

Plug your bike into cyberspace

By JIM CHIPP - The Wellingtonian Last updated 05:00 11/02/2010

It is as green as grass and bright red and could be the ultimate iPhone application.

The Copenhagen Wheel is designed to be retro-fitted to any bicycle, turning it into the cycling equivalent of a hybrid car.

It uses Formula One motor-racing energy recovery technology to assist cyclists uphill or up-wind and recharges itself as they roll downhill or pedal around town.

Mayor Kerry Prendergast saw the wheel at the C40 city leaders' environment meeting in Copenhagen in December and he invited the developers to test it in Wellington.

The wheel was developed at the Massachusetts Institute of Technology's Senseable City Lab in conjunction with the city of Copenhagen and became a viable prototype after work by Ducati Energia, a division of an Italian motorcycle company.

Architect Christine Outram, a research fellow at the institute, led the project team.

She said Senseable City was interested not only in getting more people on to bikes, but in making public infrastructure, such as roads and waste management, more effective.

"The Copenhagen Wheel came about because we have a partnership with the city of Copenhagen," she said.

The device is controlled through a smart phone carried on a handlebar mount and linked via blue-tooth to the wheel.

"On the iPhone interface you can use it to ride the bike, use the data you are collecting personally, choose which gear you would like to be in, how much motor assistance you get," she said.

"You always have to pedal but the motor will times [multiply] that effort by a certain factor."

However, information-sharing aspects of the wheel had even more potential, she said.

"If you were on your bike you would be collecting data on the city. You could keep that to yourself and not share it with everybody, but we think it becomes very powerful when you share it, using it as an open source."

Sensors inside the wheel collect data on the cyclist's effort, traffic congestion and pollution levels. This can be shared with friends via the internet or with the municipal authority. The two current prototypes, which are 700c road cycle wheels, incorporate a three-speed Shimano hub gear system and an internal roller brake.

Future models would suit 26-inch diameter mountain bike wheels and would be fitted with eight-speed gear hubs, she said.

Ms Outram expected it to be another year before test models appeared in Wellington.

The wheel has attracted interest from many cities. Copenhagen plans to supplement its municipal vehicle fleet with bicycle equipped with the wheel and Los Angeles is interested in its parking meter wardens using it.

Senseable City Lab associate director Assaf Biderman said the Copenhagen wheel is part of a trend to insert intelligence into everyday objects and to create a smart support infrastructure around ourselves.

"The wheel also has a smart lock: if somebody tries to steal it, it goes into a mode where the brake regenerates the maximum amount of power, and sends you a text message."

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