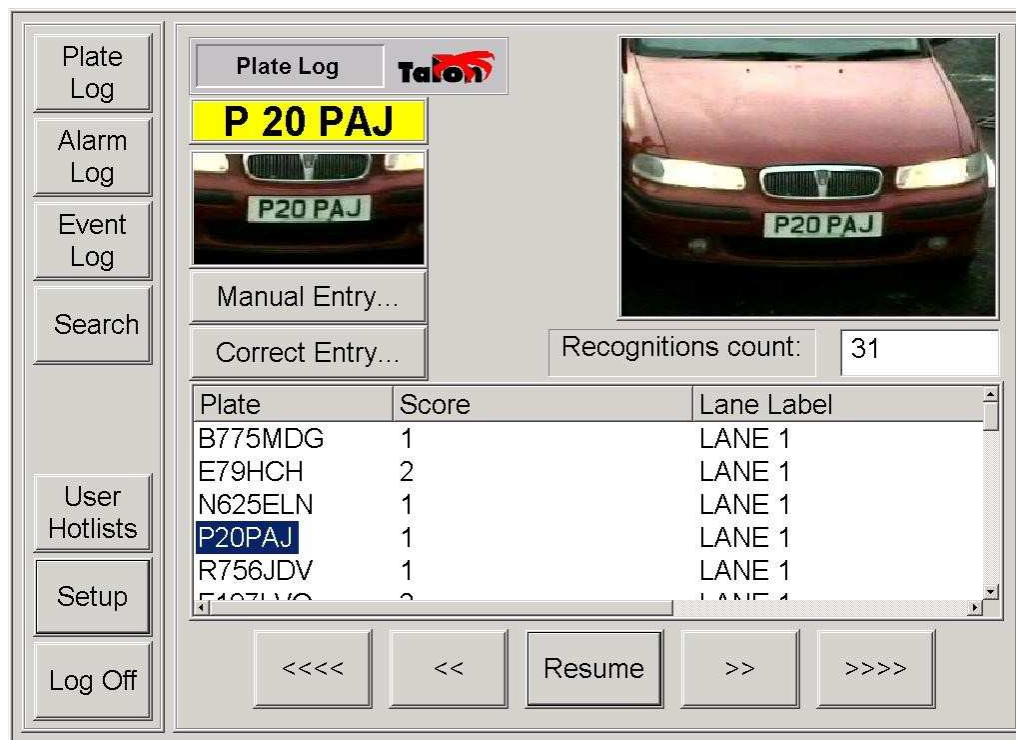


Automatic Number Plate Recognition Systems

'Talon'

From Appian Technology PLC

Appian's Automatic Number Plate Recognition (ANPR) system is an accurate and reliable security tool for a wide range of static and mobile applications – from port security to motorway surveillance. Available with both conventional CCTV and pulsed infrared cameras for high-speed situations, the system is widely used by the police and site security professionals, as well as highways and transportation organisations. It provides rapid and accurate identification of vehicles, 24 hours a day, in all weather conditions. A range of software modules are available, covering the wide variety of system applications, all of which are based on a standard database design integrated with the Talon ANPR engine.



The screenshot displays the Talon ANPR software interface. On the left is a vertical menu with buttons for 'Plate Log', 'Alarm Log', 'Event Log', 'Search', 'User Hotlists', 'Setup', and 'Log Off'. The main area features a 'Plate Log' header with the Talon logo, a large yellow box displaying the recognized plate 'P 20 PAJ', and a photograph of a red car with the same license plate. Below the photo are buttons for 'Manual Entry...' and 'Correct Entry...'. To the right, a 'Recognitions count:' field shows the number '31'. A table lists recognized plates with their scores and lane labels:

Plate	Score	Lane Label
B775MDG	1	LANE 1
E79HCH	2	LANE 1
N625ELN	1	LANE 1
P20PAJ	1	LANE 1
R756JDV	1	LANE 1
5107110	2	LANE 1

At the bottom of the interface are navigation buttons: '<<<<', '<<', 'Resume', '>>', and '>>>>'.

Talon is the result of the most extensive development program undertaken by any ANPR company. Development was started by Racal Electronics in 1993 with an initial £10 million investment; the system has been continually refined and improved to maintain its leading market edge and superiority.

The Appian ANPR system is unique in using a proprietary neural network technology that achieves much higher levels of accuracy than simpler OCR (optical character recognition) algorithms and makes it the

natural choice for “mission-critical” and other high performance installations. This is evidenced by the presence of the Talon system at 22 counter terrorism sites in the UK, including the “Ring of Steel” around the City of London.

Appian are developing the existing ANPR products with the objective of providing a self contained portable ANPR unit which will be easily deployable in all EU member states with the minimum of localised setup and provide maximum benefit by integration with national security databases. Development of a camera with full 24 hour covert capabilities is also an essential part of the programme.

The Appian ANPR system has been used in the following application areas:

- Surveillance and anti-terrorism: The system provides state-of-the-art intelligence support for the surveillance needs of the police, military and paramilitary organisations. The system can be used to match passing vehicles against a target list, which can either be held in the systems integral database or within a central computer providing an instant warning when a “vehicle of interest” passes by.
- Site security: The system provides effective monitoring of entry and exit points, controlling access, maintaining an inventory of all vehicles and raising an alarm on detection of an unauthorised entrant.
- Traffic monitoring: By efficiently collecting large volumes of data identifying individual vehicles, the system can provide valuable statistical analysis of traffic movements for highways and transport planners.
- Traffic regulation: The system can capture high-quality, tamper-proof evidential images of vehicles breaking traffic regulations, storing them locally or transmitting them to a central processing site

The Product benefits from the following:

- High accuracy (97%+)
- High speed of operation – traffic moving at up to 200 kph
- 24 hour operation
- Automatic “In Picture” trigger – no need for external trigger
- International plate reading capability
- Positive Vehicle Identification for database matching with image output providing images of both the licence plate and the vehicle for verification purposes.
- Win2000/XP platform permitting multitasking on TCP/IP environment.

Talon ANPR can be supplied with a diverse range of additional Talon application software, providing a complete 'end to end' ANPR solution.

Talon ANPR products are available on various PC platforms including:

- Fixed System - up to 32 lanes per ANPR PRU unit
- In-car System - up to 4 lanes
- Transportable System - up to 4 lanes
- Laptop System - up to 2 lanes per PC.
- Fully Covert Systems-1, 2 or 4 lanes.

Talon ANPR can be supplied with a range of application software:

- Policing, Surveillance, Counter-Terrorism
- Access Control
- Car Park “Length of Stay” Management
- Enforcement, Tolling, Congestion Charging
- Journey Time Calculation and Analysis
- Bespoke software

The Talon ANPR Recognition Process

The Talon software executes a comprehensive recognition process:

When a number plate is detected, a trigger is caused which initiates a suite of software recognition algorithms. These algorithms identify the position of the plate in the image, extract the plate image, apply geometric distortion compensation if necessary and segment the plate into individual characters.

Each character is then fed into a software neural network. The network produces an estimate for every character input resulting in a string of characters, which is its best estimate for the number plate. Multiple processing threads, provide parallel processing, ensuring that many images will be analysed for each passing vehicle. This in turn results in the extraordinary accuracy of the Talon system.

The PC(s) then selects the best result from all those generated by the software for each passing vehicle. This is possible due to each character recognised by the neural network having a confidence score.

