

An aerial photograph showing a large quarry in the foreground with a winding dirt road. Beyond the quarry is a vast, green, hilly landscape under a clear sky. Some trees and shrubs are visible in the immediate foreground on the right side.

Off-Road Technology: Collision Warning Systems

Pilot — Chula Vista, CA

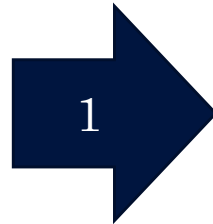
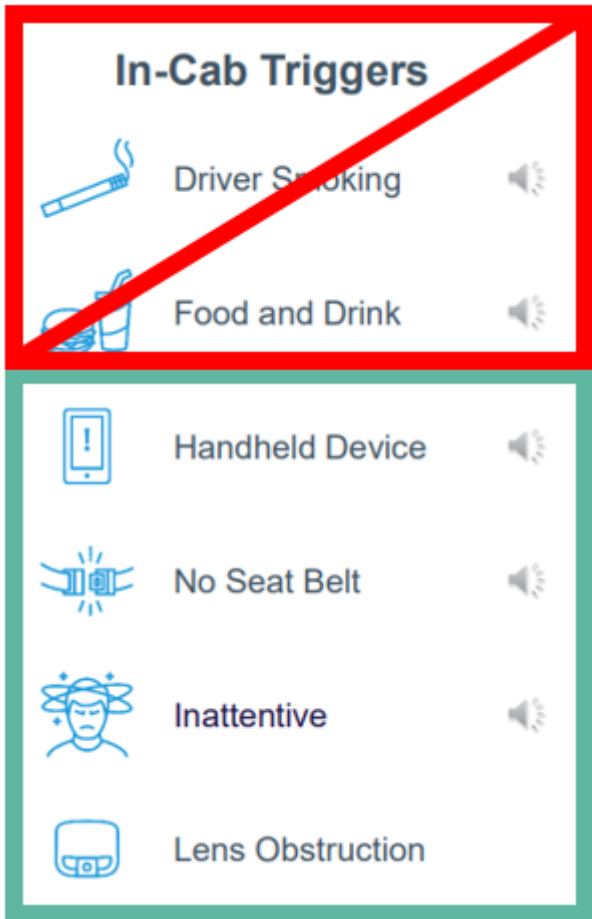
Overview of Piloted Technology Solutions

				Assessed Vendor
GOAL Reduction of Mobile Equipment Incidents	1. Lytx DriveCam Haul/ Water Units	Reduce Distractions & Inattentiveness Behavior Modification	Two 775Fs One 775Gs	Lytx DriveCam
	2. Camera/ Radar Haul/ Water Units	Reduce Blind spots Visual/ Audible Alerts	Two 775Fs One 775Gs	Rear View Systems
	3. 360 Degree Camera Shipping Loaders	Reduce Blind spots Visual/ Audible Alerts	980M and 972XE	VIA 360

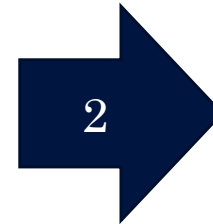


*Tire pressure monitoring system (TPMS) Sensors have been installed to work with technology vendor (Geotab)

1 Lytx DriveCam – Triggered Events



For most triggers, audible alert occurs in-cab to permit operator to self-correct behavior



Triggers only create the 12 second event that gets sent to Lytx to review prior to becoming coachable by Vulcan employees



2 Camera and Radar - Assessment



Lytx DriveCam monitoring; distracted behaviors and seat belt use.



Front/ Rear/ Side radars (detection range 131' with close detection <2'; audible and visual alert)

1



9" Recording DVR Monitor (HDSKM9001DVR)



Visual display of cameras

4 Cameras with 160 degree field of view



151 Camera



151 Camera



151 Camera



151 Camera



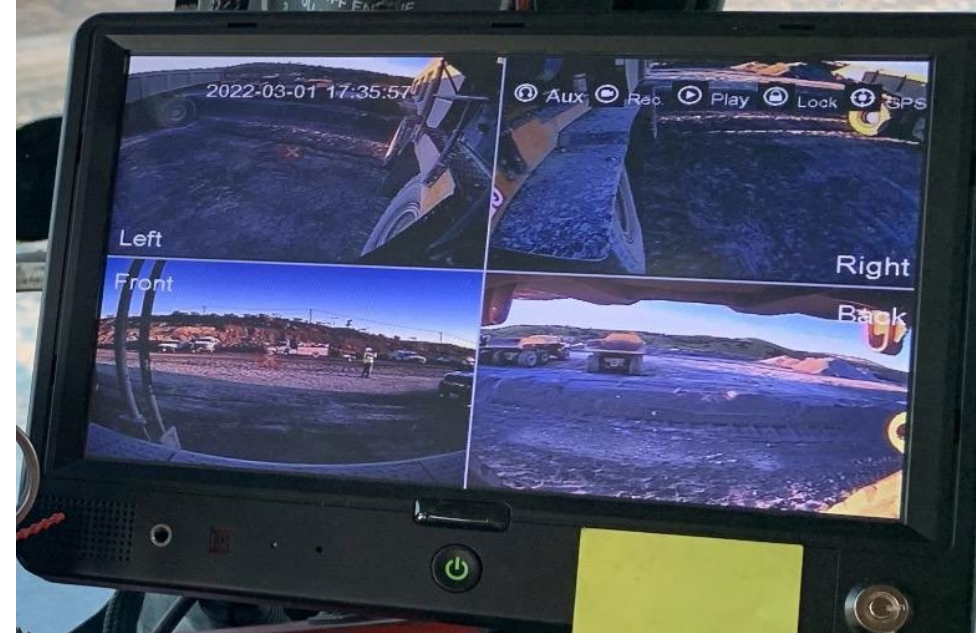
Lytx Storage Hub (must have DriveCam in the unit to work)

Exception based events sent to Lytx for uploading, review and storage with DriveCam Video. Allows incidents to be reviewed utilizing the 2 camera views + Lytx internal and external camera view.



TPMS: monitors tire pressure and temperature

View of the Monitor from Inside the Cab

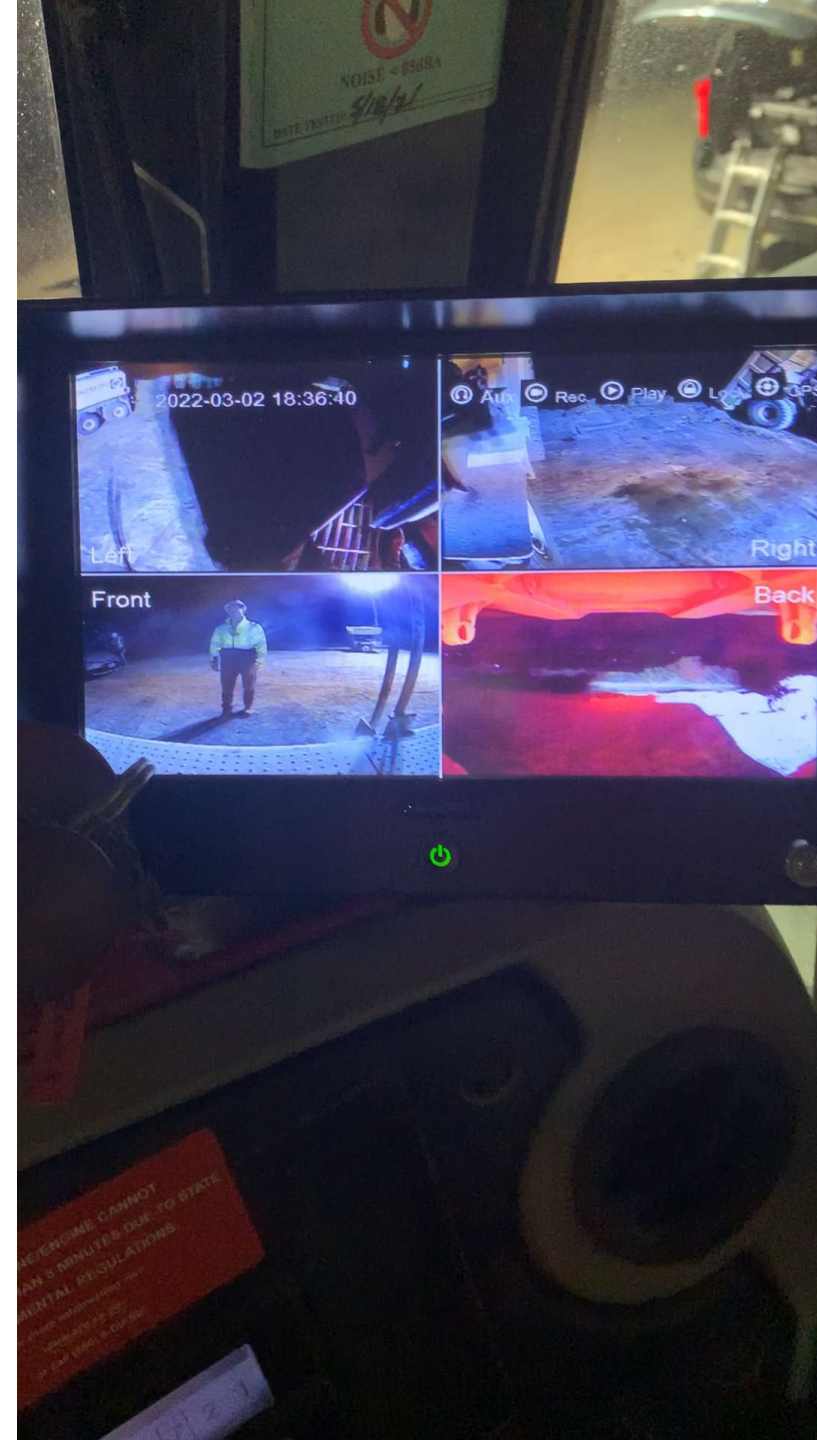


Camera was moved to the right to better view the blind spot to the front right of the cab.



Video of Quad- View Monitor

Here is a sample of the quad video in action. The boxes are proximity detection zones of when something enters into within 8.5 feet of the radar.



Blind Spot Photo



Individual able to be seen in crossover mirror.

Front camera moved to the right to make visible on screen

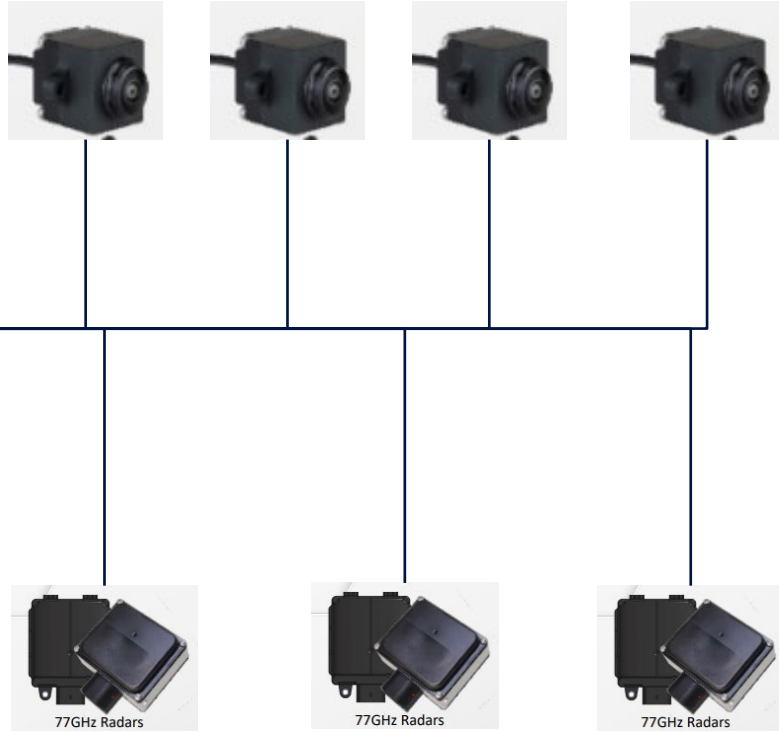


Geotab – Telematics Features

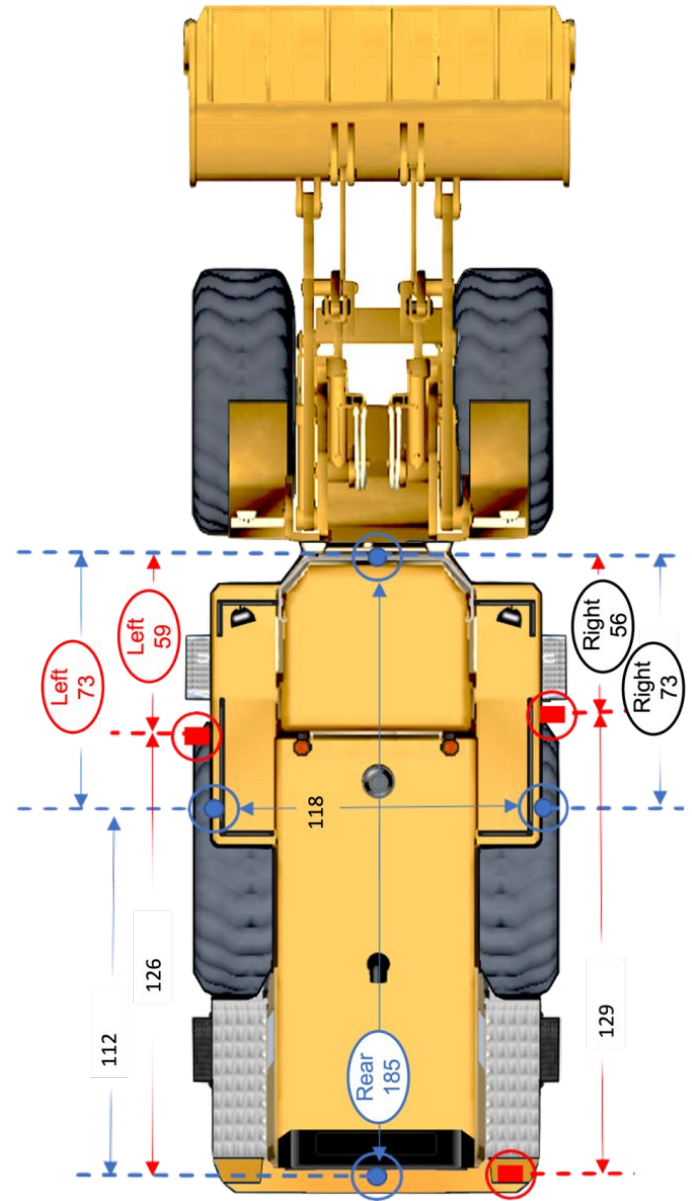
- Asset tracking is available using telematics, and an overhead satellite view shows where assets are in the plant.
- Additional operational measurements (idling, etc.) can be derived from Geotab



3 VIA- 360



3 Radar Sensors (Dynamic Detection with audible alerts when possible collision)





Videos taken by operator while parking brake was set and while supervised.