



Sustainable Mobility Innovations

Our experts' choices Winter 2014/15



The world of “*sustainable mobility*” is full of innovations. On a daily basis, new tools, approaches and concepts are developed, tried and implemented to make the life of pedestrians, cyclists and public transport users more comfortable.

As part of their daily routine, our mobility experts around the world are constantly looking for such innovations – please find below their discoveries. Some of these innovations are not new or innovative on a global scale, but are adapted to suit local conditions and hence worthwhile to be included in this list and shared.

“Green wave” for cyclists in Copenhagen

Copenhagen remains the benchmark worldwide for innovations to make cycling just a little more convenient: while other cities have synchronised their traffic lights for the convenience of cars, Copenhagen has implemented a green wave at 20 km/h for cyclists on several major arteries into the city in the morning rush hour and reversed in the afternoon. However, on a bicycle it is easy to lose sense of how fast you are going. Therefore LED lights embedded into the surface of bike paths now make it easier for cyclists to surf the green wave. If the LEDs are green, cyclists know that they will catch the green light at the next intersection – if the LEDs are switched off, cyclists know that they have to speed up or slow down a little in order to take advantage of the green wave. Version 2.0 is already being tested: if a crowd of five cyclists or more approaches the intersection, sensors will detect and extend the green phase at the traffic light for just a little longer. For more information please see http://www.nytimes.com/2014/12/09/business/energy-environment/copenhagen-lighting-the-way-to-greener-more-efficient-cities.html?_r=0.



Photo: ©Carlosfelipe Pardo, Copenhagen



Photo: ©Carlosfelipe Pardo

Smart bike lock

Statistics tell that about half of all active cyclists had their bike stolen at some point – start-ups such as Skylock or Lock8 are now trying to do something about it. Both locks make keys redundant as they enable cyclists to lock and unlock their bikes with something most of us have with us all of the time: our smartphone.

Bicycles can be locked or unlocked using apps for either iOS or Android. Apart from the fact that this technology prevents from keys being lost, the newly designed locks have more advantages: if the lock is tampered with, sensors will notice and alarm the user on his smartphone and give him the chance to react. Also, the locks have an integrated GPS which means users won't lose sight of where their bike is being parked. Using smartphones to control the lock also makes it possible to add other users and allow them to unlock and use the bike as well. Skylock has also included internal accelerator sensors which have the ability to alert emergency services in case of severe impacts while riding.

Madrid introduces smart parking meters

Smart parking meters were introduced in Spain's highly polluted capital as part of a wider set of measures to improve the city's air quality. From July 2014 onwards parking in Madrid got expensive in particularly congested areas and for highly pollutant cars. Depending on the engine type and the manufacturing year mark-ups and discounts are calculated, resulting in hybrid cars paying 20% less and electric cars parking for free.

By designing this measure according to the polluter pays principle the city hopes to get a grip on pollution levels which rank above the EU average. However, the general attitude towards environmental issues is crucial for the success of such measures – a well know politician illegally parking in one of the busiest streets of the city indicates that some efforts still have to be taken. Please find more information at <http://www.theguardian.com/world/2014/apr/30/madrid-smart-parking-metres-polluting-cars>.

Solar Cycle Lane opened in the Netherlands

70 metres of a bike path north of Amsterdam were recently equipped with solar panels. The EUR 3 million project was conducted by the Netherlands' TNO Research Institute as well as local authorities and businesses.

Solar roads have a high potential given the limited space available on rooftops for solar panels. 100 metres of road could



Photo: ©SolarRoad, The Netherlands

provide electricity for up to three households. However, solar roads face specific challenges: the panels cannot be aligned to the sun, and dirt and dust reduce their efficiency leading to losses of around 30% compared to rooftop installations. Additionally, the panels have to be durable and withstand intensive stress. Nevertheless, this project and a similar approach in the US show the potential of using roads both for transportation and production of energy. For more information please see <http://www.theguardian.com/environment/2014/nov/05/worlds-first-solar-cycle-lane-opening-in-the-netherlands>.

Plastic bottles as public transport fare

Cities become more and more creative in order to promote a greener lifestyle. Beijing, for example, started an initiative of incentivising its residents to recycle plastic bottles by crediting 5 to 15 EUR cents per bottle to the recycler's rechargeable public transport pass. The recycling-for-payment initiative is now available in several of Beijing's busiest subway stations. While the first machine already opened in 2012, more than 100 devices will be installed in the upcoming years. With the reverse-vending machines, it is intended to collect plastic bottles directly from the public instead of buying them from informal collectors who roam the streets of Beijing. For more information please see <http://www.theguardian.com/environment/2012/jul/04/beijing-recycling-banks-subway-bottles>.

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