

## Case Study

### DriveCam Implements RFID to Enhance Driver Safety

#### Company Description

DriveCam is a driver risk management company that reduces claims costs and saves lives by improving the way people drive, specifically in commercial and government fleets. Combining technology, expert analysis and a holistic managed service program, DriveCam strives to mitigate risk by improving driver behavior and assessing collision liabilities. The company helps to reduce vehicle damage, workers' compensation and personal injury costs by more than 50 percent through capturing sight and sound in the vehicle whenever a risky driving situation occurs.

#### Operations Data

- Headquartered in San Diego, California, DriveCam was launched in 1998 and has more than 1,500 clients around the globe.
- The company has received four patents for its innovative design with additional patents pending.
- DriveCam employs behavior modification expert Bruce Moeller to focus on improving risky driving behavior through proactive recording, analysis and continuous feedback on actual driving events.
- DriveCam provides its customers with event analysis and driver feedback to help customers implement proactive, risk management practices.
- The company has received numerous accolades to include the Most Innovative New Product Award by the prestigious University of California San Diego CONNECT; featured in Inc. Magazine's Inc. 500 List as one of the fastest-growing, privately held companies in the U.S. for three consecutive years; and named a finalist in the San Diego AeA's software innovator's category.



#### The Problem

One only needs to visit the U.S. Department of Transportation website (<http://www.dot.gov/>) to see how much data, analysis and measurement goes into understanding transportation in our daily lives. There are countless statistics on a number of topics to include number of injuries, fatalities, traffic congestion by state/year, cost analysis by mode of transportation, environmental impacts, gas/oil usage, as well as data by age and household. The list goes on, but the point is that we spend a great deal of time understanding the multi-faceted industry of transportation. In fact, DriveCam has built its business on collecting and assessing similar statistics to help transportation fleets better understand driver habits and to safeguard the road we travel everyday.

The company targets large fleet vehicle systems and operates on the principal that driver behavior directly impacts safety records and operating costs. Furthermore, DriveCam quickly found out that by simply improving driver behavior, they could impact a fleet's bottom line through mitigating risk and reducing the costs associated with unsafe driving patterns. While there is technology like black boxes, which record post-accident data, the technology as it stands today falls short. In the DriveCam solution, the critical elements of sight and sound

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which are captured before and after an incident, matter a great deal when analyzing the data. Because a black box is only activated in the event of a crash, it leaves many unanswered questions for fleet analysts. DriveCam's solution takes a preventative approach and works to eliminate risky driving so that those behaviors are identified and can be corrected before an actual crash occurs.

To improve the accuracy in their review process, DriveCam sought an enhancement to their solution that would help them more effectively associate the correct driver with the recorded, risky driving events. In addition, DriveCam was experiencing increased demand for its managed services which gives clients the ability to offload day-to-day management tasks to DriveCam's team of experts. To address these two areas, DriveCam approached Texas Instruments to help them rapidly develop a cost-effective, durable driver identification system. Under DriveCam's initial solution design, identification of a driver was being performed through a manual process, but with the rapid customer growth, the manual system needed to be replaced with an automated authentication process for faster, more accurate event reviewing and reporting.

### The Solution

To capitalize on the growth and provide efficient and timely data reports, DriveCam sought to expand its initial product feature set and include an automated driver authentication function. Automation is important because while driver coaching is key for success, the driver turnover rate is 40 percent, annually. Therefore, high turnover rates can make driver identification difficult in a manual setup. In its first generation, DriveCam analysts relied on a manual and physically process. In addition to turnover rates, identifying a person via video or photo can prove difficult due to the number of shift changes and vehicle rotations a driver makes. Other seemingly simple factors, such as the uniform or hat that a driver might be wearing, made it hard to distinguish facial features. Considering the potential for error, DriveCam considered automation to be paramount in its second generation product.

"It is important to match up the appropriate driver and vehicle because our customers want to know who, what, when, where about their vehicles and drivers. That becomes especially important when our customers have hundreds of vehicles and multiple shifts using one vehicle and high driver turnover," said Sue Greenway, VP of client experience, DriveCam. "DriveCam analysts are analyzing hundreds of risky events a day which means the driver has to be quickly and accurately identified. RFID provides an easy method for implementing, managing, and distributing the driver identification. Using RFID has an added advantage because it is environmentally tolerant to dirt, oil, liquid, etc., so we can support our clients in a wide variety of industries."

The company understood that automated identification was critical for its growth and ongoing customer satisfaction, so DriveCam turned to TI's RFID Systems Group to meet their authentication requirements. Going to TI also meant DriveCam did not need to overhaul their already popular and trusted design, but would have a plug and play solution. DriveCam trusted TI to deliver inside their time-to-market window and valued TI's RFID expertise as demonstrated through TI's leadership in RFID. DriveCam also took advantage of TI's complete portfolio of high-performance analog products and incorporated amplifiers, data converters, interface,

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power management and logic chips to complete the signal chain and power design. For example, a TI's advanced SWIFT™ technology, the non-PC-based GV-DSP LPR system is not only able to capture and deliver excellent quality video images, it is more resistant to changes in outdoor environmental conditions. The GV-DSP LPR system provides seamless integration with the support of software and hardware offerings and is the foundation for GV-LPR centers for central control and database management.

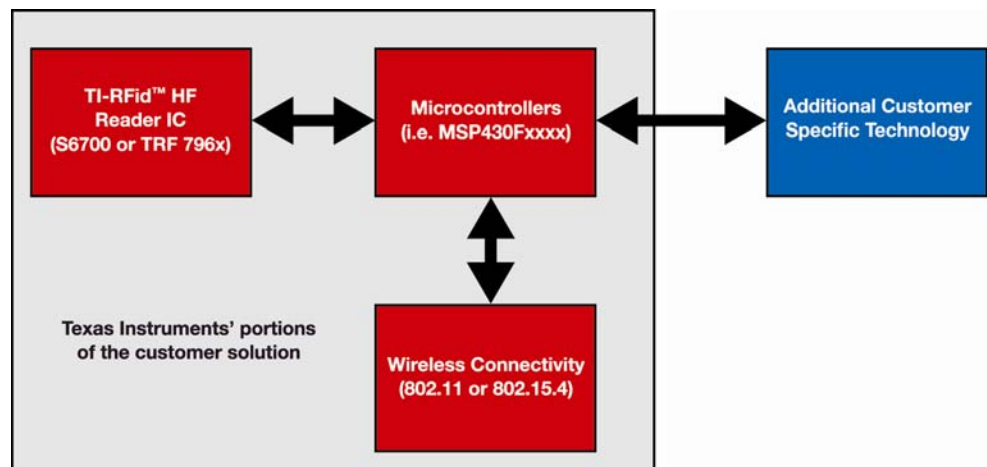
TI provided a wealth of technical support in the way of preliminary datasheets, samples and applications design support throughout DriveCam's development. This support included working very closely with DriveCam by reviewing schematics/layouts, making card reader design suggestions and evaluating the design tradeoffs associated, and the actual base firmware code and support. TI's support, technology performance, high level of integration and small system size helped DriveCam implement the RFID driver ID system they use today.

With the RFID readers and cards that Texas Instruments provided (product: TRF7961RHBR; <http://www.ti.com/trf796x>), DriveCam was able to quickly ramp up and meet their volume growth. The new RFID Driver IT system enabled DriveCam to grow from viewing just a few risky events per day to 20,000 events a day in just a few months. Today, the company views as many as 60,000 risky events a day and provides its driver analysis report to the customer in one to two days. With RFID driver authentication in place, the possibility for identification error is dramatically reduced, reports are generated faster and more accurately, and their growing client base of large fleets can be managed in a timely manner.

### How it works

As a driver enters the vehicle, he authenticates his driving session with the system by inserting an ID card that uses TI's RFID. This process ensures the events acquired on his shift are stored under the correct driver profile. DriveCam's palm-sized, exception-based video event recorder is mounted on the windshield behind the rearview mirror and captures sights and sounds inside and outside the vehicle. Forces (e.g., hard braking, swerving, collision, etc.) cause the recorder to save audio and video footage – the critical seconds immediately before and after the triggered event. When the video event recorder is triggered, a light blinks to alert the driver.

This is intentional so the driver knows what he/she did to activate the video event recorder and can aim to avoid repeating that behavior. Saved event files are downloaded directly, via a wired or wireless connection, to DriveCam's Certified Driving Risk Analysts.



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Drivers are embracing Driver Risk Management and there are drivers that are requiring a risk mitigation system before they will drive for a fleet. "There is a team that fully trains and explains the system to the driver and helps drivers understand how it works and what triggers a recorded event," says Kathleen Glass, director of marketing, DriveCam. "Once drivers realize all of the benefits to the system, they soon become big fans of it because they know the before, during and after events are recorded and can protect them. There is generally very little dispute and we see a lot of situations that favor the driver."

Today DriveCam has implemented its technology into over 80,000 commercial, government and consumer vehicles.

### About DriveCam

DriveCam is a global Driver Risk Management company that reduces claims costs and saves lives by improving the way people drive. By combining sight and sound, expert analysis and driver coaching, DriveCam has reduced vehicle damages, workers' compensation and personal injury costs by more than 50 percent in over 86,000 commercial and government vehicles. DriveCam has the world's largest repository of events reflecting actual risky driving behaviors. In 2007, *Inc.* magazine included DriveCam on its list of the 500 fastest-growing, privately held companies in the U.S. for the third consecutive year. For more information, visit [www.drivecam.com](http://www.drivecam.com).

### About Texas Instruments RFID Systems

Texas Instruments is the world's largest integrated manufacturer of radio frequency identification (RFID) transponders and reader systems. Capitalizing on its competencies in high-volume semiconductor manufacturing and microelectronics packaging, TI is a visionary leader and at the forefront of establishing new markets and international standards for RFID applications. For more information, contact RFID Systems at 1-800-962-7343 (North America) or +1 214-567-7343 (International), find this and other RFID case studies at [www.ti.com/rfidnews](http://www.ti.com/rfidnews), or visit our Web site at [www.ti-rfid.com](http://www.ti-rfid.com).

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