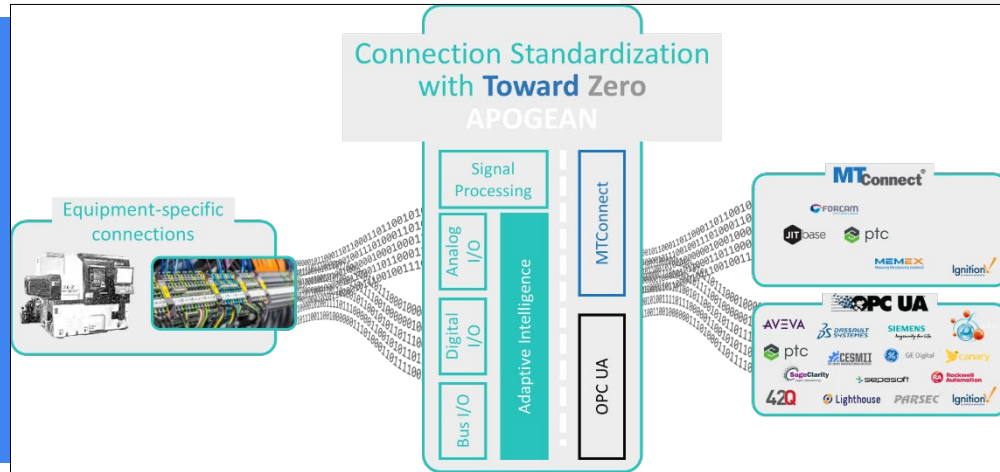


PROJECT CASE STUDY
Automating Legacy
Machine
Connectivity



Smart Manufacturing Hardware Connects Legacy Machines to the Industrial Internet of Things

PROJECT LEAD

Toward Zero

PROJECT TEAM

Raytheon

PROJECT OBJECTIVE

Develop a hardware device that enables quick connection to existing sensors, equipment and serial communication ports, and communicates via modern industrial network protocols to Industry 4.0 systems.

BENEFITS TO OUR NATION

Many small and medium sized manufacturers still utilize old equipment that is not connected to a network. By installing the hardware devices developed in this project, American manufacturers will be able to network their legacy equipment, enabling manufacturing data collection and production process control. Implementing smart manufacturing tools has been shown to improve manufacturing productivity and decrease unplanned equipment down-time. This modernization of the manufacturing sector will lead to lower operational costs and improve the competitive position of American manufacturers.

BENEFITS TO INDUSTRY

When small and medium sized manufacturers connect legacy equipment to networked controllers, they enjoy a number of benefits. A key advantage of networked equipment is the ability to remotely monitor and control production machines. Remote monitoring contributes to greater operational efficiency and improved productivity, driving increased profits and better business performance.

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PROJECT DESCRIPTION

TECHNICAL APPROACH

Develop a device with specialized software, firmware and hardware that will enable quick connection to legacy sensors and machines. The device will allow for the collection of manufacturing data metrics such as machine fault status, motor speed, part count, etc. The machine data will be transmitted via OPC UA and MT Connect.

ACCOMPLISHMENTS

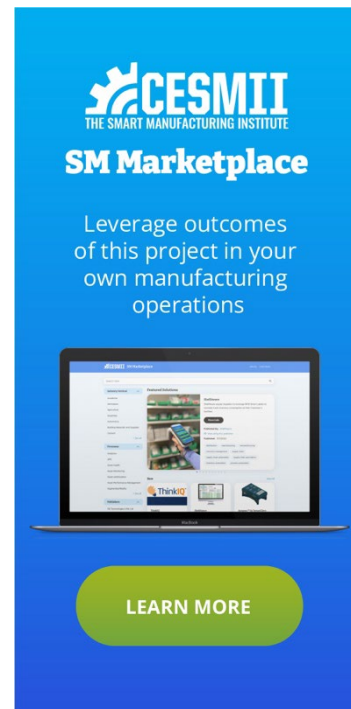
- Developed, built, and tested device to quickly connect to legacy machines.
- Installed device on 10 machines at partner site.
- Validated connectivity and transmission of manufacturing data to the cloud, including the CESMII Smart Manufacturing Innovation Platform.

DELIVERABLES

- Validated hardware device functionality.
- Installed devices at industrial partner site.
- Demonstrated collection and transmission of real-time manufacturing data at customer site.

REUSABLE OUTCOMES / SM MARKETPLACE

- CNC Machine Smart Manufacturing Profile
- Apogean Legacy Connectivity Device



The banner features the CESMII logo at the top, followed by the text 'SM Marketplace'. Below this, it says 'Leverage outcomes of this project in your own manufacturing operations'. In the center is a laptop displaying a dashboard with various charts and data points. At the bottom is a green button with the text 'LEARN MORE'.

PROJECT DETAIL

Budget Period: BP4
Submission Date: 07/14/2022
Sub-Award (contract) Number:
4550 G ZA075
SOPO: 2337

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