



# ARE WE THERE YET?

## VIDEO ANALYTICS

*By Peter Lange and Dell Hamilton*

Video analytics is the automated analysis of video to determine events, trends and other factors over a given time and in a given location. Effectively, it is a computer program that “sees” and “analyzes” a given set of criteria similar to the way the human brain does. And we happen to think that it will play a major role in the future of parking.

Many real-world industries outside of parking currently make use of video analytics and have for many years. These include intelligence, weather forecasting, security, agricultural production, toll authorities, traffic management and pedestrian-flow mitigation, to name a few. The most recognized application of video analytics in the parking industry is undoubtedly license plate recognition (LPR).

### TODAY'S LPR ... AND BEYOND

The parking industry has been using video analytics for several years in the form of LPR systems for such activities as enforcement and counting. Others use it for revenue control, generally as a backup to the paper ticket, but increasingly as the primary credential for transient parkers.

Frequent customers may even link a credit card to their license plate and never have to interact with a cashier, machine or even roll down their window. Some systems are now incorporating LPR as the primary credential option for monthly parkers in controlled-access facilities.

In the event the customer is in a different vehicle or the system fails to read the plate for some reason, it is possible to link a secondary credential to an account, such as an issued card or a driver's license. Several universities and municipalities are using LPR exclusively for permitting of monthly parkers and residential parking programs. As such, they have no physically issued permits.

Something many of us face is the diversity of vehicles needing access to gated areas – anything from a golf cart to a tractor-trailer. Golf carts and similar vehicles are often too small or too “plastic” to be detected by inductive ground loops calibrated for typical passenger vehicles. Tractor-trailers are often too high to be consistently detected.

Imagine leveraging the analytic capabilities of an advanced LPR access system to allow the replacement of ground loops in gated lanes. As an added benefit, the system could also detect a pedestrian standing in the path of the gate arm and not let it lower until the path was clear.

Just think, your system could detect a vehicle, determine its access status, count as it enters or exits, provide pedestrian safety, and allow you to remotely watch what is happening in the lane -- all with a single camera! (That may be a bit simplified, but you get the idea.)

Is video analytics sounding appealing yet?

Our opinion is that improvement of accuracy rates for traditional LPR systems is necessary in order for LPR to serve as the primary credential for access applications. Many locations are not staffed and must function flawlessly in an unattended mode.

### OCCUPANCY COUNTS

The number of vehicles in a facility or lot at any given time often drives many of the operational and strategic decisions in the parking industry. The ability to have real-time, accurate counts is crucial to making effective decisions.

Historically, the most common method for counting vehicles in parking lots and structures has been ground loops. They are tried, true and simple. However, they also require installing specialized equipment; are subject to environmental interference; and do not work well for many under- or over-size vehicles.

In much the same way as high-tech security systems function, video analytics offers the same ability to count vehicles traversing lanes and so much more. Imagine having cameras arrayed throughout a parking lot and being able to see each individual space. Your system can count occupied and vacant spaces, and if occupied, determine how long the vehicle has been there.



Better yet, you can configure the system to know the type of designation for each space in the lot; disabled, timed, service, general parking, etc. You can then share current occupancy information for the lot as a whole or for each space type with your customers via dynamic signage, mobile apps or web-based applications.

But wait, there's more! As the technology develops and becomes more effectively leveraged and financially viable, the ability to cover large or irregular areas at a cost savings could be realized. For example, lots with multiple driveways or areas where it would be costly or impractical to install loops may be managed using video analytics. Additionally, you can use the historical data logging to chart trends and identify potential issues.

### SHIFT AND STAFFING

From the personnel side, the successful implementation of systems capable of video analytics may be cause for a slight shift in staffing. Perhaps not as many folks in the field will be required to perform counts or monitor areas. However, you may need to shift to positions with more technical expertise, which may require higher compensation.

A strong and collaborative relationship with your video analytics provider is also crucial to success. Effective and thorough initial system training will go a long way toward successful implementation and will support the buy-in of users. Continuing support in the form of troubleshooting, upgrades and general questions is essential to the ongoing success of the system.

### COSTS AS COMPARED TO LEGACY SYSTEMS

Systems capable of performing video analytics typically have greater

up-front implementation costs than legacy systems, which incorporate loops and other older technology devices. As with any product, as more competition enters this segment of the market and production increases, implementation costs should decrease. However, in some cases, it may be more cost-effective to use video analytic systems due to operator and customer needs, infrastructure requirements, layout, or other variables.

### A VIEW OF THE FUTURE

Taking what we have discussed above a step further, what if you could go back in time and analyze traffic patterns, congestion or space occupancy? Simply run your recorded video from existing cameras through a video analytics system in order to do so.

Imagine flying a drone over your campus, be it a university, event venue, hospital or city. This drone has a camera that can send real-time data back to you or downloaded later data runs through a video analytics processor to show lot counts, traffic congestion points, pedestrian congestion points or anything else you might be able to conceive. Just imagine the amount of information you will have at your fingertips.

We believe video analytics is the future of occupancy and traffic management technology. Multiple companies in a plethora of industries are developing and refining the technology. The potential for application is limited only by the human imagination.

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