

Leading light

A Danish project featuring solar-powered road studs aims to increase cycle usage by making the mode a safer option

Words | **Per Schorling, Geveko ITS, Denmark**

The current focus on ITS, traffic safety, cycling and citizens' health has increased the need for systems that can be combined, which has clear benefits in terms of cost, among others.

This is being demonstrated in the Danish city of Aarhus, which has created the Aarhus Cycle City project headed up by project manager Pablo Celis. Running over five years, the scheme has a budget in excess of €10 million and aims at getting people to switch from using their cars to using bicycles for personal mobility.

"It has both an environmental and a health effect if we are able to make the citizens of Aarhus choose the cycle over the car," Celis explains. "It's not based on any moralistic views about making everybody in Aarhus cycle to work every day; we know this is not possible. But if we improve conditions for cyclists, it will be a whole lot easier for them to choose two wheels over four. On top of this, we hear from cyclists that dark cycle paths are an issue when it comes to cycling to work, which is why we felt we had to do something about it. However, the costs involved in installing and maintaining such lighting systems can be considerable, more than €40 per meter, so we were really



The LED-Mark road stud



Geveko ITS LED road studs installed in Aarhus, Denmark

happy to learn that it is possible to solve our problem with a technology that is only one tenth of that cost."

Solar-charged road studs make the guiding lights efficient and cheap in operation. "A colleague of mine met Geveko ITS at a road safety conference, and he brought home a sample of the technology that was extremely convincing," Celis recalls. "The conversations that followed led to further product development, so much so that the lifetime of the LED-Mark is now a minimum of five years, making it possible to install the LED road studs as guiding lights on 10km of cycle path."

As its name suggests, the LED-Mark is based on light emitting diodes (LEDs), complemented by solar cells and batteries that are recharged throughout the day and illuminate at dusk via simple built-in controls. The technology can also be used for highlighting potential risks, such as freezing temperatures. Ultra-slim, the operational costs of the LEDs are less than a third of threaded technologies, which given the price of energy is a key concern.

Ready to hit the road

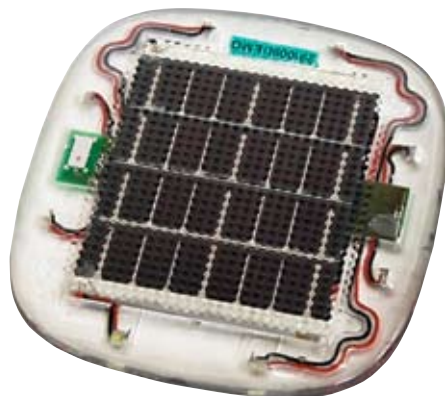
In development over the past 10 years, the products are now in serial production and the application areas are huge, according to Bruno Hansen, general manager for Geveko ITS. "They can be used for stretches of road with dangerous curves, along dark

highways, unlit cycle paths and roundabouts – essentially wherever there is a potential risk of accidents," he says.

Intelligent LEDs can do so much more, reports Celis, adding that he knows of no other technology available that can achieve what he needs, as well as being entirely adaptable to potential future demands as and when they arise. "We're envisioning scenarios in which green waves can be established so that cyclists will not have to stop at red lights at all," he says. "Or you could record the number of cyclists or their speed on a given stretch of road, which would give us more data about how to increase the number of cyclists in Aarhus."

Together with the Luleå University in Sweden, Geveko ITS has developed a version that includes a mini-computer, various sensors and a communication device. "Based on our new LED-Guide, we are able to detect and count vehicles or cyclists, so we can warn people when a particular risk is present, and actually prompt them to a specific action by communicating directly from the road via light," says Hansen.

By embracing new technologies such as these, Aarhus may quickly achieve its goal of making cycling a more appealing alternative to driving. The project could also open up new applications for Geveko ITS. Innovative lighting for tunnel safety, for instance, is an area the company is exploring. ■



The LED-Guide road stud