

TT SMART VISION

Car and Motorcycle License Plate Recognition



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The system composing of 2 engines, which are car and motorcycle plate detection engines and car plate recognition engine to translate from image to text data, which also can provide the car brand and colors of the car

The screenshot displays the software interface for license plate recognition. At the top, there is a menu bar with 'File' and 'ระบบฐานข้อมูล'. Below it, the camera feed is labeled 'LPR-cam01'. The main window shows a car with a license plate 'พล 945' and a motorcycle with a license plate '6กภ 9146'. The motorcycle's license plate is highlighted with a red box, and its details are shown in a panel on the right: '6กภ-9146', 'กรุงเทพมหานคร', 'รถยนต์ส่วนบุคคล 0km/hr', and '@ Gray'. Below this, a table lists the detected license plates.

ลำดับที่	ภาพทะเบียน	ทะเบียนรถ	จังหวัด	สี	ยี่ห้อ
6		6กภ-9146	กรุงเทพมหานคร	Gray	@
5		จกจ-146	กรุงเทพมหานคร	Gray	@

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Software Specification

- Use Video Loop Detector to detect license plates. No coil or sensor needed to detect the car.
- Automobile license plate detection which do not catch people or animals.
- 95% accuracy for numbers and letters on labels.
- 50% accuracy for car brand detection. (customization required for new market)
- 50% accuracy for vehicle color depends on lighting conditions.
- The system supports speeds of up to 180 km/hr. It depends on the camera used.
- Can be used as a mobile license plate reader on the Mobile Patrol Car.
- VIP Alert, Member, Blacklist
- Automatically announcement car registration as Blacklist/VIP alerts with Text to Voice technology.
- Real Time Synchronize with external database. To connect with the central software.
- Supports SQL database, MySQL, Oracle.

Features of Camera Detection

- High resolution Network Camera, The license plate is more accurate (** Recommended resolution of the license plate is 150-300 pixels).
- A camera that can change the distance of the lens. To get the desired image range. The size of the lens is about 12-40 mm or 8-50 mm.
- Low pass filter technology for bright lighting (Headlights) to get a clear picture.
- Infrared For night vision
- The camera supports IP66-rated base when used outdoors.

There are two types of car registration.

- Parking license plate system in the parking lot. Entrance - Exit the building. The characteristics of the vehicle will run at relatively low speed. The speed of the car up to 60 km/hr. The camera should be a lens that can change the size of about 4-18 mm.
- High Way Road Vehicle Registration System The characteristics of the vehicle that will be detected will run at relatively high speed. Introducing a camera

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designed specifically for license plates. And can change the lens. The lens should be approximately 12-40 mm or 8-50 mm.

Equipment required for installation

- IP Network Camera and Housing
- Infrared illumination kit (in low light areas and night vision)
- Specially-formulated PC processor, Core i7 Gen7 3.0GHz or higher, 8GB RAM, 500GB SSD
- Power Supplies for Local Devices
- Network Switch
- Webserver Kit (for central administration)
- ADSL Router (if you want to link and view data centrally)

License Plate Recognition Diagram



อุปกรณ์สำหรับติดตั้ง 1 จุด

1. IP Camera 3 ตัว (LPR = 1, OV = 2)
2. Computer ประมวลผล 1 ชุด
3. Network Switch 1 ตัว
4. ADSL Router 1 ตัว
5. UPS 1 ชุด

หมายเหตุ : ข้อมูล ณ จุดติดตั้งจะถูกส่งไปเก็บยัง Server ส่วนกลางผ่านอินเทอร์เน็ต

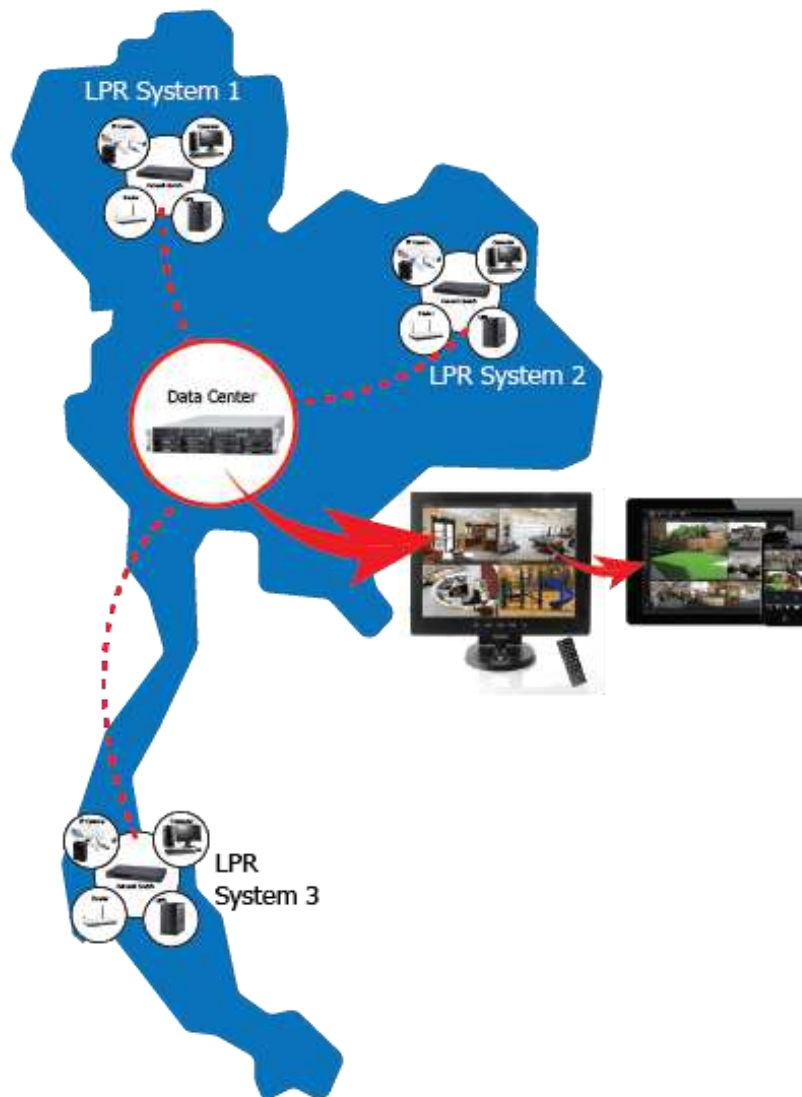
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Centralized Management License Plate Recognition Diagram



The central control system has a central Web server that collects information from the camera's installation site. It can display information on devices such as computers, tablets, and mobile phones.

** If you want to do Web Server for Access, central information. There will be a cost to install the CMS Software.

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Restrictions of LPR system

- View and position of the camera. Must be tested before actual installation. For the most accurate and accurate results.
- The license plate that the camera can handle should be sharp, ranging from 150-300 pixels, to provide accurate and accurate information.
- If you want to capture the red license plate. And the license plate is a graphic card. Set the camera to a black-and-white Night Mode by using the Infrared Illuminator to capture the license plate of the type clearly.
- The license plate is damaged or unclear. Apart from the Department of Land Transport. This may reduce the accuracy of the data.



Bad and illegal license plate.

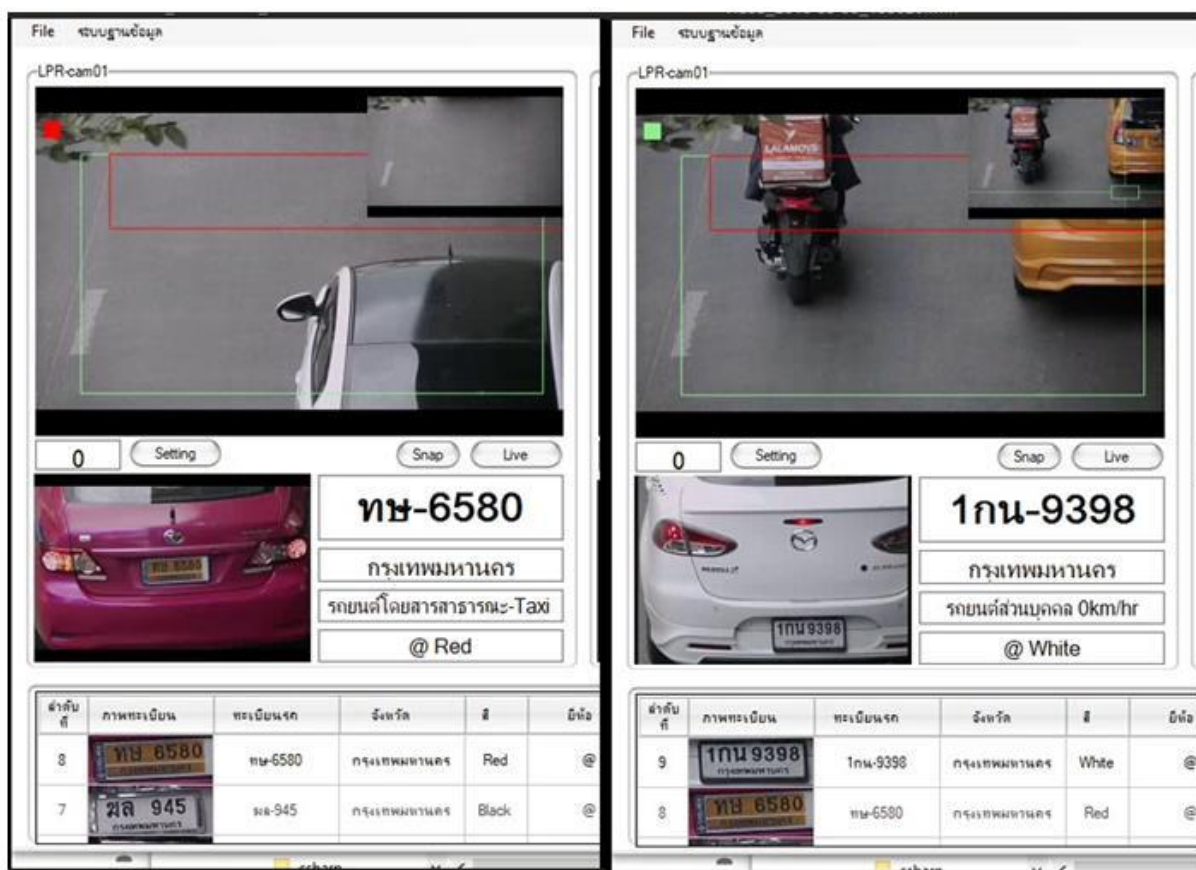
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Example of Software work



Preview of the program while running (Live view)

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Preview of the program while running (Live view)

For more information please contact sale : kai@ttsmartvision.com

ติดต่อเรา : โทร. 062-365-6463

บริษัท ทีที สมาร์ท วิชั่น จำกัด : 519/13 หมู่บ้านนาราศรี โทเวย์ร์ ถนนนวมินทร์ แขวงคลองจั่น เขตบึงกุ่ม กรุงเทพฯ 10240

