

Hits and hints

The potential added value of Automatic Number Plate Recognition (ANPR) for investigation purposes

English summary

Automatic Number Plate Recognition (ANPR) is a technology based on cameras to automatically scan number plates and to compare these with one or more reference-databases. Reference-databases contain lists of number plates with which something is wrong: for instance an unpaid fine, a stolen vehicle or a revoked license. At the time of writing, the Dutch police employs 90 mobile and 120 fixed ANPR-cameras.

The Ministry of Security and Justice aims to develop a strategic vision on technology and investigation. Its purpose is to use technology, such as ANPR, on a wider and more efficient scale for investigative purposes. To find out which technologies are promising and warrant extra funding, re-search into effectiveness is needed.

During this project, the researchers have interviewed twenty experts, studied available literature on the subject, conducted a survey among all regional police-forces and conducted in-depth research in five police-forces. The project was concluded by researchers from DSP-group participating in action research in the region of Rotterdam-Rijnmond – one of the biggest of the 26 police forces in the Netherlands. This report focuses mainly on the police. There is less information about other governmental organisations that use ANPR.

To ascertain the potential added value of ANPR, an assessment framework has been developed. In the framework, three elements are discerned **(1)**.

1 Technology

There are several steps during the ANPR-process where something can go wrong: the passing number plate could be missed, or the scanned image can be translated into the wrong combination of characters. A single estimate for the reliability of ANPR cannot be given. This depends to a large degree on the quality of the cameras, their positioning and their settings (scan as many number plates as possible or *correctly* scan as many number plates as possible). Under ideal circumstances and with the best equipment and installation, around 95 per cent of all passing number plates are scanned and translated correctly. With lesser quality cameras, settings and, for instance, bad weather conditions, this can drop to 60 to 80 per cent – see chapter 5.

2 Comparison with databases (reference-lists)

The national ANPR-program office distributes national databases (tax, fines, vehicle information, such as insurance and registration). Regional police forces can contribute their own reference-lists for investigations and make these available to other forces through the national BackOfficeFacility. Each police-force has to determine which reference-lists will be used when they deploy ANPR. Recently, it has been agreed upon that all regional reference-lists for investigations should be used by all forces with ANPR, to ensure that all these number plates will be detected if they drive through another region. In Rotterdam-Rijnmond, more than one hundred reference-lists are in use, of which over sixty are for investigative purposes. On an average day, the fixed cameras in Rotterdam-Rijnmond produce roughly ten-thousand hits. The mobile cameras used by the traffic police generate not nearly as many hits. Combining all ANPR-actions in 2009 in Rotterdam-Rijnmond, a total of 265,000 number plates were scanned, leading to 6,500 hits (2,5%). Most hits were generated by the lists of number plates with un-paid fines or tax debts: 75 per cent of all hits was based on these – see chapter 6.

3 Reaction

Almost all hits generated by *fixed* ANPR cameras are only logged and passed on to the party that provided the reference-list. There is insufficient manpower to provide a response 'in the street' for each hit: this would mean that in the force of Rotterdam-Rijnmond alone, each minute, 24 hours a day, on average seven vehicles would have to be stopped and checked. During ANPR-*actions* a significant part of hits is stopped and checked. The vehicle is pulled over and checked on a wide range of points

(1) In the near future, when it will possible again to collect and analyse all scanned number plates, a fourth step has to be added: post-incident searching of the database of all scanned number plates ('passage-data').

– not just on the basis of the information that generated the ANPR-hit. In 2009, during all ANPR-actions in Rotterdam-Rijnmond, over 265,000 number plates were scanned, which led to almost 6,600 hits (2.5%). Of these, approximately 2,700 vehicles were actually checked. This resulted in an amount of € 660,000 in collected unpaid fines and tax debts, 260 seized vehicles and nearly one hundred reported charges ('proces-verbaal'). The results of the mobile and fixed cameras in terms of the number of unpaid fines and reported charges are also presented in this report, but their numbers are significantly smaller because not every hit is acted upon. At the moment ANPR is being used in a restrained way for investigative purposes, in any case not as evidence. Four judicial cases have been found in which ANPR was used as evidence but these all date back to the period when it was not explicitly forbidden to save and analyse all transit-data (so before early 2010). If ANPR is used for investigations at all, it is to determine real-time or in hindsight on the basis of vehicle movements where and when a specific suspect can best be stopped or to exclude certain suspects from further investigations – see chapter 7.

Over all, the conclusion can be drawn that ANPR is a successful instrument, if collecting unpaid fines and taxes during (combined) police-actions is chosen as its purpose. The question whether ANPR is an effective contribution at present to investigations and prosecution of criminals cannot be answered. There is no evidence to support this claim. The question whether ANPR has the potential to contribute to better investigations is more difficult to answer. ANPR as it is used at present – even without processing all passage-data – does not only lead to hits, but also to hints that guide investigators in the right direction. At present, this added value for investigations is quite limited though. The same few success stories reappeared time and again, but concrete results or 'hard data' could not be found. One reason for this is that ANPR never provides the ultimate piece of evidence and therefore is invisible in court-cases and jurisprudence. Another reason is that the benefits are distributed and therefore diluted among several people and teams inside and outside the police, which makes it almost impossible to find concrete results.

At present, ANPR is mostly used by the police to pick 'low-hanging fruit': collecting unpaid fines, but not for investigative purposes. ANPR as an investigative instrument is still in its infancy and from early 2010, when it became illegal to process passage-data, the police has hardly developed or tried out new applications. ANPR-actions are more suited to achieve and show concrete results than investigations.

If the proposed legislation to enable the police to process passage-data for specific purposes is accepted, this will not automatically lead to better investigations. This can be seen in the UK, where ANPR has been used for years and where passage-data can be used for five years after collection. The Association of Chief Police Officers recently concluded that 'the use of ANPR in post-incident investigation is relatively immature when compared to intercept operations'. This experience in the UK stresses the need to develop a strategic vision in the Netherlands for the use of ANPR. A change in the law will not automatically lead to ANPR being used for investigations and prosecutions, even only because of the fact that the collection of unpaid fines is so successful. In this strategic vision, it is important to describe the amount of scarce police resources that can be deployed based on ANPR-information (and what tasks can be discarded or receive less attention). Acting in accordance with this vision can ensure that the added value of ANPR for investigations can be realised.