



The LAVO e-cargo bike saves weight by using lighter-weight hydrogen batteries | Photo source [StudioMOM](#)

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## WORLD'S FIRST HYDROGEN CARGO BIKE

  MOBILITY & TRANSPORT

### A cargo bike powered by innovative hydrogen batteries may represent the future of pedal-powered transport

**Spotted:** According to the [New York Times](#), e-bikes are everywhere. In the U.S. alone, the pandemic boosted sales of e-bikes 145 percent between 2019 and 2020, and industry experts say Americans bought around half a million e-bikes in that time. This is compared to 231,000 all-electric cars in the same period. But while great for getting you to work without breaking a sweat, e-bikes have not done much to reduce CO2 from deliveries – until now.

Home hydrogen company LAVO has partnered with design studio StudioMOM to develop the world's first hydrogen-battery cargo bike. In the past, the weight of lithium-ion batteries has held back the development of e-cargo bikes. But the LAVO bike takes advantage of the higher energy-to-weight ratio offered by hydrogen fuel cells.

The bike incorporates LAVO's hybrid hydrogen battery, which uses solar energy to power electrolysis that splits water into its constituent parts – hydrogen and oxygen. The hydrogen is then absorbed into a patented metal hydride, which converts it into battery power. The bike only requires around ten minutes of charging, enough to run the bike for about 150km. The bike can also accommodate a hydrogen storage tank.

The StudioMOM design team chose to create a cargo bike in order to optimise the advantages offered by the lighter-weight hydrogen system. The studio [notes](#), “Long-range cargo solutions, in particular, require a lot of energy. Then an extra hydrogen tank of 1.2 kg is surely preferable to an extra battery that weighs 6 kg.”

Electric vehicles of all types have been growing in popularity. But the pandemic, alongside the growing realisation that cycling is both health-friendly and environmentally-friendly, has given e-bikes

a big boost. This has also sped up the pace of innovation. We have already seen such unusual e-bikes as an [adaptive e-mountain bike](#) to help those with special needs experience the thrill of trail riding, and a super-sustainable [wooden e-bike](#).

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## **Takeaway:**

Although the LAVO hydrogen bike is not yet on the market, it could be made available in the future. LAVO has so far focused on developing hydrogen batteries for home use, but hopes to launch a range of lifestyle products using the hybrid hydrogen battery. Hydrogen fuel cells are not yet efficient enough for use in larger vehicles, like cars, the extraction of hydrogen can take more energy than is gained from the hydrogen itself. However, it may prove more efficient in small vehicles like bikes, where solar power can be used to provide enough energy for the smaller amount of electrolysis needed.