Glimpses of transportation's future at MIT event

MIT's Center for Transportation & Logistics' Crossroads event showcased uses for additive manufacturing, autonomous parcel delivery machines, and low-cost, scalable batteries for electricity storage.

BY ERIC JOHNSON |MONDAY, MARCH 30, 2015

Attending a symposium on the future of transportation and logistics at the Massachusetts Institute of Technology is as forward looking at you might imagine. The event, MIT Crossroads, is organized by the university's Center for Transportation & Logistics and is designed to bring to light concepts and ideas that may well impact transportation networks in the coming years. Low-cost, long-life batteries that store electricity, autonomous motorized bicycles that carry people and packages, and the future of 3D printing were just a few of the ideas on display this year.

Of particular note was the work being done by Donald Sadoway, a professor of materials chemistry, and his team of students, who have created a new enterprise aimed at providing the world with a better way to store electricity. Or perhaps a more accurate way to say it is simply any way to store electricity.

Sadoway noted that the world's electricity market is the only supply chain where supply and demand are literally in perfect sync – and that's by default, since people have not figured out how to properly (i.e. simply and cost-effectively) store electricity for later use.

Sadoway's and his team's enterprise, Ambri - it's middle letters those of MIT's location, Cambridge - is setting out to build low-cost, scalable batteries designed using the world's most abundant elements, and not rare earth metals.

The implication is that bringing power storage to remote locations, like Africa, could unlock quality of life levels that have been hitherto impossible to build.

Another presentation, by Edgar Blanco, research director at the Center for Transportation & Logistics, focused on how autonomous bicycles could help urban areas better leverage existing infrastructure. The bikes Blanco and a cross-departmental team at MIT are building could be ridden by people, or converted to last mile package delivery machines. Blanco expects the first prototype in the summer, with trials to be done in Cambridge. He's been in talks with the city of New York about how the bicycles might work in North America's most crowded urban landscape.

John Hart, an MIT professor of mechanical engineering, gave a comprehensive look at the existing market and potential uses for 3D printing, also known as additive manufacturing.

Hart noted that the most interesting use cases come from the airline industry, where some parts are being created using elaborate additive machines, and the orthodontic product maker Invisalign, which manufacturers its clear plastic dental aligners using a form of additive manufacturing.

However, as a reality check on where the technology is, Hart said Invisalign's sales alone are more than three times the rest of the additive manufacturing market combined. It is the very definition of a nascent market.

Non-commercial uses of the technology are realistically limited to hobbyists with patience, a keen eye for detail, and lots of time.

Source: American Shipper