

# These Smart Streetlights Only Get Bright When They're Needed

Cities spend massive amounts of money on electricity to light the street. But most of the time no one is there. This smart technology can sense when a car or pedestrian is approaching.



ADELE PETERS | 01.09.14 | 11:37 AM

**As much as half of a city's electricity bill is from simply powering streetlights.** Now a Dutch company's design for smart street lights, which brighten only when needed, might help save massive amounts of that energy.

The Twilight system works by sensing someone on the street—whether it's a car, cyclist, or pedestrian—and instantly gets brighter in exactly the right place, while other lights stay on at a dim level. It's quite a bit more complicated than the typical motion sensor lights you might see inside an office. Instead of just one light, the system illuminates multiple lights all around a moving vehicle or pedestrian.



The company's founder was inspired to design the lights while working at another job that required frequent travel. "When I was flying, I was amazed to see how many streetlights are burning all night even when there's no one around," says Chintan Shah, CEO of Twilight. "With a little research, I found out that Europe pays over €10 billion each year only to power streetlights. And this is shocking. Why do we need so much light when no one is there?"

Shah likens the effect to the spotlight that followed Michael Jackson around the stage as he danced the moonwalk. No matter where someone goes, a "safe circle of light" is always there. That means each of the lights needs to be able to communicate, in microseconds, with its neighbors.

The sensors inside are also smart enough to know not to activate the lights when a bird flies by, or when wind moves tree branches. The system can even tell what type of object is approaching; since a car moves faster, the lights around it are a bigger diameter and start brightening farther down the block.

"Five years ago, wireless sensors were not ready for this challenge," says Shah. Now that reliable low-power sensor network technology is available, his team was able to build a custom combination of sensors that could filter out movement to know how and when to illuminate.





Soon, the company will also program custom lights for certain situations—a fire truck driving down the street, for example, will be able to turn the streetlights red as it passes to help alert other drivers.

Since Twilight's first installation of the lights in 2011, hundreds of the systems have been installed—at train stations, parking lots, a castle in Germany, and even an entire town in the Netherlands. Now the company hopes to move from selling directly to cities to work with distributors and other streetlight manufacturers, so it can spread the technology more quickly.

Everywhere the lights have been installed, Shah says they've had a positive response. Since the lights are never fully turned off, but just dimmed by 30%, it's easy to see even if you're just looking out the window of a house and nothing is driving by. And just by dimming the lights, energy usage can be cut 50% to 60%.

"The world talks about the challenge of climate change, but there are really practical solutions like this," Shah says. "If we apply them, we'll achieve our 2020 targets. I think it's time that the world gets serious about implementing solutions that are readily available."

