



White paper

Wireless communication in power electronics

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Customer

The customer is a global leader in power and automation technologies. Their products are used across the globe in various industries and transportation systems.

Project Overview

The goal of the project is development of a wireless system which will provide emergency log in case of power electronic system failure. The system has to be able to operate in adverse conditions present in high-power environment.

The project deals with development and implementation of a new, innovative, but a cost-effective system, which can be used both during development of new products for ironing out glitches, and during mass production as a tool that can help during field repairs.

The main challenges of the project were:

- Product development from feasibility study to implementation
- Low per-unit price
- High performance and reliability

The project started as feasibility study aiming to explore the possibility of using wireless communication in power electronics.

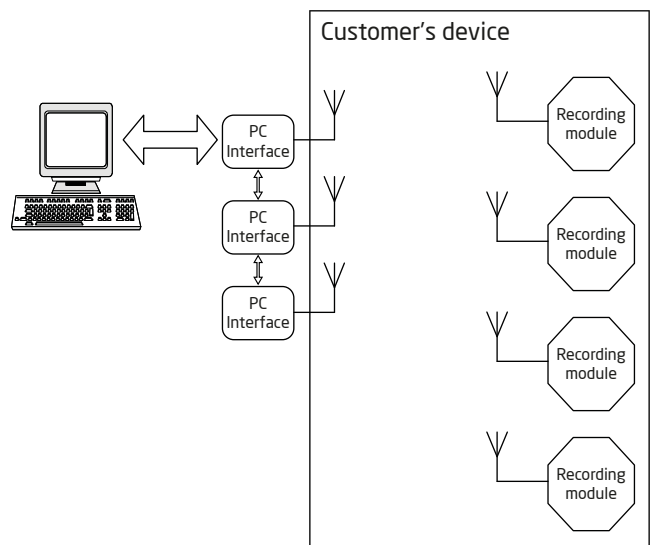
The developed apparatus consists of two types of modules. One module contains the necessary logic which interfaces with the customer's equipment, has the memory needed to store needed amount of data, keep it in case of power loss and RF component which interfaces to the second module.

The second module contains an RF component and the interface to the PC.

During normal operation, data is recorded from the customer's equipment in a circular buffer. If a malfunction is detected, the contents of the buffer are stored in a non-volatile memory element to save it in case of power loss.

Data is kept there until an operator requests it from his/hers PC.

The apparatus has an extended star configuration, where one or more PC interface boards can address one or more recording boards. The configuration is user-dependent. The operator has the option of downloading data from a specific recording board, a group of recording boards or the whole system.



Structure of the developed device

During the development, the appropriate industrial IEC standards were considered. The durability, stability and safety requirements were taken into account during device design and component selection.

The development lasted six months. It involved a hardware engineer for schematics and PCB design and HDL development, three engineers for software and firmware development, and a project manager.

Benefits

The project covered the development from product idea until the prototype. The complete development process and costs were transparent to the customer via regular meetings and appropriate reports.

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