

CASE STUDY

Uncrewed Systems Robotics

ALTEN ADDED VALUE

Developed a passive electromechanical docking architecture to reduce complexity and cost while improving field reliability

Implemented environmental protections for electrical interface to ensure NFPA 79 compliance

Reduced labor costs and eliminated human exposure to hazardous environments through full autonomy

Achieved autonomous gigabit data offload speeds while maintaining robot payload capacity

Accelerated delivery of 11 preproduction systems to initiate client field testing ahead of schedule

KEY DATA

Team Size: 4 FTE
Time: 7 Months
Location: USA
Work Package

AUTONOMOUS ROBOT DOCKING STATION

ABOUT

Our client is a leading robotics company that builds advanced autonomous systems with remarkable behavior: mobility, agility, dexterity, and speed. One of the latest platforms is ramping up to address a variety of missions in different environments. Many customers would like to deploy this platform for applications where the robot lives in a remote location or must be purely autonomous to deliver value.

KEY TOOLS & TECHNOLOGIES

- NFPA 79
- IP54
- ANSI/RIA 15.06
- IEC 61558
- SolidWorks MCAD
- Altium ECAD
- Quick turn prototyping and 3D printing

ACTIVITIES

- Characterized and improved autonomous robot docking behavior to improve position accuracy and docking reliability
- Integrated docking interface features into existing robot chassis with minimal impact on robot design
- Presented iterative prototype client demonstrations using Agile hardware design methodologies to de-risk the project
- Performed hazard analysis to ensure safe operation and elimination of hazards to humans and equipment
- Conducted use case evaluation and leveraged DfX principles to consider all environments, applications, features, and functionality.
- Adapted UX/UI to enhance user experience

