Energy storage concept may be the answer to a greener future

Charlie Dunnill’s prototype for an energy-efficient water-splitting device that can convert electricity into hydrogen has come a long way since he started “tinkering in the barn.” UCL Advances helped to develop a prototype for the H2-NRG WSD, with prize money from the London Entrepreneurs’ Challenge and other sources, as well as with highly technical 3D CAD drawings arranged by the HELO programme.

As the race to find viable energy alternatives to fossil fuels intensifies, the potential for renewables such as hydrogen is enormous. Widely regarded in the scientific community as the answer to fulfilling the future energy requirements of the world, hydrogen is easy to produce, store and use in a variety of applications. So committed to hydrogen as an alternative energy source was UCL research scientist Charlie Dunnill that he spent his holidays “tinkering in the barn with a few pieces of pipe work and a £10 solar panel”, he says, and from there the idea for the H2-NRG WSD started to take shape.

Put simply, the H2-NRG WSD is a highly efficient water-splitting device consisting of an on-site box that can convert electricity from any source into hydrogen, thus presenting an ideal way to store renewable, on-demand energy. Charlie and his business partner, Kris Paasila, an MSc in Management from London Business School, formed a company, H2-NRG Ltd., to develop the product after entering the London Entrepreneurs’ Challenge in 2010. They were runners-up, earning £3,000, in the post-graduate category, as well as winners of the Provost’s Prize of £2,000 and a £3,500 Innovation Central Bursary from Camden Council.

To help sell his idea, Charlie turned to the HELO programme for help in producing a highly technical 3D CAD print and a demonstration model of the prototype, which H2-NRG could use to present their technology to potential investors. The company was a runner-up in Electronic Product Design magazine’s E-Legacy awards in September 2010, just losing out to Ericsson with their power modules.

H2-NRG has yet to sell a device – “we have to create the need for it first,” Charlie says. “It’s a Catch-22. People don’t use hydrogen because they can’t buy it, but at the same time they can’t buy it because they don’t use it.” Meanwhile, Charlie and Kris are looking for work as consultants in the field of renewable energy; their experience includes energy drink formulation, large-scale hydrogen production from waste, and off-grid facilities in Nigeria and Pakistan.

Charlie adds: “We are now in a position to build something that will be economically viable for the production of an on-site green alternative to replace or at least supplement traditional energy sources. We’re very grateful to UCL Advances for their help in getting us to this stage.”
About UCL, UCL Advances and Business Support

About UCL

University College London was established in 1826 and is ranked seventh in the world’s top universities. The university is a modern, outward-looking institution, with more than 4,000 academic and research staff committed to engaging with the major issues of our times. It has a global reach, with 34% of its students coming from outside the UK, from almost 140 countries.

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About Business Support

UCL provides direct business support for internal and external organisations through a variety of programmes, such as grants, space provision, advice and problem solving. The HELO programme is one of these programmes.

HELO (Higher Education London Outreach) is an innovative programme that matches up small and medium sized businesses (SMEs) needing to tackle specific problems with students and academic staff who have specialist knowledge and skills in relevant areas, for short-term consultancies. The HELO project is delivered by UCL Advances and supported by London Business School. The project is part-funded by the European Union.

www.ucl.ac.uk/helo

About UCL Advances

The centre for entrepreneurship at UCL, UCL Advances, offers training, networking and business support for staff, students and external entrepreneurs to encourage and enable new enterprises to get going. Unique in the UK Higher Education sector, its primary role is to promote a culture of entrepreneurship on campus and engagement with entrepreneurs and small businesses beyond UCL’s boundaries, and currently delivers over 30 activity programmes.

UCL Advances is affiliated with UCL Enterprise, which provides UCL’s structures for engaging with business for commercial and societal benefit.

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About Student Engagement

UCL is keen to help those students who are entrepreneurial to develop their ideas further. This is supported through the UCL Advances’ Student Venture Program, – a complete programme of support for UCL students that wish to start a business. It includes access to training, mentoring, one-to-one business advice from our in-house advisor, access to loans and grant funding and the use of our Hatchery space.

One of these training programmes is the London Entrepreneurs’ Challenge is a workshop programme and business plan competition open to all members of UCL, Royal Veterinary College, Birkbeck and the London Business School that aims to show participants the process of starting a business by helping them do it for themselves. The competition is part of a programme of events designed to enhance UCL’s reputation for entrepreneurship and build deeper relationships between UCL and partner institutions.

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