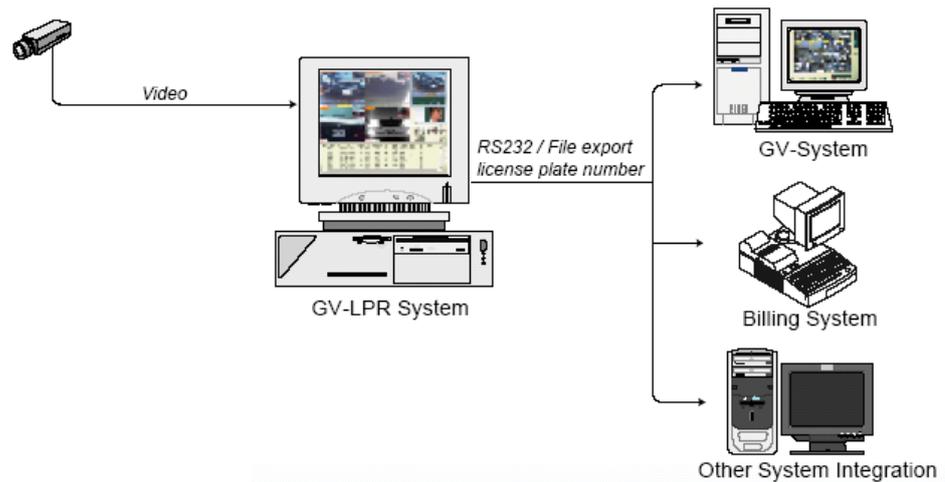


GV-LPR System Installation Guide for Application on Road

1. **Purpose:** This Installation guide provides guidelines for installation of the PC side and the field side so that the system can provide the best performance. The example is for road application.

2. **GV-LPR System Architecture Diagram:**

For application on the road, video motion detection triggers recognition mode will be used for most of the application except for red light violation application. GV-Net card, GV-IO and GV-Relay are not needed for motion detection mode on road.



3. **Devices:**

3.1 **PC Specification:**

Note: The maximum ports supported for motion detection mode are 4 ports of camera.

Specifications			
Product Model	GV-LPR-1 Motion mode	GV-LPR-2 Motion mode	GV-LPR-4 Motion mode
Number of Ports	1	2	4
Total FPS	30fps	60fps	120fps
FPS / Camera	30fps	30fps	30fps
Image Format	JPEG	JPEG	JPEG
CPU	Core 2 Duo E6400 2.13 GHz	Core 2 Duo E6400 2.13 GHz	Core 2 Duo E6600 2.4 GHz
RAM	512 MB x2 dual DDR2 RAM	512 MB x2 dual DDR2 RAM	1 GB x2 dual DDR2 RAM
HDD	250 GB or above	250 GB or above	250 GB or above
VGA	GeForce 6600 / ATI Radeon X1550 or above	GeForce 6600 / ATI Radeon X1550 or above	GeForce 7300GT / ATI Radeon X1650 or above

3.2 **GV-LPR software:** The GV-LPR software is included in the installation CD. Please install the version which is suitable for your country.

3.3 GV-LPR video capture card: Each camera provides 30 fps video for best performance.

3.4 PC speaker: Can be used to have voice notify when defined recognition result is reached.

3.5 Camera and lens: Should provide the function of depressing strong light of the cars. Designed for LPR usage. For 24 hours usage, GV-IRCAM LPR cameras are recommended.

Size of CCD	1/3" (Min)
Effective picture elements	771x492 (Min)
TV lines of horizontal resolution	480 lines (Min)
S/N ratio	48dB (Min)
Illumination	0.05 LUX (Min)
key features	Depressing strong light, AWB
Auto Electronic Shutter	1/60 ~ 1/100,000 sec
Lens	10~120mm (for 20M)

3.6 Camera bracket: If the camera is setup at one side of the lane, you should choose the camera bracket which can be adjusted in 3D freedom so that the image of the license plate can be adjusted to be horizontal. Otherwise, if the camera is setup at the upper front of the recognition location, normal camera bracket can be used.

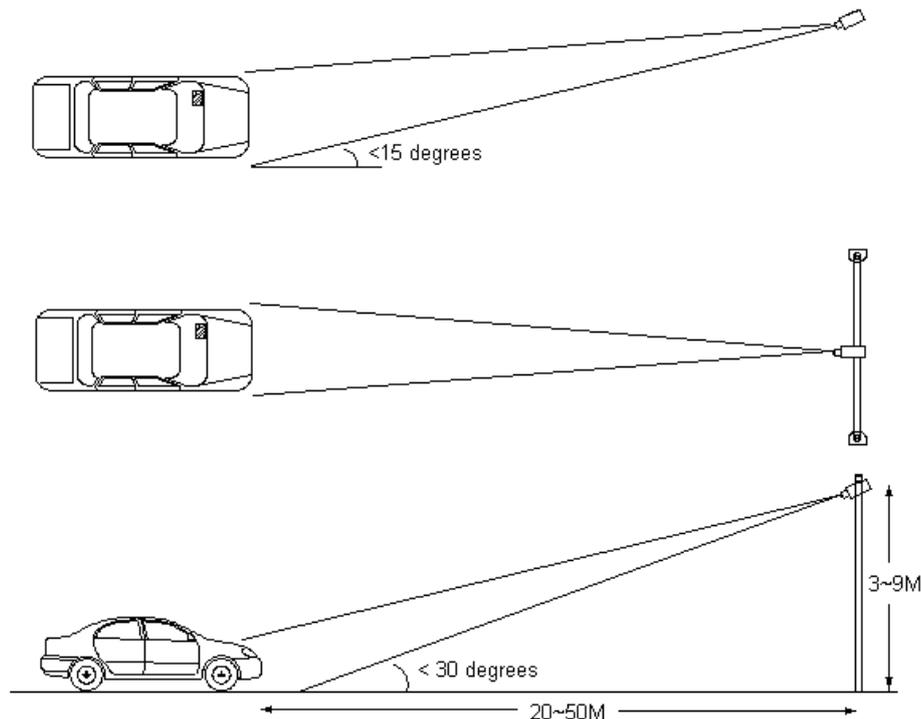
3.7 Camera housing: Camera should be installed inside a camera housing.

3.8 Stand for camera: Camera stand must be setup to put the camera.

3.9 Light / LED: LED illumination is suitable for environment where it is not permitted to install visible light. LED illumination has to be work with IR cameras.

4 Installation:

4.1 Installation of camera:





- 4.1.1 The setup of camera should let the image of the license to be as rectangle as possible and be horizontal. Camera can be setup as capture from the upper front of the car or from the side, horizontally in front of the lane. Be careful not to setup the camera too close to the recognition location. That will cause the license plate to be not like a rectangle and horizontal. It will lower the recognition rate. Capture the back license plate is also possible if the first 2 locations just described are not allowed.
- 4.1.2 If the camera is setup from the upper front of the recognition location, the angle between the camera and the recognition location should not greater than 30 degrees. For simplicity, the distance of the camera to the license plate should be at least 2 times longer from the height of the camera to be setup.
- 4.1.3 It is suggested to use IR LED so that the license plate is clear to be captured for whole weather.
- 4.1.4 Please adjust the lens of the camera so that the width of the license plate is in between 1/3 to 1/5 of the width of the image. Near 1/3 is better if possible. For simplicity, you may also adjust the lens to zoom in so that the width of the video is about the same with the width of a car.

4.2 Installation on PC:

- 4.2.1 Install GV-LPR capture card in the PCI slot of the PC.
- 4.2.2 Install GV-LPR software.
- 4.2.3 Connect the camera to the capture card.
- 4.2.4 Start the GV-LPR software.
- 4.2.5 Please setup the Motion Detection mode according to the user manual.
- 4.2.6 Start Recognition test.
- 4.2.7 You should set the brightness of the image in the GV-LPR software so that the license plate is clear but not too bright. If the license plate is too bright and let the number of the license plate to be too thin, it will lower the recognition rate.

Please press the “System Configure” icon and then press the “System Configuration” and select “Camera” to adjust the “Brightness” and “Contrast” so that the number is thick enough. If it is an outdoor environment, please be sure the setting is suitable for most of the weather.

4.2.8 Please setup the information of the cars and their owners in the “Registered Plates Database”.

4.2.9 For other detail settings, please refer to the user manual.

4.2.10 You may start using the GV-LPR system now.

5 Some points to be take care of:

5.1 If you are going to setup the camera by the side of the lane, be careful that people walks though may block the view of the license plate.

5.2 If you are going to setup the camera by the side of the lane, it is prefer to set it horizontally and far enough from the recognition location. Other wise, the license may not be horizontal rectangle in the image.

5.3 If you are going to capture the license plate from the back of the car, be careful that the license plate may be too bright when there is a car following it at night with its light is on.

5.4 If the system is install in the outdoor, please avoid the direction of East to West to prevent the influence of the sun light during the sunrise and sunset.

5.5 Blur image will decrease the recognition rate. Please adjust the setting of camera so that the image is clear. The left image below is blurred. Focus or electronic shutter should be adjusted so that the image is clear. The right image below is clear.



Blur



Clear

5.6 Italic number will decrease the recognition rate. Please adjust the location of the camera so that the number of the plate is vertical and not italic. The angle of the camera should be small so that the number could be vertical. Be careful that most of the back license plates are not placed vertically.



Italic



Vertical

5.7 Non-horizontal license plate will decrease the recognition rate. Please adjust the angle of the camera. This is a very important point for the setting.



Non-horizontal



Horizontal