TECHNOLOGY

JUNE 12, 2017 7:16 PM

From prosthetic hands to bands that jam, innovations shine at eMerge Americas

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Whether the problem is helping amputees "feel" through a prosthetic hand or finding fellow musicians for a jam, the 85-plus companies and colleges participating in this year's eMerge Americas conference have a solution.

For local entrepreneurs, eMerge offers an opportunity to interest potential investors and increase their profile. For programs at Florida International University, Miami-Dade College and University of Miami, eMerge provides a platform for showcasing research, innovation and student ability.

Often, the products and projects result directly from personal frustration.

Hip-hop artist Arielle Cohen founded Zuke Music because she was struggling "to take her music to the next level," she said. On the Zuke app, musicians can create a profile that allows them to connect with other musicians and producers, collaborate on projects and book gigs.

It's hard to meet artists that are serious about making music, agreed Mia Rahm, a neo soul and blues singer-songwriter who was helping Zahn at eMerge. With Zuke, Rahm said, "you can find artists that are into exactly what you're into."

FIU graduate Ryan Morrison showcased an app designed to help him and others pay off student loans. The app, Donkies, gets its name from the South African slang for "loose change." It rounds up credit card purchases to the nearest dollar and applies the difference toward paying off debt. Not only does the app track users' personal expenses, it also lets mom and dad send "donkies" their way.

Technology company Surete displayed technology aimed at reducing distracted driving. It's device locks either the car or the keypad on your mobile phone so that a driver can't text and drive at the same time. The product also tracks driving data by phone so that parents can monitor their teenager's speed, route and current location; if the teen travels beyond a geo-fenced boundary, parents get an alert.

At the pavilion for Florida International University, a prosthetic hand turned tactile information gathered by the fingertips into electrical signals that allow the body to "feel." A wearable wristband equipped with a sensor monitors blood alcohol content through the skin.

Yet another FIU project aims to reduce chemical waste by detecting trace amounts of contaminants in milk, blood, urine and sewage. The device can be used to test environmental waste, food and biological samples.

FIU president Mark Rosenberg called the tech conference a "collision of the future with the present" and a chance for students to be exposed to some of the most creative people in the world.

It's also a chance for students to share the work they've created and connect with other universities and companies, Provost Kenneth Furton said.

At the Miami-Dade College booth, exhibits highlight education and training available to students. Nursing students practice clinical procedures using virtual reality and full-size dummies, including a birthing simulator named Lucina.

A team of four engineering sophomores demonstrated self-driving remote control cars they built after a semester spent at MIT. The cars can detect walls and cones through laser sensors and stereo cameras, respectively. The experience has prompted them to think about taking on bigger projects, said engineering student Alban Allajbegu.

“Miami-Dade is here to show that we’re the beginning point,” said James Van Voris, coordinator for the school’s film, television and digital production degree. “We’re where people go to connect with technology.”

The University of Miami showcased research on the environment, healthcare and smart cities under the theme “preserving our future.” In healthcare, a new detection kit for human papillomavirus and Zika virus promises to speed diagnosis testing from hours to minutes.

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The Coral Reef Futures Lab presented a new method for increasing resilience in coral reefs that have experienced bleaching. The project, funded by CappSci, would plant 10,000 fragments of staghorn coral along the coasts of Miami Beach and Biscane Bay.

On land, a cross-disciplinary group is working on sensors that use sound to measure foot and bicycle traffic around the city.

“From a computer perspective, there’s not a lot of difference between a dog barking and a bird calling,” said Joel Zysman, director of advanced computing at the UM center for computational science. By teaching computers to differentiate between the different amplitudes and frequencies that make up sounds, Zysman said, the sensor could offer cities a low-tech option to measuring traffic flow and density.