Developing a 2.4GHz Wireless Enabled, Globally Deployable Tram Bar Measuring System

The Client

Our customer is a leading provider of collision repair equipment with a solution matrix comprising computerized measurement, complete vehicle specifications and collision repair training.

The Challenge

Existing tram bar measuring devices were non standard 900MHz single wireless devices. Our customer considered developing a standard 2.4 GHz wireless enabled tram bar measuring device for worldwide deployment. The proposed device would uniquely combine multiple wireless tram bars and digital tape measures.

The Solution

A ZigBee Alliance member since 2004, Mindteck has rich, full cycle experiences in designing and developing ZigBee modules, ZigBee compliant protocol stack, platform specific components and MAC layer. In this case, our in-house ZigBee module was pressed into service.

Our solution involved upgrading to the ZigBee wireless system operating on the 2.4 GHz band. The tram bar measuring system was upgraded for cost and size efficiencies, and electrical interface to the ZigBee module.

Circuit board design and prototyping were completed for both measuring and listening devices. Prototypes were tested against a formal test plan. A terminal emulator program tested the interface to the PC. Firmware was developed with a view to deliver the complete feature set.

The Benefits

- Mindteck's offshore development center offering reduced time-to-market, cost competitiveness and support from good talent pools with deep domain and technology expertise
- Mindteck's ZigBee Center of Excellence, a technology hothouse, with rich experience in ZigBee modules, and dedicated toward understanding changes in the ZigBee landscape (including protocol specification changes, new application profile definitions and commissioning tool specifications)
- Optimum code size and memory consumptions

The Technology