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## Futuristic bike wheel and iPhone app set to fight pollution, climate change

By Relax News

The Copenhagen Wheel is a bike wheel with a "Swiss army knife's worth of electronic gadgets," designed by researchers at MIT's Senseable City Lab.

The Copenhagen Wheel is one of many initiatives created to help the city of Copenhagen achieve its goal of becoming the first carbon neutral capital in the world by 2025.

The wheel was presented to government officials at the Copenhagen Conference on Climate Change on December 15, 2009.

The Copenhagen Wheel transforms ordinary bikes into hybrid e-bikes that can provide their rider with an extra power boost in the tough parts of their ride. Energy from braking is stored inside the purposely designed batteries housed inside the wheel, ready to be expended on the next uphill climb.

"The wheel uses a technology similar to the KERS (Kinetic Energy Recovery System), which has radically changed Formula One racing over the past couple of years. When you brake, your kinetic energy is recuperated by an electric motor and then stored by batteries within the wheel, so that you can have it back to you when you need it," explained professor Carlo Ratti, director of the MIT (Massachusetts Institute of Technology) Senseable City Lab.

Combined with a specially designed iPhone application, the Copenhagen Wheel uses its inbuilt sensors and Bluetooth connection to track your ride from A to B.

The smartphone application keeps detailed information about the bicycle's speed, direction and distance travelled. As the person rides, sensors also collect information about the amount of pollution in the air and can tell the rider if their friends are nearby.

"The bike wheel is an extension of your personal mobile device. Controlled through your smartphone, the wheel recognizes you as you approach. While you ride, you can switch gears and motor modes using your phone, and receive real-time alerts automatically," revealed Assaf Biderman, associate director of the Senseable City Lab.

"The Wheel also has a smart security system," Biderman added. "If someone rides away with it, the Wheel goes into a mode where the brake regenerates the maximum amount of power and sends you a text

message with its location. So in the worst case, the thief will have fully charged your batteries before you get back your bike."

The Copenhagen Wheel is expected to cost around the same amount as a standard electric bike. The futuristic wheel will start being produced in 2010.

Site: <http://senseable.mit.edu/copenhagenwheel/>

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