A carry-on that charges your smartphone (and more)

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Martin Diz, a doctoral candidate in UB's aerospace engineering program and Bluesmart co-founder, stands with a prototype of the company's smart suitcase. Credit: Douglas Levere, University at Buffalo.

Smart technology is in our homes, cars and phones. And soon, it will power our luggage, thanks in part to University at Buffalo engineering student Martin Diz.

Diz, a doctoral candidate in UB's aerospace engineering program, is co-founder and head of engineering for Bluesmart, a company that's

developing a carry-on that uses digital technology to solve some of the problems that frustrate many travelers.

The Bluetooth-driven suitcase packs a microcomputer, a battery for charging smartphones on the go, a sensor for tracking the luggage's location, and a built-in digital scale for weighing the case. The case is accompanied by a mobile application that serves as a personal travel assistant.

The project was met with overwhelming support by the public. Diz and his five co-founders placed Bluesmart on Indiegogo, a crowdfunding website, with the goal of raising $50,000 in startup funds. They surpassed that total in two hours, and recently exceeded $1 million dollars in contributions and more than 3,000 preorders.

The suitcase will ship to supporters in August 2015.

"The last innovation of the suitcase was about 30 to 40 years ago, and it was just to add four wheels," says Diz. "Everything today is smart, but there are no smart suitcases. We realized a major redesign was required. So we set out to think how the carry-on for this century should be made."

Credit: Bluesmart

The innovations he and his co-founders came up with include:

- A built-in battery with three USB ports that can charge cell phones and tablets six times over;
- The ability to lock the suitcase using a smartphone app. The case also automatically locks when the owner moves away from it;
- Sensors that tracks the location of the case;
- An app that tracks trip data, such as distance traveled and airports visited;
- App-notifications that remind travelers when to arrive at the airport and what to pack based on the weather at their destination;
- A built-in digital scale that weighs the eight-pound case when the handle is lifted.

The carry-on connects with smartphones using an efficient Bluetooth link instead of battery-sapping Wi-Fi or expensive data plans.

Travelers can recharge Bluesmart in as little as five hours with their laptop or tablet cable, though the suitcase will also be shipped with its own charge cord. The case is preapproved by the Transportation Security Administration.

"The suitcase will give you the ability to forget about your trip," says Diz. "You have to check the weather, decide what to pack and remember what time to leave for the airport. Now, the app and the suitcase will do these for you."

Credit: Bluesmart

With orders from around the world, the technology will soon touch the hands of thousands.

But, designing groundbreaking gizmos is nothing new for Diz.

For his doctoral research, he designs autopilots for aircrafts and space

vehicles. One of his projects, a joint manipulator that can direct the flight of satellites or helicopters, was selected by NASA and Virgin Galactic to fly on a commercial research flight.

"UB exposed me to all of these technologies and provided me with all the tools that I needed to develop the suitcase," says Diz, who studies under Manoranjan Majji, assistant professor in the Department of Mechanical and Aerospace Engineering. "I've been using a lot of sensors for the suitcase, and that's 50 percent of my work here with autopilots."

Provided by University at Buffalo