

GreenPeak Technologies

Corporate Presentation

→ July 2011



Three new RF4CE Communications Controller Chips

Why still Infra-Red Remote Controls?

- **Infra-red remote controls**
 - 30-year old technology... and showing its age
 - Requires line of sight (point and shoot)
 - Does not go through obstacles like cabinets, walls, floors
 - Limited range
 - No two-way communication

- **We are all familiar now with RF**
 - Phones
 - Wireless Internet
 - Garage-door openers
 - ...



Time for something better: RF remote controls...

ZigBee RF4CE worldwide standard

- **RF4CE originally developed for standardizing remote controls**
 - Panasonic
 - Philips
 - Samsung
 - Sony
- **Adopted by The ZigBee Alliance**
 - 400 members, including CE companies and large MSO's
- **ZigBee RF4CE standard**
 - Multi-vendor interoperable remote control solutions for consumers
 - Simple, robust and low-cost communication network
 - Two-way wireless connectivity
 - Using the 2.4 GHz ISM band, worldwide available



 **ZigBee RF4CE is a broadly adopted worldwide standard...**

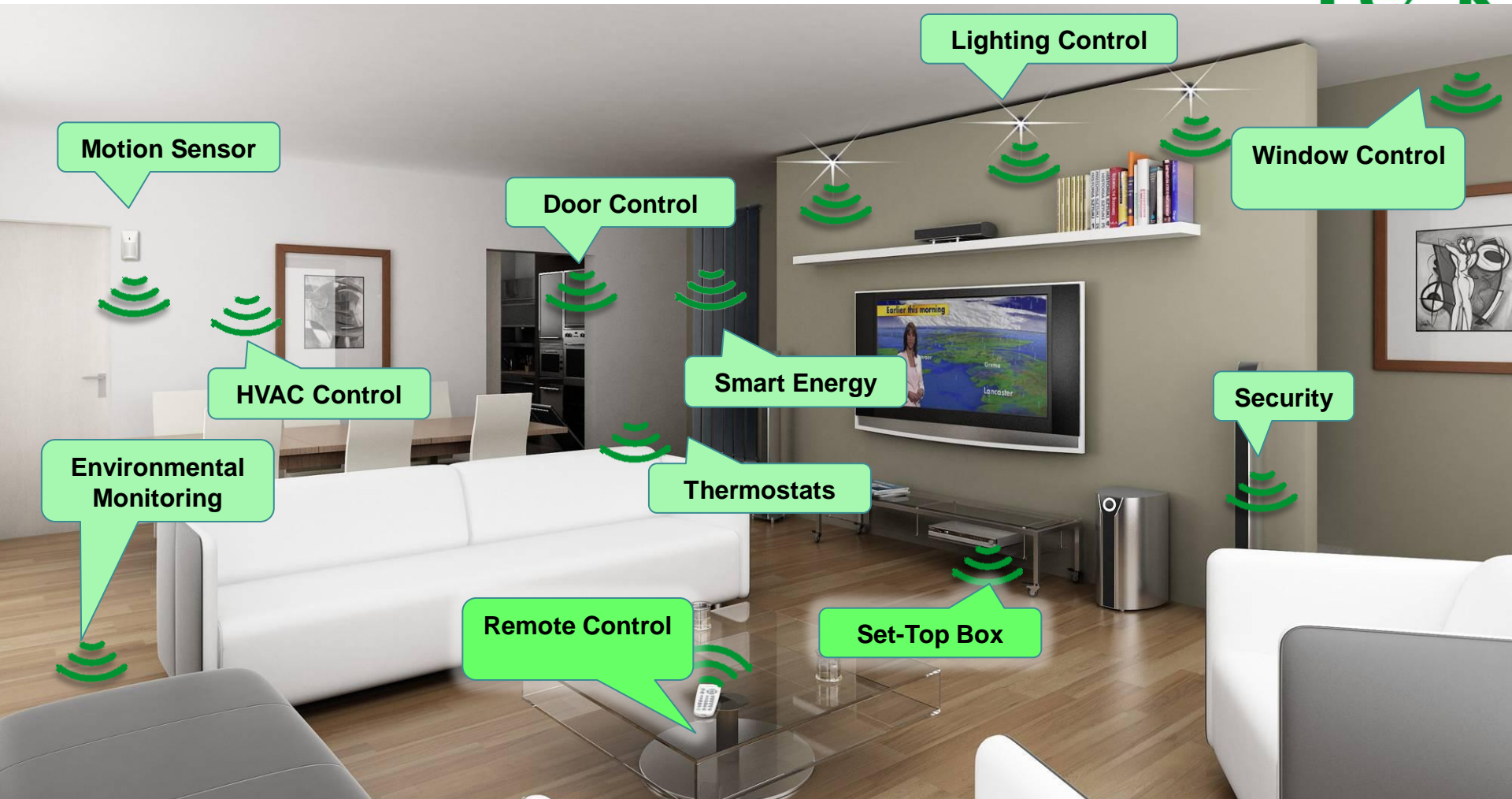
Superiority of RF Remote Controls



Advantages	For CE Manufacturers & MSOs	For End-users
RF more robust than IR	<ul style="list-style-type: none">• Fewer support calls• No expensive brand identity design• No IR-code tables required anymore• Simple worldwide RF-standard• Low cost	<ul style="list-style-type: none">• Improved reliable user experience• No more pointing and shooting• Improved esthetics• STB/tuner can move to the closet• One STB can service multiple screens
RF supports 2-way	<ul style="list-style-type: none">• Direct interaction with the end-user• Enables updating software in the RC	<ul style="list-style-type: none">• Active status display on remote control• Enables interactive participation• Easy “find-me” function for RC
New opportunities	<ul style="list-style-type: none">• Offering of new products and services like payment support, security, energy management, etc.	<ul style="list-style-type: none">• Basis for home automation: open RF standard inviting other applications to be connected as well: light switching, closing curtains, climate control, etc.

 **ZigBee is becoming the basis for Home Automation...**

Home Network Applications Taking Off






 The Remote Control becomes the dashboard for the home...

Three New GreenPeak RF4CE Chips



RF4CE Communication Controllers

Device	Application	Function	Interfaces
GP520 	Set-top box & DTA	RF4CE protocol, ZRC & customer dedicated target functions	SPI-TWI serial interface
GP530 	TV and front panel	RF4CE protocol, ZRC target function	UART serial interface
GP540 	Remote control	RF4CE protocol, ZRC and dedicated targets function	Single chip solution with IR transmit engine

 **Optimized for low cost/ease of integration through configuration**

GreenPeak Differentiators

- **Superior range and reliability**
- **Robust against Wi-Fi and Bluetooth interference**
 - +30dB (1000x better than competition)
 - Patented embedded hardware antenna diversity
- **No maintenance - no battery replacement**
 - A single low cost 2032 battery lasts a life time of the product (>10 yrs)
 - No more “elastic bands” around broken battery compartments
- **Robust and small software stack**
 - RF4CE protocol stack with ZRC application profile
- **Highly configurable**
 - Very short product implementation cycle (1-2 months)
- **Low cost BOM for total solution (<2\$):**
 - Effectively competing against IR



 **GreenPeak has a unique market leadership position!**

Push Messaging & Find-Me Apps



- **Find-me app on remote control**
 - Remote control generates alarm & flashes light
 - No more lost remote controls
- **Minimal impact on battery life**
 - Special design allows battery life of over 10 years
- **Push messaging app for consumers**
 - Tele-voting & gaming
 - Real-time sport results, stock information, ...
 - Residential sensor network monitoring
 - Personal messages & reminders
 - Receive advertizing/special deals from MSO's



 **GreenPeak's Push Messaging and Find-Me makes the difference!**

One ZigBee Family of Standards

Integrated home & building control solutions
for consumer electronics and wireless sense & control applications

IEEE 802.15.4

ZigBee GreenPower

ZigBee RF4CE

ZigBee SE 2.0 (IPv6)



Green



Energy Harvesting
No batteries



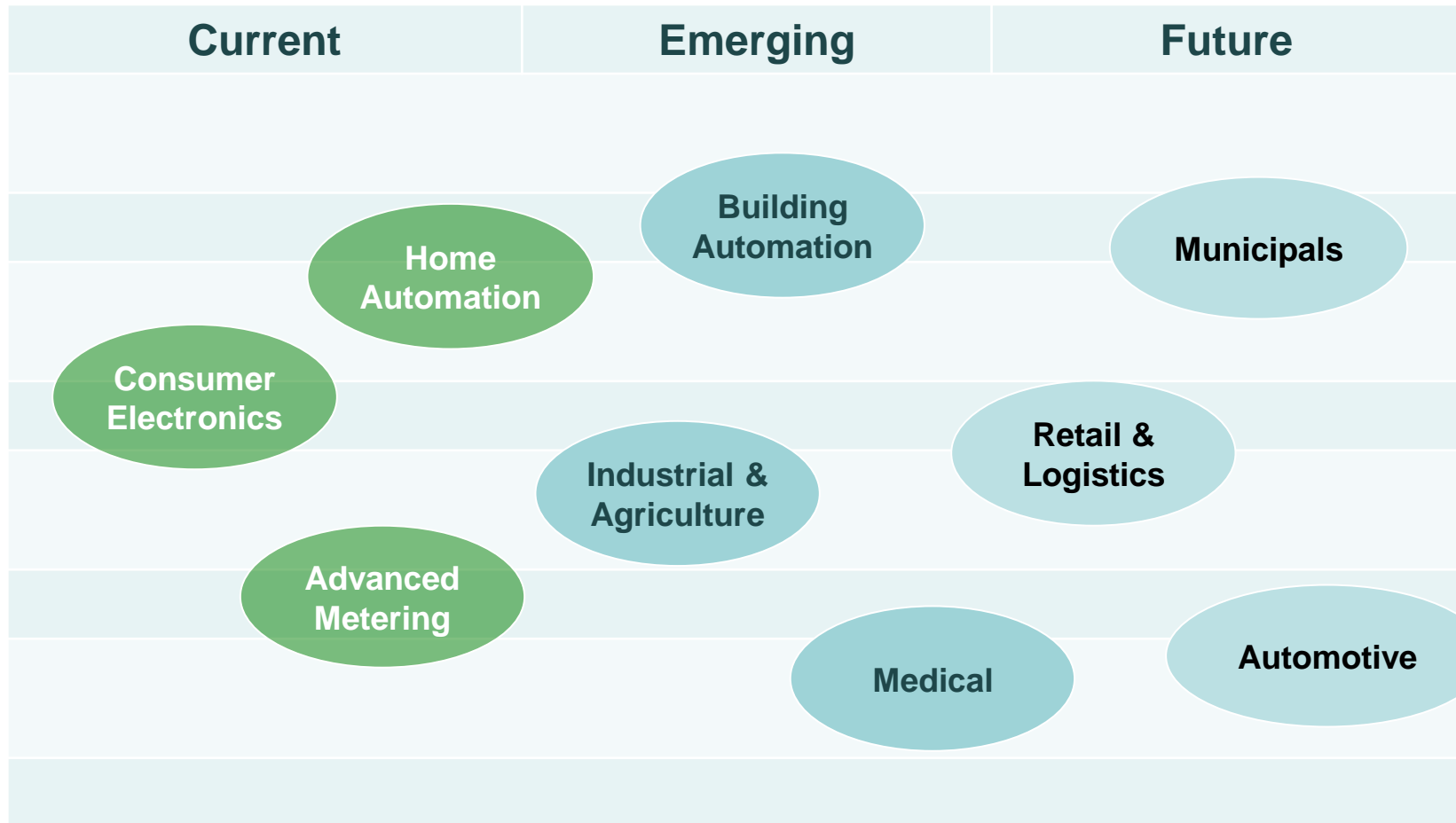
Low Power
Life-long batteries



Power-line
Infra-structure connection

Different Applications well covered within the ZigBee Standard

Future ZigBee Application Opportunities



Home Automation is just the start of a new wireless revolution...

GreenPeak Company Facts



- **Fabless semiconductor company**
 - Located in The Netherlands/Belgium
 - With a uniquely differentiated ZigBee/IEEE 802.15.4 product portfolio
- **Leadership position in ZigBee RF4CE for Remote Controls**
 - Solid relationships with CE, STB and RC vendors
 - Expanding in home/building automation and other market segments
 - ZigBee GreenPower and SE 2.0 (IPv6) under development
- **Experienced team**
 - With proven track record in wireless semiconductors (Wi-Fi)
 - ISO 9001:2008 & ISO 14001:2004 certified
- **Well funded by VC's and... ... Strategic investors**
 - Gimv, Antwerp, Belgium
 - DFJ Esprit, London, UK
 - Allegro, Leuven, Belgium
 - Motorola, Schaumburg Ill., USA
 - Bosch, Germany
 - Excel T&I, Taiwan

WIRELESS & GREEN
COMMUNICATION TECHNOLOGY



Thank You!

GreenPeak Technologies

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