# Smart street lighting increases safety, reduces energy use

Challenge & Solutions

Citizens' feelings of safety while walking in the city at night correlate strongly to light levels. For municipalities, this presents the challenge of providing sufficient light at clearly reduced levels of energy consumption.

Cities are investing in new (LED) lighting installations, but available solutions are proprietary. That binds municipalities to a single vendor for services and replacement lamps, among other drawbacks. Moreover, these systems are not smart enough to incorporate new flexible, sophisticated features enabled by bi-directional communication capacities of the luminaire. For example, a smart street light should transmit its health status to the operator to ensure that defective lighting elements are replaced before they fail – providing the double benefits of lower maintenance costs and ensured illumination. In addition, the communication capacity of street lighting could be useful for giving driving instructions for autonomously driven cars. Finally, energy-conscious operators would benefit from smarter dimming by reducing the electric current in cooler weather conditions, when LEDs are more efficient.

In response to these challenges and opportunities, this EuroCPS project developed an upgradeable, re-configurable lighting-control solution constituting a "future-safe" investment with clear benefits both for citizens and operators of the lighting installations. The non-proprietary "smart SSL solutions" concept targets system-level applications with advanced communications. These allow LED luminaires to become part of smart-city solutions through bi-directional communication, separating the communications protocol from the actual physical medium of the data transfer. Using Intel's Edision IoT/CPS platform, various smart functions could be added to LED-based street-lighting luminaires: e.g. performance-status data and smart dimming.
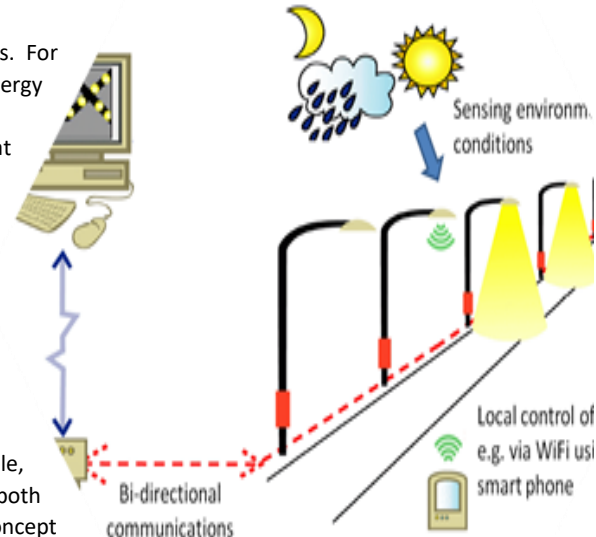
EuroCPS Support

BME assumed the role of the DIH in this EUROCPS experiment in consulting the SME Hungaro Lux on system design and implementation of the new intelligent LED luminaire controller. With its detailed knowledge of Intel's IoT platform BME helped realizing missing device drivers and interfaces. Furthermore, BME provided the SME with laboratory testing facilities, which is a second dimension of a DIH's role.

Digital Skills

Hungaro Lux Light Ltd.: LED luminaires, anti-reflective coating technology for polycarbonate substrate to PearlLight LED lamps, LED driver technologies.

BME: Modules to implement the system, integration of Intel's embedded Edison platform; LED and luminaire multi-domain model to implement smart, adaptive dimming and help with laboratory testing of engineering prototype of the new luminaire

Company

Hungaro Lux Light is an innovate street lighting company based in Budapest (HUN) http://hungarolux.hu/

11 employees

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Impact/What's next

Hungaro Lux Light is building a new production facility for its PearlLight luminaires that will go into production in 2018. The company also developed a new smart luminaire control center. A pilot setup was built with a Hungarian electric utility, and production planning is in the final phase. With this pilot implementation, predicted energy savings of 6-8 percent will be tested. A further ~5 percent energy-efficiency improvement is also expected from the new anti-reflective coating introduced by the company's optics design.