Police budgets have been cut over the last decade and road policing has always taken an unfair hit on its resources. This has led to increased illegality on our roads as offenders realise that the chance of being caught is minimal.

But there are new trends in video-gathering and Artificial Intelligence technology that are set to enable a huge increase in enforcement. When this is coupled with in-car technology such as ISA, citizen-led enforcement and efficient back-office digital processing then this could transform enforcement levels and compliance with road laws.

20's Plenty for Us have been assisting developers on one such technology. The Speedcam Anywhere app\(^1\) enables a Smartphone to be used by members of the public, local authorities and police to capture and prepare evidence of speeding. Unlike current hand-held devices (Radar and Lidar) that are active in sending out radar or laser beams and then interpreting the results to determine the speed, the app is completely passive and only collects video and positional information which it then automatically uploads to powerful servers in the cloud for AI analysis.

The uploaded second video is then analysed using ANPR and a DVLA look-up determines the make, model and year of the car. From this a further look-up can identify the wheelbase so that this distance between the centre-lines of the wheels can be used as an accurate “yardstick” for distance divided by time calculations. The time element of the speed calculation comes from further AI analysis of the video to identify a pair of video frames where the front and then rear wheels pass a virtual line on the road. As each frame is accurately time-stamped then this gives the time interval between the two video frames to calculate the speed. By using the GPS location of the Smartphone, the cloud server can identify the location and speed limit so that a comprehensive report together with a video including timestamped frames can be downloaded to the user. This may then be uploaded to a police dashcam portal.

This combination of “smart” phone with “smart” cloud server AI analysis together with an innovative and simple approach to calculating speed as distance/time provides an accurate and commoditised ability to detect speeding.

The app has several other virtues. The angle of viewing the passing vehicle is not critical as long as the number plate can be viewed at some point and the wheels viewed as they pass. This eliminates the Cosine Effect Error/Compensation in Radar and Lidar devices and also enables the user to take up a less obvious position at the side of the road. The app can also be used even more discreetly as it works with both departing and approaching cars. The video with its timestamps is available as for secondary verification of that time interval in case of legal challenge.

The “smartness” in this app has challenged the established Home Office approval mechanisms for methods of gathering evidence of speeding. That is to be expected where new technology enables fresh thinking that previously was not possible. Smartphones have had millions of R & D spent on their sophisticated video and photography technology and this provides accurate and consistent data. This effectively manages the capture of video evidence ready for forensic analysis using artificial intelligence. This automates the manual forensic analysis conducted on CCTV or dashcams by police at the moment. And it does so with precision and speed.

It is appropriate to wait for the Home Office to approve the logic and algorithms before being used for direct speeding offences. But in the meantime, the Section 59\(^2\) offence of using a vehicle in a manner causing alarm, distress or annoyance which contravenes section 3\(^3\) of the RTA 1988 regarding careless or inconsiderate driving requires no more than “a constable in uniform having reasonable grounds”. We would maintain that if there is evidence from the Speedcam Anywhere app of a vehicle being driven in excess of the usual police threshold of 10% +2mph above the speed limit then this would constitute driving significantly “below the standard expected of a competent and careful driver” and a Section 59 warning can be given, or if repeated a vehicle could be impounded. Because any processing would be via the dashcam portals any action taken remains under police control. Police officers would also be able to use their own smartphones for evidence gathering.

By allowing communities and officers to submit clear and unambiguous evidence of careless and inconsiderate driving this technology will be a game-changer in speed limit enforcement. Whether it is used via Section 59 offences or, subject to approval, speeding offences, it allows police forces to align with community needs for compliance without imposing an increased load on the police. We expect it to be welcomed by all those interested in making our communities safer places to be.

Rod King MBE, Founder – 20’s Plenty for Us - rod.k@20splenty.org 07973 639781

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1 https://www.20splenty.org/speedcamanywhere
2 https://www.legislation.gov.uk/ukpga/2002/30/section/59