SIUE’s Shavezipur Receives Concept Commercialization Award for Food Safety Technology

by Doug McIlhagga
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EDWARDSVILLE - Southern Illinois University Edwardsville's Kamran Shavezipur, PhD, has received the Graduate School's Concept Commercialization Award for 2019. The award provides $15,000 through May 1, 2020.

An assistant professor of mechanical engineering in the School of Engineering, Shavezipur's proposal was entitled "Pathogen Transport Modeled Biomimetic Sensor, Sensing Method and Produce Sanitization."

The technology relates to food safety and is intended to address two issues: 1) creating a laboratory platform to investigate pathogen-produce interaction in real time and under different ambient conditions, and 2) providing a measurable metric for sanitization of fresh produce, such that the process qualitatively and quantitatively can be monitored.

"We are currently working on the first generation of the biomimetic biosensors," Shavezipur said. "We are at the experimental phase later stages, and will be soon able to design the second generation of the sensors based on our findings and other technical considerations."

According to Statistica data, the United States fresh produce market is $58-billion in 2019 and is expected to exceed $300-billion in 2025. The 2011 Food Safety Modernization Act (FSMA) details regulatory requirements imposed by the Food and Drug Administration (FDA) on food producers and handlers. Farms with annual production value ranging from less than $250,000 to more than $3.45 million spend 0.3-6.8 percent of their revenue on compliance with food safety regulations, including the sanitization of their products.

"There is great potential for our invention with produce farms and the sanitization processes for various produce," Shavezipur said. "The invention's sensing capability also opens the market for this system in major retail grocery stores and even online retailers such as Amazon. The sensing platform can be used in retail stores, storage and transportation facilities, including all trucks to track potential contamination in real time. Moreover, the invention can be used to study pathogen-produce interaction in larger farms, research centers and university labs."

Shavezipur hopes to have the project completed in 18 months.

The Concept Commercialization Award (CCA) is designed to stimulate interest in and involvement with intellectual property development and commercialization to promote

public health, safety, welfare of the community and the economic welfare of the University. It supports the work of SIUE discoverers and inventors, and supports the surrounding community by encouraging industry investment.

By preparing the next generation of leaders in a knowledge-based economy, SIUE's Graduate School fulfills the region's demand for highly trained professionals. Graduate school offerings include arts and sciences, business, education, engineering, nursing and interdisciplinary opportunities. SIUE professors provide students with a unique integration of theoretical education and hands-on research experiences. Students can obtain graduate certificates or pursue master's degrees, and be part of a supportive learning and rich intellectual environment that is tailored to the needs of adult learners. The Graduate School raises the visibility of research at SIUE, which ranks highest among its Illinois Board of Higher Education peers in total research and development expenditures according to the National Science Foundation. Doctoral programs are available in the Schools of Education (EdD) and Nursing (DNP). The School of Engineering and the Department of Historical Studies feature cooperative doctoral programs (PhD), and the College of Arts and Sciences features an Environmental Resources and Policy cooperative PhD.

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Photo: Kamran Shavezipur, assistant professor of mechanical engineering in the SIUE the School of Engineering.