

Home automation gateway for a global technology leader

Case study

Client:

The client is a global technology leader that designs, develops and supplies a broad range of semiconductor and infrastructure software solutions

Technologies and tools:

Synopsys ARC601;
Embedded C99; Python

ZigBee PRO

RF4CE

ZigBee RF4CE ZRC

ZigBee RF4CE NWK

Set-top-box

DigitalTV



Luxoft provided the customer use case demo app support

Challenge

The client is a global technology leader that designs, develops and supplies a broad range of semiconductor and infrastructure software solutions. The client's category-leading product portfolio serves critical markets including data center, networking, software, broadband, wireless, storage and industrial. They were seeking the ability to expand its offering to home automation applications. With its new chipset they wanted to provide universal set-top-box based digital tv solutions enabling communication to most smart home established devices which were at the same time being controlled by the RF4CE remote control devices.

Solution

At start of the project Luxoft had:

- More than 7 years of low-power wireless expertise
- Over 100 man-years of development for Zigbee PRO stack "Bitcloud" (Atmel IP)
- Implementation and certification of ZbPro and ZHA, ZLL, ZSE profiles
- Certified as ZbPro and ZLL Golden Unit of Zigbee Alliance

The Luxoft team managed to implement dual stack ZigBee Pro HA / ZigBee RF4CE ZRC2. Initially it was assumed that these two standards could not work at the same time. Using dual stack (ZigBee-PRO and RF4CE) software, OS-free, low-power, low-footprint solutions to address ZigBee we connected home automation devices (smart home devices like lamp, lock, home alarm system, etc.) and supported advanced profiles: Shared-radio ZHA, RF4CE, ZRC 1.1, 2.0 and cable MSO. Luxoft certified the following standards via NTS company ([nts.com](https://www.nts.com)):

- IEEE 802.15.4 PHY/MAC by ZigBee test specification
- ZigBee PRO
- ZigBee home automation
- ZigBee RF4CE NWK
- ZigBee RF4CE ZRC

Results

- Luxoft passed all stages of the ZigBee Alliance Certification at NTS test house
- Luxoft verified interoperability with more than five production devices
- High quality verified by stress and crowd testing
- Interoperability with BitCloud GU
- Luxoft provided the customer use case demo app support

Technologies

- Synopsys ARC 601, embedded C99, Python

About Luxoft

Luxoft is the design, data and development arm of DXC Technology, providing bespoke, end-to-end technology solutions for mission-critical systems, products and services. We help create data-fueled organizations, solving complex operational, technological and strategic challenges. Our passion is building resilient businesses, while generating new business channels and revenue streams, exceptional user experiences and modernized operations at scale.

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