

Case Study

Brigham Young University

Brigham Young University enlists Genetec's AutoVu to assist with parking management



Brigham Young University (BYU) in Provo, Utah, was established in 1875, and has since grown to become the second largest university and largest religious-sponsored institution in the United States. The school lies 45 miles south of Salt Lake City and sits on approximately 560 acres at the base of the Wasatch Mountains. The university serves 32,000 undergraduate students, around 7000 of whom reside on campus, and an additional 5000 members of faculty and staff.

Business challenge

BYU takes its responsibility to provide a secure environment for students, staff and visitors very seriously and is particularly conscientious about maintaining order on its vast campus while still remaining unobtrusive. With 60 parking lots totalling around 17,000 spaces, and 65,000 vehicles registering for parking permits each semester, maintaining control over the campus from a parking perspective is no small feat. For BYU, parking management initiatives are a security feature, helping to keep campus inhabitants safe. Finding ways to manage such a large volume of vehicles while still providing user-friendly parking facilities is a significant challenge for BYU's parking enforcement team.

Until recently, BYU employed a stickered permitting system for the vast majority of campus parking needs. Students and faculty came to the parking office each year and registered their single vehicles to park in certain areas or lot types. They then received a non-transferable adhesive decal, displaying an expiration date, to place on their vehicle. To accommodate visitors, attendants in designated parking lots provided visitor placards to be placed in vehicles for the duration of their stay. Handhelds were used by the parking enforcement team to issue citations for parking infractions, which were downloaded to the central database when the officers returned at the end of a shift.

At two gates, which control vehicle access to the most central portion of the BYU campus, RFID cards were issued to allow a subset of permitted vehicles to trigger the gate to open. Unfortunately, the cards had a high failure rate, based in large part on their windshield placement, which would expose them to extreme temperatures and eventually ruin them. For each failure, the RFID card replacement cost the university around \$30. This process was both inefficient and costly.

Needs

Steve Goodman, Technology Architect and Manager of the Communications Center for BYU's chartered police department,

worked with a BYU business analyst and a police lieutenant (who sponsored the project) to find a better solution. With a varied array of parking paradigms, including both zoned and timed parking, as well as the need to tie into gate control, BYU began to look into license plate recognition (LPR) systems that might aid in pulling solutions to all of these needs under one platform. They were also specifically interested in finding a solution that had a backend for analyzing the license plate data that was collected, which would alleviate the need to develop a proprietary system from scratch for this purpose.

Mr. Goodman conducted thorough research on 26 manufacturers with license plate recognition solutions, and the project team even made several visits to college campuses in search of the latest technology. Eventually, the University management team decided on Genetec's AutoVu, the license plate recognition system within the unified security platform, Security Center.



Solution

AutoVu can be installed in two main license plate recognition applications. One option involves using AutoVu LPR cameras in a fixed installation, where the LPR cameras are mounted at entrances and gates to monitor passing vehicles, either to restrict access to a certain area or for vehicle tracking and auditing. The other option involves an LPR camera mounted on a patrol vehicle which scans the license plates of parked automobiles on both sides of the vehicle as it drives by. The AutoVu solution then processes the information and alerts operators of infractions by triggering an alarm from a tablet inside the cab.

Rollout of the BYU AutoVu solution initially consisted of four cameras, split between these options. One fixed Sharp camera was placed on each of the two central gates to seamlessly control vehicle access without RFID cards, and one patrol vehicle was outfitted with a mobile AutoVu solution including 2 cameras positioned on either side of the vehicle. Later, additional fixed cameras were added to the perimeter of campus to scan license plates purely as a security measure, allowing the data to be mined after the fact, and allowing the AutoVu system to alarm on scofflaw, banned vehicles, or vehicles tagged in the NCIC national database. Finally, more fixed cameras were added to parking lot access points.

All in all, the system now includes five gates controlled by the AutoVu system with five fixed Sharp cameras installed throughout the campus for investigation and hotlist monitoring purposes, and two patrol vehicles outfitted with mobile AutoVu solution. The two central gate controlling cameras limit vehicle access to the portion of campus with the highest amount of traffic in order help to alleviate congestion and make the area more pedestrian friendly; only service and faculty vehicles are allowed to enter this area. Another fixed camera controls access to a service vehicle parking lot. The BYU police department manages a list of service vehicles permitted in this lot and enters them into the AutoVu exemption database as needed. Another fixed camera controls access to one of BYU's visitor parking lots, which is also manned by an attendant. The final camera controls access to an enclosed parking structure to eliminate the need for patrol vehicles to monitor that lot.

BYU has three designated visitor lots, which are each manned by attendants who collectively handle over 300,000 annual campus visitors. The parking enforcement vehicles sweep these lots to ensure no permitted vehicles have taken a space simply out of convenience. Other than the parking lot dedicated to service vehicles, the remaining lots are reserved for one permit type (student (Y), graduate (G) or faculty (A) parking), contain a mix of stalls for various permit types, or are designated for on-campus housing only. Some lots have service stalls, or O stalls for officials (such as deans and presidents), and most have handicapped and delivery stalls as well. Finally, a small percentage of BYU's spaces are timed stalls, designated for 15 or 30 minutes, and do not require the parked vehicle to be permitted or entered in the exemption database.

The AutoVu-mounted vehicles manage all of these variations in parking parameters and cycle through close to 60 parking lots several times a day. Officers select the type of zone they are patrolling at any given time, and the AutoVu system scans surrounding plates and alerts the officers to any vehicle that is

unauthorized or has exceeded its allowable time. In addition to monitoring lists of student and faculty permits, and service and visitor exemptions, the AutoVu system maintains a hotlist of vehicles that have been banned from the campus or are of interest to law enforcement.

“We have been able to expand our coverage to include areas that we previously might have only been able to check every few months. We’re also much better organized in our enforcement now.”

Officers ticket vehicles that park in excess of their allotted time or in stalls for which they are not permitted. Tickets typically run between \$20 and \$30 and, “are meant more to maintain order than to pull in revenue for the school,” says Mr. Goodman. BYU uses a ticketing system called CiteWrite, which was developed by Cambio Labs, a nearby website and mobile app development firm. CiteWrite ties into the AutoVu database, pulling data like the name of the vehicle owner to speedily auto-fill ticket fields. The software can run with the AutoVu Patroller software in the patrol vehicles, as well as on BlackBerry and Android phones, allowing officers to quickly and easily issue tickets even if they are without a patrol vehicle. This is particularly helpful for BYU's police officers, who do not currently use AutoVu-enabled cruisers. Citations can then be printed with any Bluetooth-enabled printer. “The citations also automatically show up in the vehicle owner's account online, and can be reviewed and paid as quickly as same-day, instead of requiring a visit to the parking office. The students really like this – they can get it taken care of and off their plate immediately instead of having to wait,” says Mr. Goodman.





Benefits

Since incorporating AutoVu, BYU's permitting system has been greatly simplified. Instead of requiring students and faculty to physically show up at the parking office and apply for a sticker each semester, permitting can now be applied for online. Stickers are no longer required, as permitted vehicles are simply entered into AutoVu's exemption database. In addition to streamlining the system, BYU no longer has to deal with replacement sticker requests. Moreover, the AutoVu system is tied into BYU's proprietary persons database, which keeps track of the status of all students and faculty at the university. Because of this, re-applying for permits each semester is no longer necessary. Once granted, the permit remains valid until a person's status changes. For example, a student who graduates will automatically have their Y permit revoked. However, a graduate student who becomes a member of the faculty will automatically have their permit status changed from G to A. In this way, the permitting system can be largely automated, reducing administration needs and greatly enhancing the experience for students and faculty.

Additionally, AutoVu's Shared Permit function (which, among the solutions BYU evaluated, was unique to Genetec) has provided an additional advantage. For individuals who frequently drive

more than one vehicle, permits can now be tied to several vehicles, and the AutoVu system ensures that only one of those vehicles is parked on the campus at any given time. This also allows for temporary additions to permit accounts, for example in the case of a rental car.

"Transitioning to a powerful LPR platform requires a shift in thinking and implementation, but the advantages greatly outweigh the challenges," said Mr. Goodman. It has increased the speed with which the officers can conduct patrols, which is imperative for a campus with so many lots to cover. "A colleague recently said to me, 'Your system really works! I've never seen the enforcement vehicle all the way up here before!' We have been able to expand our coverage to include areas that we previously might have only been able to check every few months. We're also much better organized in our enforcement now," says Mr. Goodman.

By choosing to use AutoVu within Genetec's unified security platform, Security Center, BYU has also paved the way for painless expansion of their system, as well as the ability to simply transition access control operations and existing video surveillance equipment onto the platform in order to create synergies between various

security initiatives. Because Security Center is a scalable and open platform, BYU is able to leave this consolidation option open without needing to alter their current development path or purchase all new equipment at once. BYU is also able to capitalize on AutoVu's backend client within Security Center. Pictures that correlate with citations are easily located when disputes arise. The accumulated data is also used for analysis, for example in determining low-flow trends during certain hours in faculty lots. Because the faculty lots are generally most conveniently located, BYU can open the lots up to students when few faculty members are present.

Beyond that, the system has been used for surveillance. "First and foremost, our AutoVu is a security system. It has solved numerous crimes and has helped prevent crimes," says Mr. Goodman. BYU distributes information to the local police when necessary, for example to show which vehicles were on campus at a specific time to help with accident investigations. During a recent string of bike thefts, the AutoVu data within the Security Center was used to search for a pattern in vehicles parked near the scene of the crimes. The vehicle belonging to the thief was identified, and the culprit was caught. A situation involving a string of burglaries that were taking place both on and off campus was similarly resolved. The on-campus incidents were tied to a specific vehicle, which was then tagged in the AutoVu system for monitoring purposes. When that vehicle showed up on campus, AutoVu alerted officers and BYU was able to contact local police to come and apprehend the suspect.

"The AutoVu system is doing exactly what we needed it to do – it's given us everything we expected, and we've been very pleased," said Mr. Goodman.

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