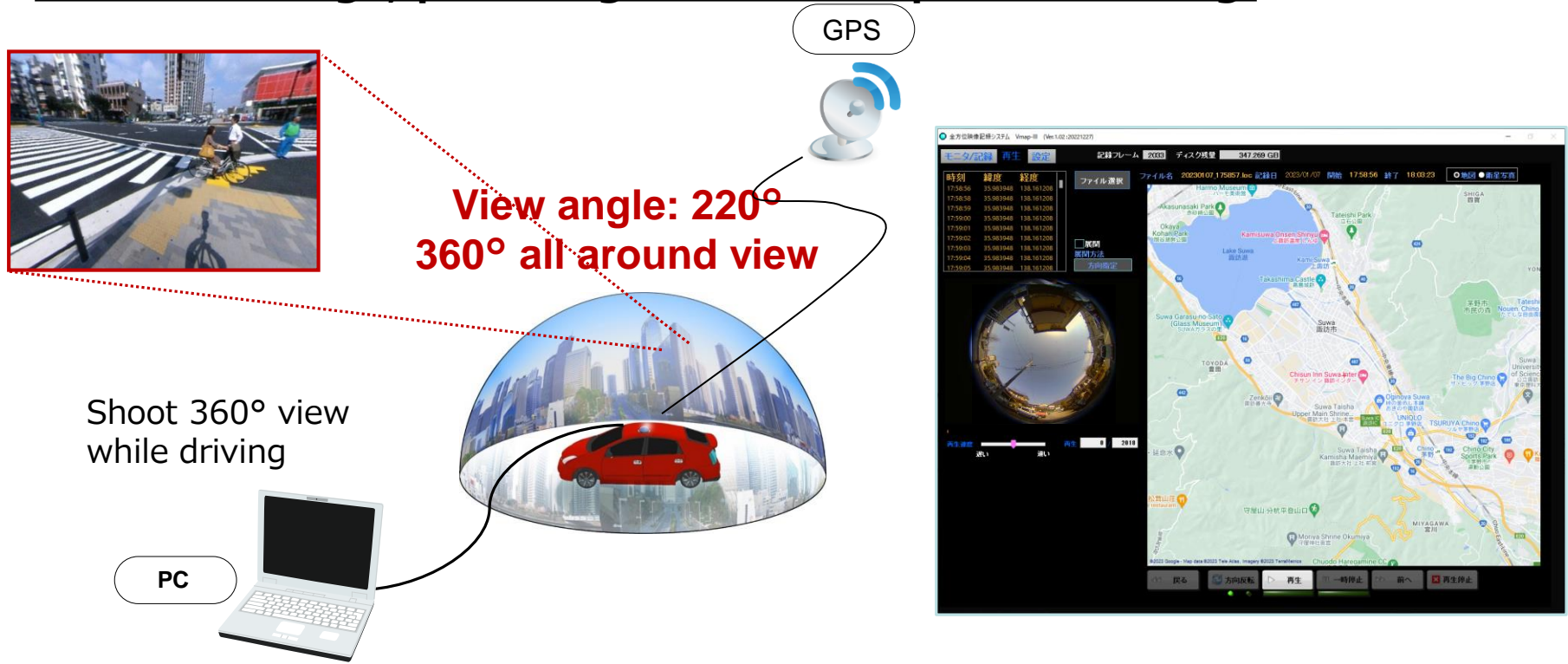


- Originally the camera takes 360° omnidirectional video, so you can zoom in and dewarp anywhere you want.
- Provide circular images, zoomed images, 2x180° panoramas, and 220° panoramas for expansion, and it is also possible to cut out and output a part by specifying the angle with electronic PTZ.

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.



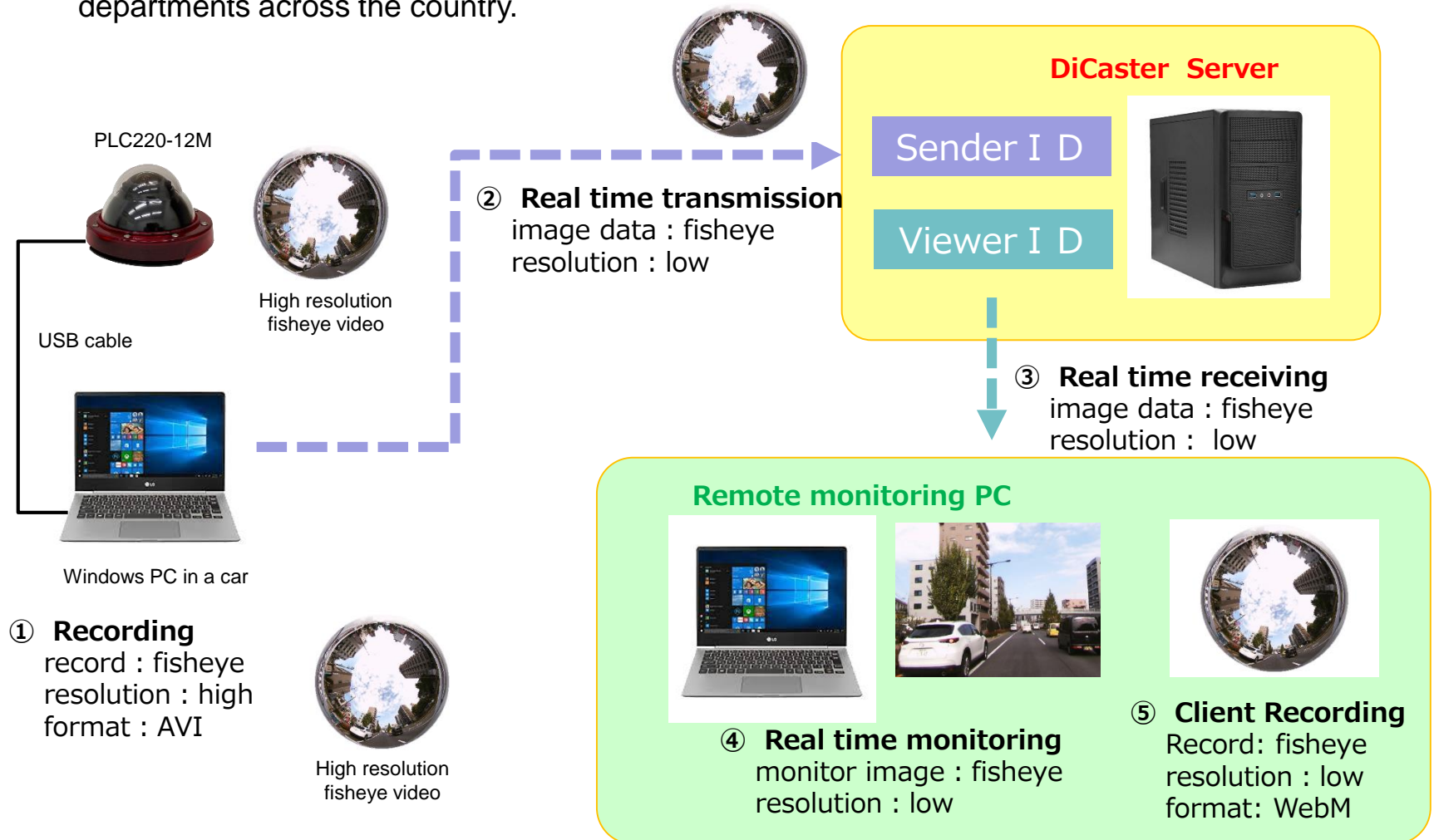
【very convenient with GPS information】

- ◆ 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

- ◎ 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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