

# Standardizing Specialty Vehicle Design

**“There are so many benefits to a module like this. With a high degree of flexibility, optional wireless communication functions, and a greatly decreased time to market, this system simply cannot be ignored.”**

– Matthias Lutz, General Manager, Stuttgart Design Center

## Flex Module Cuts Overhead, Configuration Time

While consumer automobile manufacturers have the benefit of scale on their side, specialty vehicle makers must contend with a highly fragmented market. The requirements and capabilities of an ambulance differ almost entirely from those of a fire truck, a snow plow or a taxi cab. Each of them has its own external hardware that interacts with the vehicle and its controls in a unique way.

Creating the gateway modules that connect the hardware to the vehicle is a customized task that changes with each new vehicle or equipment model, increasing the cost of design and production for specialty vehicle makers. It also increases the time that it takes to bring a specialty vehicle to market as outfitters can spend up to 18 months configuring the necessary custom hardware and software.

One manufacturer came to Flex with this problem, hoping to reduce its cost of production and its time to market.

## The Smart Gateway Module and FlexConfig

Flex’s answer to the client’s problem was the Smart Gateway Module and FlexConfig app. This system replaces the traditional custom gateway module altogether. Instead of requiring a new hardware and/or software configuration for every new specialty vehicle model, Flex’s solution is a single, highly-configurable box that can be used across any new vehicle.

Historically, the vehicle manufacturer would need complex electrical engineering skills to configure a gateway module, and might even have needed to outsource the work to a third-party module manufacturer.

Thanks to the ecosystem that Flex has built around its Smart Gateway Module, the manufacturer was able to directly upgrade the software itself. It did this using the FlexConfig app that ships with the module.

FlexConfig provides a simple graphical programming interface. The manufacturer was able to cut valuable time from its production cycle by configuring the Smart Gateway Module to suit its own needs as it changed the design of the vehicle and the hardware that connected to it.

The specialty vehicle manufacturer that Flex collaborated with also needed a telemetry system that would enable the vehicle to communicate effectively with central dispatch.

Flex was able to use its expertise in automotive design, combined with the client-centric customization capabilities, to create an optimal solution for the manufacturer's needs. Its Connectivity Module not only allowed the dispatcher to get status updates from the vehicle and its specialty hardware in real time, but to control aspects of its operation as necessary.

"There are so many benefits to a module like this. With a high degree of flexibility, optional wireless communications functions, and a greatly decreased time to market, this system simply cannot be ignored," says Matthias Lutz, General Manager, Stuttgart Design Center.

## Functional, Affordable, Faster to Market

Thanks to Flex, the vehicle manufacturer was able to cut unnecessary complexity and cost out of its specialty hardware design, meaning that it could update its vehicle in two to four weeks, compared to a previous design cycle of eight to 18 months. It was also able to dramatically enhance the upgrade cycle for its telemetry and communications hardware from several weeks to just days.



## Old Method

- » Changes always require new hardware
- » 8-18 months for HW/SW update
- » Changes are supplier owned
- » No security
- » Wired connection only

## New Method

- » Changes do not require new hardware
- » 2-4 weeks for SW update
- » Changes are OEM-owned
- » Meets ASIL safety requirements
- » Wired and wireless connections

## Near Future Method

- » Changes do not require new hardware
- » Instant SW update, only requires testing
- » Changes are outfitter-owned
- » Meets ASIL safety requirements
- » Wired and wireless connections

For more information, please visit [www.flex.com](http://www.flex.com) or follow us on Twitter @flexltd

Flex is the Sketch-to-Scale™ solutions provider that designs and builds Intelligent Products for a Connected World™. With approximately 200,000 professionals across 30 countries, Flex provides innovative design, engineering, manufacturing, real-time supply chain insight and logistics services to companies of all sizes in various industries and end-markets. For more information, visit [flex.com](http://flex.com) or follow us on Twitter @flexintl. Flex – Live Smarter™.

Copyright © 2018, Flex. All rights reserved. No part of this document may be reproduced in any form without the prior written permission of Flex.