



ENLIGHT

Energy efficient & intelligent lighting systems

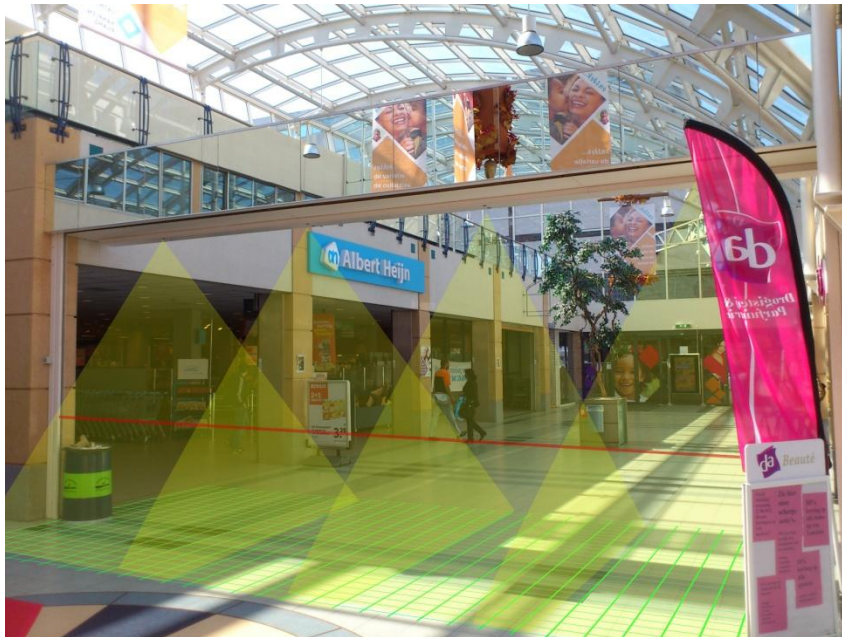
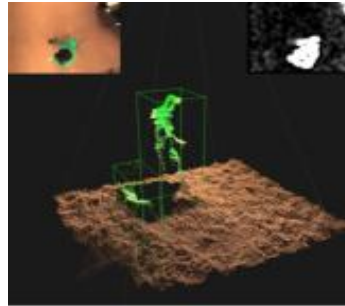
# Collaboration between Eagle Vision and Plugwise



# Eagle Vision Systems

- Based in Naarden, the Netherlands
- Founded in 1995, 17 employees
- Products based on computer vision
  - Industrial inspection systems (since 1995)
  - People logistics (since 2005)

# Eagle Vision People Tracking System



- **What is it?**
  - People Detection System
  - People Tracking System
  - Delivers Position
  - Delivers Height
  - Scalable: can cover big areas
  - No Tags needed
  - Top Mounted EagleEyes



# Plugwise

- Start development February 2007;
- State-of-the-art production in The Netherlands;
- Steadily growing organization; currently 32 employees in The Netherlands, 1 in Germany and approximately 10 externals for engineering. Furthermore distributors in the UK, Denmark, Australia and Japan;
- The development of energy efficient and reliable network- and sensor technologies to manage and control all energy consumption within buildings.

# Today and tomorrow

- Plugwise today
  - Cut back (unnecessary) energy use;
  - Optimize energy consumption.

Building  
Automation

Lighting Control

Home

- Plugwise tomorrow
  - Balance energy supply and demand inside and between buildings to make optimal use of the existing real estate and grid;
  - Building virtual grid capacity through demand response.

Smart Grid Enabler  
Peak shaving and load shedding

# EnLight Challenges and targets

Objective	Topic	Efficiency increase	Technological driver / user-experience driver
①	Develop an optimal LED lighting module	Increase by at least 20% w.r.t. current retrofit LED lamps	Optimal LED optics, LED modules with integrated drivers, advanced heat management control, ultra-low standby current and full freedom of sockets
②	Solutions applicable for future, non-conventional luminaires	Increase of efficiency through design freedom (e.g. by minimizing the LED die temperature)	Solutions which do meet the multiple soft criteria as listed below: <ul style="list-style-type: none"> <li>• Affordable</li> <li>• Extendable</li> <li>• Easy-to-produce</li> <li>• Easy-to-install</li> <li>• Easy-to-use</li> <li>• Easy-to-maintain</li> <li>• Upgradable</li> </ul>
③	Intelligent Lighting systems	Increase of at least 30% in standard environment compared to non-automatic lighting installations	Development of novel, low power sensors, dedicated SSL dimmers, smart communication protocols using low power, robust sensing algorithms and low power lighting controls
①+③	Total system efficacy increase by ① + ③	<b>Joint energy efficiency increase of at least 40%</b>	Combination of the two improvements above.

*Grand Challenge*



# Rationale



# Economic Rationale

- Lighting controls have the potential to
  - reduce lighting energy consumption significantly
  - moderate peak demand in commercial buildings
  - enable the building management system to respond to real time energy prices
- Studies have shown that vacancy based control systems can achieve significant energy saving
  - Lights manually turned on and automatically turned off when vacancy is detected

## Problem

- Current systems detect movement not absence.



# Collaboration Plans

- Plugwise System to turn on the light.
  - Either Switch or Scan depending upon requirements
- EagleVison system : The Eagle Grid to detect absence, Plugwise to turn lights off
- In the future Eagle Vison system to record peoples position, direction and activity, Plugwise to turn lights on or off as required.
- Plugwise system to turn on Eagle Vision system

# Timetable

- March 2012
  - Eagle Eye cameras installed at Plugwise
  - Plugwise Source installed and run on Eagle Tracking PC.
  - Plugwise Circles used to activate Eagle Tracking PC.
- Future (2013)
  - Eaglevision to implement ZigBee
  - Plugwise Star to be implemented enabling communication with other ZigBee systems



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[www.EnLight-project.eu](http://www.EnLight-project.eu)

[www.EagleVision.nl](http://www.EagleVision.nl)

[www.Plugwise.com](http://www.Plugwise.com)

