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<https://www.independent.co.uk/life-style/gadgets-and-tech/news/british-firm-invents-hydrogen-powered-phone-battery-that-could-keep-your-mobile-charged-for-a-week-10467705.html>

BRITISH FIRM INVENTS HYDROGEN-POWERED PHONE BATTERY THAT COULD KEEP YOUR MOBILE CHARGED FOR A WEEK

The prototype cell is so small that it can fit into the body of an iPhone 6 without the need for alterations

Doug Bolton Sunday 23 August 2015 10:10

A British company claims to have invented a working hydrogen-powered smartphone battery that could potentially allow your phone to go a week without recharging.

Intelligent Energy, a British power technology company, has made a working prototype of an iPhone 6 with the new battery.

Fitted with its rechargeable battery and their new technology, the iPhone looks and feels very similar - the only difference is the small vents on the back of the phone that allow imperceptible amounts of water vapour to escape, a byproduct of the hydrogen battery.

The battery works by combining hydrogen and oxygen in a small and very thin fuel cell, creating electricity. The only waste products are small amounts of heat and water.



Portable hydrogen cells, like this 'Mobile aqua' from Rohm, already exist. But most are too bulky and expensive to reach mass-market appeal

The cell is the same size as the iPhone, but is so thin that it can fit into the existing chassis of the phone without any need for major alterations.

Speaking to the Telegraph, Henri Winand, the chief executive of the company, said: "To our knowledge this has never been done before."

Although the battery could extend a phone's life by days, **it still requires recharging - the fuel cell can be topped up with hydrogen gas via the adapted headphone socket.**



The current version is only a prototype, but the company is looking at a commercial version that could potentially revolutionise mobile phones.

The commercial version could take the form of a small cartridge that fits into the bottom of the phone that would give a week of power and can be thrown away when not needed.

Mark Lawson-Statham, the corporate finance chief of Intelligent Energy, said that the technology is currently a "couple of years out".

Portable fuel cell manufacturers have been promising that their devices will take over the market for years, but these power sources have typically been too bulky and expensive to have value to everyday consumers.

A small and low-cost fuel cell that packs a punch and promises to give your phone more than a few hours' battery could be the device that finally goes mainstream.

<https://newatlas.com/worlds-first-hydrogen-fuel-cell-train-service/56372/>

World's first hydrogen fuel cell-powered train enters service

URBAN TRANSPORT



David Szondy
September 17th, 2018



The hydrogen fuel cell-powered Coradia iLint on the move (Credit: Alstom/René Frampe)

The world's first hydrogen fuel cell-powered train entered regular service on Monday in Germany as a two-car Alstom Coradia iLint took to the tracks on Eisenbahnen und Verkehrsbetriebe Elbe-Weser's (EVB) Elbe-Weser network in Lower Saxony. Unveiled on Sunday before government and industry dignitaries at Bremervörde, the new Coradia iLint will be first of two in a growing network of quiet, zero-emission trains operating on Germany's railways.



Electric trains are very useful on crowded railway lines and offer emission-free services at the point of use, but it isn't practical to electrify every line except in the smallest or most concentrated of networks. The result is that many long-haul or underused rural lines have to rely on diesels to haul passengers and goods.

To close the circle, Alstom built the first two Coradia iLint in Salzgitter, Germany as part of an €81 million (US\$94.5 million) contract to create an initial fleet of 16 hydrogen-powered trains. The Coradia iLint is based on Alstom's diesel-powered Coradia Lint 54 and is powered by hydrogen fuel cells backed up by banks of lithium ion batteries that store excess electricity. It carries up to 300 passengers with seats for 150, boasts a top speed of 140 km/h (87 mph) and has acceleration and braking performances comparable to the Lint 54.

Currently, the hydrogen-powered trains are being run on behalf of the German regional rail authority Landesnahverkehrsgesellschaft Niedersachsen (LNVG) over 100 km (62 mi) of track between Cuxhaven, Bremerhaven, Bremervörde and Buxtehude **in place of the conventional diesel vehicles.**

In between runs, the Coradia iLints will be fueled by a mobile hydrogen filling station consisting of a 40-ft-tall (12-m) steel hydrogen gas container that will be parked by the tracks at Bremervörde station. Each fill will run one train for 1,000 km (620 mi), and according to Alstom the mobile container will be replaced by a permanent filling station in 2021 when the balance of the fleet is scheduled to enter service.

"With the two Coradia iLint trains and with the use of another 14 hydrogen trains from the end of 2021, we are the first passenger rail transport authority to replace existing diesel vehicles by emission-free vehicles, thus contributing better to the fulfillment of the climate protection goals." says LNVG chief Carmen Schwabl. "We also do this because about 120 diesel train sets in our vehicle pool will reach the end of their lifetime within the next 30 years, meaning we will have to replace them. The experience gained with this project helps us find a sustainable and practical solution."

Source: Alstom

<https://inhabitat.com/french-company-debuts-hydrogen-powered-bikes/>

French company debuts hydrogen-powered bikes

01/17/2018

by Greg Beach

Pragma Industries just became the first company to launch a **hydrogen-powered bicycle for commercial and municipal purposes. Based in Biarritz, France**, the company has already secured 60 orders for the hydrogen bikes from French municipalities such as Saint Lo, Cherbourg, Chambéry and Bayonne. While the bikes are currently too expensive for the commercial market, costs are expected to eventually drop from 7,500 euros to 5,000 euros, and charging stations cost about 30,000 euros.



While Pragma is not the only company interested in hydrogen-powered bicycles, they have taken production of such vehicles the farthest — so far. **“Many others have made hydrogen bike**

prototypes, but we are the first to move to series production,” Pragma founder and chief executive Pierre Forte told Reuters. **Pragma’s Alpha bike is able to travel a distance of 100 kilometers (62 miles) on a two-liter (0.5 gallon) tank of hydrogen.** Although the range is similar to that of a typical electric bike, the recharge time is significantly reduced from hours for a traditional e-bike to merely minutes for the Alpha hydrogen-powered bike.

Pragma offers two types of recharging stations: **one that uses hydrolysis of water to generate hydrogen fuel on-site**, and another, more affordable station that relies on tanks of already prepared hydrogen fuel. Due to the high cost, Pragma is currently marketing its bikes to larger commercial and municipal operations such as bike-rental operators, delivery companies, and municipal or corporate bicycle fleets. After producing 100 such bikes last year, Pragma hopes to sell 150 this year to organizations in places such as Norway, the United States, Spain, Italy and Germany. In addition to developing a bike that is capable of turning water into fuel without the need of a charging station, the company plans to massively expand into the retail market within the next few years.

Via Reuters

Images via *Pragma Industries*