The innovative cycling accessory with a bit of oomph.

Superpedestrian, Inc has just rolled out the Copenhagen Wheel; an intelligent bicycle wheel that knows more about your journey than you do.

What kind of cyclist are you? Are you the kind to happily take on punishing hill climbs on your day off just because they’re there or do you suffer your bad weather bike commute to the office every day simply to beat the traffic? If it’s the latter then the introduction to the market of the Copenhagen Wheel may be the solution to powering up your ride.

Don’t feel the burn

Described by the team who designed it as a ‘wireless pedal assist system’ the Copenhagen Wheel is intended to replace the existing back wheel of your bike. It has a hub built in, which contains a removable 48 volt lithium battery (much more aerodynamic of course than a chunky pack attached to the frame), multiple sensors, and an embedded control system. It also houses the wireless connectivity which kicks in when you attach your smartphone to your bike. Once you’ve downloaded the free Copenhagen Wheel app you are then in possession of a smart electric hybrid which adapts itself to your cycling style.

Harness your energy

Once you get going the torque sensors start analysing how you ride, cleverly working out when you might need a little help and telling the motor to begin assisting you with anywhere between three and 10 times your normal pedal power. There’s no throttle or extra button pushes involved, the motor starts itself when the sensors feel you beginning to work that bit harder (when you’re struggling up that hill for example) and then drops back when you ease off. You can decide how much or how little it can help you along by adjusting the controls via the app, but because it works unobtrusively alongside your own efforts it doesn’t detract from a normal bike riding experience.

The Copenhagen Wheel uses regenerative braking; the hub’s battery hangs on to all that excess energy given off when you apply the brakes or are heading downhill and then reuses it to give you that extra power when you need it. It also stores additional energy generated during the app’s exercise modes. The battery is designed to last for up to 50 kilometres (31 miles) before needing a recharge, which takes four hours and can be done 1,000 times before its capacity is compromised. There are plans for a fast charging option at some point in the future.

It’s app to you

Here’s the really clever bit. What the complementary app can do is pretty ground breaking for conventional power-assisted cycles. There are a number of modes available which can change the landscape of your journey if you want them to. For example: you are able to eliminate the gradients of the route you’re riding by using ‘Flatten My City’. This it achieves by giving you that electrical boost as soon as you encounter an upward climb so that it doesn’t actually feel like you’re going uphill – could this be an end to the hordes of cyclists arriving in a sweaty, dripping mess at their office every morning? You can also use your phone to change gears, and to lock or unlock the wheel when you’re stationary.

The app offers several other ways to enhance your two-wheeled journey. As you are cycling the wheel’s sensors are at work capturing data; not just to do with your athletic ability (ahem) but also about the environment around you. It takes in information from where you are: the temperature, the carbon dioxide and NOx levels, the humidity and the road conditions themselves.

Using this data once you’re off your bike could help you choose a less congested or polluted route the next time you go out. The app can also be used to plan, and hopefully help you achieve, any goals you set yourself related to your fitness; it tracks your calorie burn, your times and distances and how high you climbed (if you didn’t indeed flatten the hills) as well as giving you the opportunity to share any or all of this with your friends.

An eco-friendly ride

On a wider environmental scale the wheel makers’ plan is for you to also be able to share the data your sensors have gathered with the city you are in; in essence a plethora of riders continually adding to a database of detailed knowledge that is accessible by everybody. This could have profound effects on future town planning and pollution initiatives as well as simply providing a wide-reaching community network for all cyclists to become a part of.

Superpedestrian, Inc was born out of a research project in the SENSEable City Lab at Massachusetts Institute of Technology set up for the Copenhagen Municipality (which explains the wheel’s name of course), one of the most progressive cities on the planet for safe cycling. Focusing on finding original forms of ‘human-powered mobility for cities’ the development team have since gained the exclusive rights from MIT to firstly customise and secondly unleash the Copenhagen Wheel to a mass market.

The wheel was originally brought to the world’s attention at the COP15 United Nations Climate Conference in December 2009; at the beginning of 2014 the first 1,000 handmade units were sold on a first come, first served basis. The summer sees another batch being sent out – Superpedestrian has apparently received over 14,000 messages so far enquiring about pre-orders. Currently the wheel is priced at $799.

So does the Copenhagen Wheel have the ability to change the way we get around our towns and cities? Certainly the idea of a system that allows you to retain the overall experience of the joy of cycling while at the same time allowing you to complete longer journeys without exhaustion is definitely appealing. The eco-sharing aspect of the Copenhagen Wheel is perhaps the most exciting part of Superpedestrian, Inc’s vision however; a biking community’s environmental information building up journey by journey, via a smartphone app that captures the data most helpful to those on two wheels.

Perhaps, if the Copenhagen Wheel was adopted in the UK, our town planners could use it to take a leaf out of Copenhagen’s books and create safer and cleaner spaces for us to ride in. Well, I say ‘ride’ – with an electric-assisted wheel able to take the strain there may be a lot of people letting their bikes make the effort so that they don’t have to.