

Achievable “Smart Cities” Powered by Video Analytics

• By Chris Perry

As cities continue to be the focal points of human population all over the globe, mobility also increases in urban areas bringing heavy vehicle traffic that calls for smarter parking and mobility systems.

The growing need to manage urban traffic and parking requires investing in infrastructure and the first steps have already been made in that regard. Cities are being outfitted with cameras for multiple uses such as CCTV security, LPR-based parking enforcement and frictionless parking, “smart” traffic management, road tolling and access control. As the infrastructure continues to grow, so does the opportunity to leverage these assets for alternative or additive uses.

The only problem being that the cost of adding infrastructure in order to achieve added benefits is often prohibitive. Or is it? In this time and age, it is no longer the role of hardware devices or human workforce to do the job.

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Software utilizing neural networks and deep learning technology working from visual input are there to effectively support the traffic, parking management and security operations. Video analytics platforms work with the current infrastructure to deliver the desired functions at a much lower price point than setting up new hardware for each feature.

The outcome of such projects not only provides an enhancement to the existing system, but it also serves as the spring board needed to begin putting the “smart parking” or “smart city” together.

Let us look at some practical examples.

A parking management company operates a CCTV system within a garage that utilizes a software suite to manage the access and revenue control. The cameras are used to monitor the entry and exit lanes, providing footage of the license plates and vehicles as well. The company intends to automatize the entry and exit process, so decides to implement LPR. Replacing the cameras for LPR enabled ones is not an option due to budget constraints.

The obvious solution is integrating LPR software into the parking software that works with all of the existing infrastructure including cameras and the barrier. Since there is an operating camera system supplying video footage of the traffic, this allows additional analytical software to be placed - like a program for make and model recognition that automatically determines the brand and model of the vehicle based on its video footage.

Make and model information has plenty of uses. It is an interesting source of additional data in a shopping mall when trying to get a picture of the audience while it can also be

used as a supplement for LPR data, not leaving even the slightest margin of error in vehicle recognition for the parking operation. The company receives all these benefits while paying only for the software instead of needing to invest in completely new infrastructure.

Video analytics technology has its uses in the traffic management sector, as well. Starting from vehicle counting through traffic incident detection to creating reference data for law enforcement, it covers several relevant functions while using the same surveillance equipment utilized as a public safety measure.

Let’s take some examples. Automatic surveillance of bridges with existing camera equipment for prohibited U-turns, signaling the relevant authorities, and archiving the details of the incidents for further reference, without the need for human interaction, is a solution ready to be implemented.

Sweeping crowded road sections for traffic jams and immediately signaling the traffic management system to propose alternate routes for vehicles driving in that direction is also an option with this technology. Imagine monitoring dangerous cross roads 24/7 for traffic rule violations paired with an increased efficiency law enforcement system. An instant reduction in the number of violations.

A video analytics enhanced LPR system is capable of supplying the authorities with all reference data of a vehicle as LP, brand, model, color and category of the violating vehicle. No more gaps in victim’s testimonies or false standalone LP data.

The uses of software-based video analytics and LPR technology are virtually endless. As cities continue to house an ever-increasing portion of the population, they also need smarter, leaner and more economical solutions to tackle the numerous challenges of mobility and parking within the urban environment.

In the upcoming years software solutions will have a key role in “smartening up” our cities by their effective use of existing hardware, practically complete scalability and interoperability with other systems.

Video analytics solutions can effectively collaborate with existing parking, traffic management and security systems by supplying them with precise reference data as well as potentially creating new opportunities with big data to serve the future model “Smart Cities”.

Asura Technologies made its debut with the Asura Recognition Unit (ARU) Plug and Play LPR in 2017 delivering an easy-to-integrate, flexible solution. ARU earned a quick recognition of the traffic management industry exemplified by integration with major parking management systems and earning a Special Mention at 2018 Intertraffic Innovation Awards.

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