

Intelligent street lighting at TU Delft saves up to 80% on energy

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Delft University of Technology (TU Delft) is currently testing an intelligent street lighting system on its campus, which uses up to 80% less electricity than the current systems and is also cheaper to maintain. The system consists of street lights with LED lighting, motion sensors and wireless communication. This enables the installation to dim the lights when there are no cars, cyclists or pedestrians in the vicinity. Wireless communication between the street lights and a control room is also possible. The system was developed by TU Delft alumnus Management of Technology, Chintan Shah, who won a competition in 2010 with this concept for improving energy efficiency on the university campus.

Watch the film about intelligent street lighting



80% savings on electricity

The Netherlands spends more than 300 million euros a year on electricity for street lighting. The network of street lighting also emits over 1.6 million tons of CO₂ a year. The lights are always on at full power, regardless of whether there is anyone in the area. Compared with the current street-lighting system, Chintan Shah's intelligent system can reduce energy consumption and CO₂ emission by up to 80%, is cheaper to maintain and can also help solve the problem of light pollution.

A safe circle of light

Shah's system consists of electronic gear that can be added to any – dimmable – street light. The system comprises street lights with LED lighting, motion sensors and wireless communication. At first glance, it looks a lot like a widely available type of garden light with a motion sensor, but there are significant differences. In Shah's system, all surrounding street lights light up if anyone approaches. And the lights never go out completely; they are dimmed to approx. 20% of the standard power. Passers-by move in a safe circle of light as it were. An added bonus is the fact that the lights automatically communicate any failures to the control room. This makes maintenance cheaper and more efficient than it is now.

Market introduction

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The aim of the pilot on the TU Delft campus is to thoroughly test and fine-tune the system, to prevent swaying branches or passing cats from switching the lights to full power, for instance. Shah is working with his TU Delft spin-off company Tvilight on the market introduction of the system, which he expects to be profitable within 3-5 years. Shah: "This technology differs in certain aspects from the existing systems of other companies and all of this new technology has been patented." TU Delft is also curious to know the results of the pilot. Professor of Wind Energy, Gijs van Kuik, is actively involved in making the campus more sustainable: "We are delighted with this development. This is a promising opportunity to save energy on street lighting."

Competition

The realisation of this campus pilot was the prize Chintan Shah won in March 2010 in the Campus Energy Challenge, a competition for TU Delft students with ideas on improving energy efficiency on the university campus. The competition was initiated by the Delft Energy Initiative. This is the gateway to all energy research and education at TU Delft. It also promotes new projects in the field of energy.

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De film was made by Roelf van Til, New-Energy.tv

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