EMBARK

Automotive

ADS/Software/Advanced Sensors

ALTEN ADDED VALUE

ALTEN Technology provided a concept design based on off-the-shelf (OTS) parts to prioritize lead time to get the concept proofed. The complete system architecture was developed, including OTS mechanical parts, the electrical system, and software definition. A final prototype concept was formalized and defined from the available requirements, packaging studies, Pugh matrix, and part availabilities consisting of a complete BOM of purchase parts, drawings for new parts, and installation and modification documents.

AREAS SUPPORTED

System, mechanical, FEA, embedded software, electrical design and engineering

KEY TOOLS & TECHNOLOGIES

CATIA V5, ANSA, EPILYSIS, Altium

KEY DATA

Team Size: 6–7 Engineers
Time: Since Jan 2023
Location: Greensboro, NC; Troy, MI; Denver, CO
Work Package

ALTEN TECHNOLOGY

AUTONOMOUS STEERING

OVERVIEW

Embark is the longest-running self-driving truck program in America. Starting in 2016, at a time when the autonomous vehicles industry was focused on passenger vehicles, Embark's team ignored the hype and trusted their vision that trucking was the best use case for self-driving technology.

By concentrating exclusively on the software and associated services that will power self-driving trucks, Embark offers transformative operational savings and collaborates rather than competes with carriers, truck manufacturers, and
tier 1 suppliers.

PROJECT DETAILS

The task at hand was to create a system to autonomously control steering for an already available OEM truck that could be directed from Embark's system and paired with the physical, electrical, and software architecture of the truck. Proof of concept level was requested as a first step; a commercial solution and a stand-alone work package would be the next steps. The complete system architecture was developed, including OTS mechanical parts, electrical system solutions, and firmware requirements.

Activities Supported:

- Collection of requirements for initial STS
- CAD 3D models, drawings, BOM
- FEA preliminary system analysis (modal)
- Electrical architecture design
- CAN bus (J1939) requirements and SW strategy

Components Developed by Area:
System Engineering: Initial set of requirements for STS
Mechanical: Bracket design, BOM, and packaging environment
Electrical: Wiring, connector, and PCB design
Software: CAN requirements and embedded software strategy