Copenhagen Wheel: MIT Unveils the Swiss Army Knife of Bike Wheels

by Ariel Schwartz 12/15/09
filed under: Green Transportation
The Copenhagen Wheel, unveiled today at the COP15 Climate Change Conference, may not look like anything special. But in reality, it’s a treasure trove of bicycle wheel technology, complete with a kinetic energy recovery system (KERS), sensors, a smart lock, and a Bluetooth connection to the rider’s iPhone.

The KERS system is activated when the user brakes. Energy from the braking action is stored in the wheel, where it can be recovered by an electric motor for later use. The wheel’s onboard sensors monitor bike speed, distance traveled, direction, pollution levels, and proximity of friends on the road. All info collected by the sensors is sent via Bluetooth to the rider’s iPhone, which can be mounted on the handlebars for easy access.

Worried about using such a high-tech wheel in theft-prone cities? The Copenhagen Wheel’s smart lock sends a text message to users if someone tries to steal the bike, greatly decreasing the likelihood of a successful theft.

The wheel is expected to go into production next year at a price comparable to that of standard electric bikes. The city of Copenhagen might even use bikes retrofitted with the wheel as a substitute for city employee cars — a lofty goal, but one that could help Copenhagen become the world’s first carbon-neutral capital city by 2025.
Hybrid Squared: Ingenious Energy-Generating Bike Rental System
Designer Chiyu Chen has conceived of an ingenious transit system that encourages the use of sustainable transportation by crediting people for renting and riding bicycles.

GreenWheel Gives any Bicycle an Electric Boost
Researchers at MIT recently revealed an elegant solution for anyone looking to get a little more power out of their bicycle. Developed by MIT’s Smart

Architects Envision Future of Bike Sharing in Copenhagen
In order to significantly increase bicycle commuting, RAFAA figures that the city of Copenhagen would need approximately 25,000 bicycles. Along with the increased number of

7 Responses to “Copenhagen Wheel: MIT Unveils the Swiss Army Knife of Bike Wheels”

1. Cristy says:
   December 15, 2009 at 5:13 pm
   I like this quite a bit! I was trying to understand why the bike wheel would need bluetooth, but I understand the novelty in that.

2. andrew says:
   December 17, 2009 at 12:26 pm
   The Bluetooth is there so you can connect your iPhone too it, you have to have an iphone to control the gears, which imho is silly and will only increase bike accidents. It would be better off if the iPhone was an extension to the bike and not a necessity.
   For this bike to be a success it needs to get the gear controls back on the handle bars and if they could integrate brakes in as well it would be awesome. No real reason to move the gear interface onto the iPhone otherwise to be different, but why change something that isn’t broken

3. davidwayneosedach says:
   December 18, 2009 at 12:56 pm
   I’m not big on biking but I’d certainly try MIT’s Swiss Army knife of wheels. The blue tooth does it for me!
John e mudge says:
December 19, 2009 at 6:46 am

What a good idea! I little sophisticated however. Forget about bluetooth etc. The basic wheel absorbing power when you touch the brake lever (not enough to activate break pads) stopping or downhill. This makes bike reduce speed like a Prius. In emergency obviously you pull harder cancelling the energy retrieval and using brakes, or a combination of both.
As to design, I vote for a mechanical device rather than electrical battery charging. Something akin to the spring found on outboard motors to bring back the starter rope. This combined with a heavy flywheel at the outer periphery of hub. This would reverse when a boost (starting) was required. Unlike electric you cannot use it for long periods but ideal for stop and start in traffic.

GaryAres says:
December 20, 2009 at 8:14 am

Let’s just call this “Copenhagen Wheel” a brilliant success in marketing, and has a great combination of factors that the world is buzzing about; greenness, bikes, pedal power, technology, and more. Tip of the hat to MIT for gaining so much attention with so little contribution.
Here is a real solution, also developed by a team of equally bright engineers from neighboring NY State. It’s real, affordable, and assists the cyclist to improve their efficiency whether human or electric powered. It’ called Active Spoke – please visit and pass the word so others may learn as well.
http://www.activespoke.com

bæreere says:
January 8, 2010 at 12:06 pm

When was a simple bicycle too simple? Is our culture moving too fast for our own good? I’d challenge the Copenhagen wheel in that I could teach my bike mechanic skills to most anyone willing to learn, where this is a goober of technology left with us by the good people of MIT. Are you leaving the incomprehensible world of internal combustion for the incomprehensible world of peddle assisted track bikes? I’ve thousands of miles on my touring bike, seen mountains beyond mountains, and I never thought I needed a boost to do it, just ice cream and figs.

–Barry

Save-world says:
February 8, 2010 at 11:55 am

that’s Formula 1 technology. How much will this little wonder cost?

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19 Year Old Teenager Makes Homemade Solar Death Ray

Concentrated solar power has the potential to generate immense amounts of energy — but it can also be amazingly destructive. American student Eric Jacqmain has assembled over 5,800 mirrors into his own parabolic 'solar Death Ray', which can reportedly melt through metal and concrete — hit the jump to see it in action!

Volkswagen Unveils 313 MPG XL1 Car at 2011 Qatar Motor Show

Volkswagen just unveiled a new car at the Qatar Motor Show that gets an astounding 100km for less than a liter of diesel fuel — that's the equivalent of 313 miles per gallon! The green car is an upgraded version of the VW L1 vehicle and it features an ultra-efficient diesel engine in addition to...

Dubai's World of Islands is Sinking Into the Sea

Granted Dubai's stratospheric rise over the past few years, it may come as no surprise that several of its projects have flown too close to the sun. The World was envisioned as the ultimate luxury retreat: for an exorbitant price you could lay claim to your own private island — a corner of the globe...

5 Tips to Cut Your Electricity Bill With Energy Efficiency Expert David Johnston

Cutting back on your energy usage is one of the best ways to bring down your electricity bill. But did you know that making simple changes to not just your wattage consumption but the way your home retains and expels air can dramatically transform the way you experience your spaces and use electricity? Joining us...

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