DIN SPEC 91347

Integrated multi-functional Humble Lamppost (imHLa)

DIN SPEC 91347 CASE STUDY

Intelligent lampposts in Smart Cities

The Background

Energy, telecommunications, traffic, lighting: the infrastructure of the Smart City is interconnected. To usher in the towns and cities of tomorrow, urban communities must create new, interconnected infrastructure or digitalize existing infrastructure. One element of infrastructure offers a clear starting point: Lampposts are ubiquitous throughout the public urban environment. Plus: Their masts already possess an electrical power connection. Over the coming years, approximately ten million street lights must be modernized through the installation of energy-saving LED technology in Europe. This is the chance for councils to make the leap towards smart(er) infrastructure: The tight web of lampposts shoulders the digital urban infrastructure as data and information nodes. Armed with wireless hotspots, e-charging stations, environment sensors and the ability to gather traffic data, they are capable of far more than just street lighting.

DIN SPEC

The DIN SPEC 91347 describes integrated multi-functional Humble Lampposts (imHLa) as integrated, networked systems. They are of modular design and can house components with connectivity, sensory, actuator and energy system technology. The DIN SPEC 91347 defines four fundamental aspects for the standardization of imHLas:

- → physical integration of hardware within the mast and, where economically feasible, of individual components with each other
- → logical integration of individual components, for example for data exchange and communication
- → economic integration of individual components for operational and business models
- → macro-integration of imHLa into Open Urban Platforms in Smart Cities

"It is essential to view the lampposts and their additional components not as isolated units but as an integrated system of the digital city," remarked Lutz Heuser, Head of the consortium and CEO of [ui!] – the urban institute. The DIN SPEC 91347 therefore focuses on 14 use cases and a classification system for different modular configurations of imHLa. The use cases delineate the circumstances and contexts in which imHLa can be implemented to the advantage of local communities and act as case studies to demonstrate possible advantages. The classification matrix categorizes the individual modular components into five classes, with class 1 representing the minimum requirements for imHLa. This classification strives to create a standardized scale through which new modular components can be designed compatibly with the modular concept in the future. This DIN SPEC is initially intended for public street lighting managed by municipal authorities but does not preclude application to other fields.

The Value

With its modular, sequential integration of components into imHLa, the DIN SPEC 91347 establishes the foundation for step-by-step digitalization of urban infrastructure in the context of Smart Cities. It is aimed at all those

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involved in the process and it serves as an orientation guide to decision-makers, procurers and strategists of digital infrastructure. The modular nature of imHLa enables the combination of previously segregated services, products, markets and business models which prevents the dependence of local councils on a few producers. Furthermore, this combination promotes the provision of new services for municipal authorities and citizens as well as new business models for companies. Additionally, buyers are offered assistance in determining the specifications of the necessary equipment. "Our efforts should improve planning security for the future development of the digital transformation while also stimulating dialogue between the government, administrative agencies and industry," stressed Bernhard Kempen, DIN Project Manager of the DIN SPEC project.

The Process

The DIN SPEC 91347 was developed through the PAS process (Publicly Available Specification) and was initiated by [ui!] – the urban institute. Together with DIN, [ui!] brought important stakeholders to the table. Consortium partners that participated in the standardization project were EnBW and RheinEnergie as operators of town lighting infrastructure, Schréder, Trilux and eluminocity as competent authorities for light management and charging infrastructure as well as Deutsche Telekom, NXP, Alliander and Microsoft from the communications sector, providing a platform for the Internet of Things.

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