Vehicle Inspection Solution

Pre-Proposal

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Submitted to
SpaceX
c/o Elon Musk

Submitted by

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Proposal Overview

Sphere Global – Customized Damage Prevention Solution for SpaceX

This proposal presents a comprehensive, customized solution developed by Sphere Global to address SpaceX's need for enhanced damage prevention, inspection, and data visibility across its vehicle logistics ecosystem. The proposed solution leverages Sphere's advanced PRISM product suite — a family of AI-driven, vision-based inspection technologies — specifically tailored to meet operational workflows at key handoff points such as production exit, dispatch yards, release gates, and dealerships.

Sphere Global has extensive experience building and deploying intelligent inspection systems for global customers, logistics providers, and port operators. The PRISM solution is designed to be modular, scalable, and seamlessly integrable into existing systems and infrastructure. With this deployment, SpaceX will gain near real-time inspection data, high-resolution vehicle imagery, automated damage detection, and a centralized portal for holistic oversight and auditing — significantly reducing claims, disputes, and downstream operational friction.

Scope of the Solution

The proposed solution can deliver high-resolution, multi-angle vehicle imaging and automated damage detection capabilities at each stage of the finished vehicle logistics process. The solution will consist of the following integrated PRISM components:

- PRISM POD: A fixed outdoor system for automated inspections in dispatch and storage yards
- PRISM TUNL: An indoor line-mounted solution for image capture at the production exit (Care Line)
- PRISM ARCH: Overhead gate-based capture at vehicle release points
- PRISM Mobile App: A mobile inspection tool for Logistics Service Providers (LSPs) and dealer personnel
- PRISM Portal: A centralized cloud-based platform that aggregates images, video, AI detection logs, and inspection history

The proposed solution can deliver a modular and customizable vehicle inspection platform to support finished vehicle logistics operations. The scope includes — but is not limited to — the following capabilities, which will be tailored based on specific site conditions, operational workflows, and compliance requirements:

- **Comprehensive Vehicle Imaging:** High-resolution image and video capture from multiple angles — including underbody imaging where applicable — to establish a visual record of

vehicle condition at critical transition points.

- **AI-Based Damage Detection:** Automated identification and classification of visible defects such as scratches, dents, dings, scuffs, and cracks using trained AI vision models, where AI-based detection is feasible.
- **VIN and Event Metadata Tagging:** Intelligent tagging of inspection records with vehicle identifiers (VIN), timestamps, and event-specific metadata, if such data is available or implemented.
- **System Integration:** Seamless API-driven integration with enterprise systems, including but not limited to claims management, quality assurance, logistics tracking, and operations visibility platforms.
- **Data Retention & Storage:** Secure retention of all captured media and inspection data for the duration specified by policies. Older media assets can be archived to controlled cloud environments (e.g., Azure Blob, AWS S3) as needed.
- **Security & Access Controls:** Role-based access is enforced across all components of the solution. External user access is restricted unless specifically prescribed. Each deployment maintains strict data isolation and ensures full control of cloud tenancy and permissions.
- **Hardware & Software Customization:** Every deployment — whether POD, TUNL, ARCH, or Mobile — includes full-stack customization of on-prem hardware, software, AI models (where applicable), and configuration. The solution is delivered as a turnkey system, pre-integrated, calibrated, and tested to align with the requirements of each individual site.

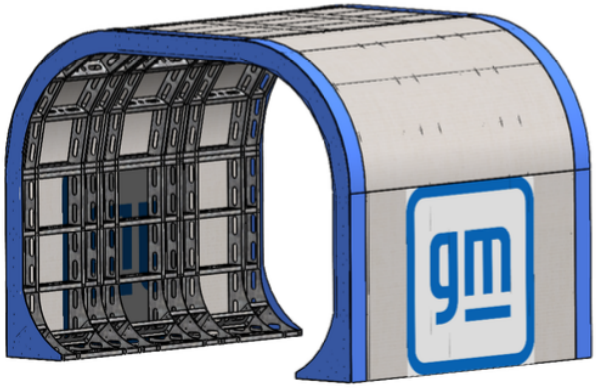
This scope is intended to be flexible and extensible, with additional modules or capabilities deployable in future phases or locations based on evolving operational needs and feedback.

PRISM TUNL – Gap & Flush

Sphere Global proposes the deployment of the PRISM TUNL, a purpose-built, intelligent tunnel structure designed for inline vehicle inspection at the Care Line or other end-of-line checkpoints. The solution enables fast, reliable, and consistent capture of high-resolution images and videos of each vehicle as it passes through the tunnel—helping identify potential quality issues before vehicles leave the plant.

Each TUNL system is customized to meet the operational workflow, vehicle flow, space constraints, and quality control objectives of the installation site. Optional enhancements include an underbody camera module, a Gap & Flush inspection module for panel alignment verification, and accessory features such as air curtains, heated floors, and high-speed doors, which may be added based on plant-specific environmental and operational requirements.

The TUNL is designed for durability in high-throughput environments and includes all necessary imaging infrastructure and hardware to support high-speed inspections. It also integrates with PRISM's broader ecosystem, enabling centralized review, analysis, and decision support across multiple facilities.



Proposed Deliverables

- Custom-Fabricated TUNL Structure
- High-Speed, High-Resolution Camera Arrays
- Integrated Lighting & Sensors
- Underbody Camera Module (Optional)
- Gap & Flush Inspection Module (Optional)
- Control Panel & PLC Integration
- Infrastructure & Hardware
- Software & Interface Licenses

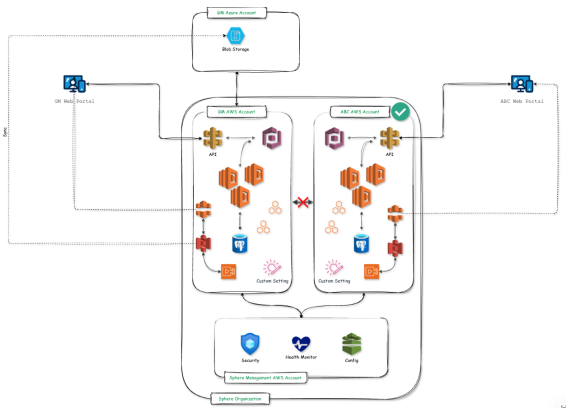
- Installation and Commissioning

Project Timeline

Phase	Timeline (Approx.)	Key Activities
Project Kickoff	Weeks 1–2	Site surveys, requirement finalization, detailed planning
Fabrication & Assembly	Weeks 3–8	Structure manufacturing, camera integration, pre-shipment testing
Delivery & Installation	Weeks 9–12	Site delivery, physical install, electrical setup, calibration
Testing & Commissioning	Weeks 12–14	Image capture validation, workflow testing, user signoff
Proving Phase & Optimization	Weeks 15–20	Operational monitoring, system tuning, performance validation

Technology Architecture

The Prism solution is built on a hybrid architecture combining on-premise processing with cloud-based data aggregation and analytics, ensuring maximum flexibility, performance, and scalability for enterprise customers such as General Motors (GM). The architecture supports seamless deployment across a variety of operational footprints, including PRISM POD, TUNL, and ARCH, as well as mobile inspection environments.



On-Premise System Components

Each Prism installation includes an on-premise system stack responsible for real-time data acquisition, processing, and — where applicable — AI-based damage detection. Key components include:

- High-Resolution Camera Arrays (visible, underbody, and specialty optics as applicable)
- Edge Processing Units for real-time video analysis and inference
- Local Database & Application Server to store, tag, and sync inspection data
- On-Prem AI Engine trained on OEM-specific vehicle imagery for high-accuracy detection

Hardware infrastructure (servers, networking, power backup, etc.) is to be provisioned by GM at each site.

Sphere Global licenses and supports the on-premise software component, including AI modules and system application.

Cloud-Based Prism Platform

All validated media and metadata from on-premise systems are securely synchronized to the Prism Cloud Platform, hosted on AWS infrastructure. Key features of the Prism Cloud solution include:

- Multi-Tenant Architecture: Each enterprise customer operates within their own logically isolated tenant, ensuring data segregation, security, and compliance.
- Customer-Owned Tenancy: GM will retain full ownership of its Prism cloud tenant, with the ability to manage user access, configure retention policies, and audit activity logs.
- Transparent Cost Structure: Cloud infrastructure costs (e.g., compute, storage, backups) are borne by GM and fully visible through standard AWS billing dashboards.
- Data Archival & Backup: Customers may choose to archive historical data to their own cloud storage (e.g., Azure Blob, AWS S3) with automated backup workflows supported.

Software Licensing and Updates

All Prism software components — including the on-premise application, AI models, and cloud portal — are licensed, maintained, and updated by Sphere Global. Updates include:

- Security patches
- Model retraining and performance tuning
- Feature enhancements
- API version control

Integration and Extensibility

Prism is designed as an open and extensible platform, capable of integrating with GMs internal systems as well as third-party tools. This includes:

- Claims & Warranty Systems
- Enterprise Logistics Platforms
- Quality Inspection Tools
- BI & Reporting Dashboards

The Prism Cloud Platform exposes a robust library of Open REST APIs, allowing secure, role-based integration without additional licensing or professional services fees.

Support, Warranty, and Maintenance Services

Sphere Global is committed to ensuring continuous, high-performance operation of the Prism solution across all deployment types — including PRISM POD, TUNL, ARCH, and Mobile. Our post-deployment support structure is built on three pillars: Warranty, Support, and Maintenance. Each pillar is designed to deliver maximum uptime, proactive monitoring, and rapid incident response.

Warranty

Sphere offers an industry-leading 60-month comprehensive warranty covering all hardware and software supplied under this solution. The warranty includes:

- Full repair, replacement, and service coverage
- Minimal downtime assurance with rapid diagnostics and component swap
- Loaner equipment to minimize service disruption during part replacement
- Complete parts and labor support for any system failure not caused by external misuse

This worry-free warranty provides GM with a performance-guaranteed solution backed by expert support and tangible operational reliability.

Support

Spheres support services are structured to provide priority response, remote troubleshooting, and

onsite intervention when required. Our support offering includes but is not limited to:

- Emergency help desk support with response within 4 to 8 business hours
- Remote diagnostics and troubleshooting
- Service calls and parts replacement for covered components
- Loaner hardware availability to minimize operational interruptions
- Limited after-hours support, as needed

This high-availability support model ensures any potential service-impacting issue is swiftly resolved to maintain GMs operational continuity.

Software License and Updates

All Prism software (on-premise and cloud) is provided as a licensed service managed by Sphere Global. The license includes:

- Regular feature enhancements and security patches
- OS and third-party application updates as part of the software lifecycle
- Portal and AI model upgrades delivered remotely and seamlessly
- Failover and recovery assurance to minimize data loss in the event of hardware issues

GMs deployed systems will benefit from Spheres continuous improvement roadmap, with no additional costs for minor version upgrades and vulnerability patches.

Preventive Maintenance

Sphere performs structured daily, weekly, and monthly maintenance activities to ensure sustained system health and high accuracy of damage detection. In addition to remote monitoring, on-site preventive maintenance visits will be scheduled and include:

- Cleaning and inspection of all cameras, controllers, and peripherals
- Inspection and testing of dome housings, heaters, and blowers
- Verification of camera focus, positioning, and field-of-view integrity
- Power supply testing, including UPS and battery backup health checks
- Review of software logs, programming settings, and diagnostic alerts
- Functional testing of software operations and data capture integrity

All maintenance tasks are documented and tracked in a centralized support portal for transparency and audit readiness.

Hardware Cost & Pricing Models

Hardware Cost - Capital

Product	Qty	Actual Cost (per item)	Total Capital Cost
PRISM TUNL – Gap & Flush Setup & Configuration Included	1	$0.00	**$0.00**

Assumptions and Dependencies

- Customer to provide access to the facility for setup, configuration and day to day operations.
- Customer to provide power and data (sufficient bandwidth).
- Customer to provide foundational base to install solutions.
- Vendor will not be responsible for any structural modifications, changes or construction apart from the solution and its related builds.
- Customer to provide VIN number of the vehicle in a real-time basis in a mutually agreed upon format.
- Damages to cameras, structure or any part of the solution caused by accidents or acts of God, will not be covered.