

Breath of fresh air; St. Joe's grad Edgard Jose a finalist for an engineering and technology award

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A finalist in an engineering technology project competition may provide a breath of fresh air on how paramedics utilize resuscitation bags.

Edgard Jose, who graduated from St. Joseph Catholic High School Grad in 2017 and two fellow students at NAIT, Zyryl Mariano and Daniel Tkaczyk, designed an award-nominated mechanical pump to compress the bag.

"This is a project that our program, biomedical engineering technology, does every year. It is our final project," Jose explained. "It was the last thing we did just before we graduated."

Jose explained the trio designed an instrument to compress the bag after brainstorming on what they would do for their final project and hearing some of the challenges of using a bag from a paramedic student.

"As a team, we were all interested in electronics and patient care," Jose said. "We came up with this idea while brainstorming with a paramedic student, who helped us understand the physical challenges with a bagging procedure and how we might be able to optimize breath delivery to improve patient outcomes."

"(The) mask is placed over a patient's face, and a medical professional manually squeezes the bag to deliver air into the patient's lungs," Jose said. "What our project does is it attaches it to an automated compression unit. It basically squeezes the bag, and it is operated through a touch screen."

"It is set up more for an ambulance situation. When you do take the patient over to the hospital, they have better-suited equipment for patient care. This is for more on-the-spot treatment."

The project was selected as a finalist for the Association of Science and Engineering Technology Professionals of Alberta (ASET) Capstone Project of the Year Award project.

"At each of the polytechnical colleges, NAIT, SAIT, Lethbridge College and Red Deer College, the students in the final year of their technology programs are required to submit a capstone project," Barry Cavanaugh, CEO of ASET said. "They work in teams. Basically, it is designed for them to demonstrate how they apply what they learned during their program and to allow them to show some of their ingenuity."

Jose said the trio was surprised to find out they were in the running for the top prize, which will be announced in May.

"We weren't trying to get an award. We were just trying to do our best on a project," Jose said. "We were very excited to hear we were nominated for the award because we did put quite a bit of work into it."

Jose and his two colleagues graduated from NAIT last spring, Jose currently working at a Regina hospital he couldn't name due to privacy concerns.

"In the hospital, I install, maintain and repair medical equipment," he said. "I always have, kind of, wanted to work in the patient-care industry, and ever since I was little, I liked to work with electronics. This profession happened to be the perfect fit as it combined both of them."

"For me, I enjoy working in the hospital and like interacting with patients sometimes," he said. "There is not really too much interaction, but obviously, when I do go into rooms and a patient is there, I will talk with them and ask them about their day. I enjoy working in the hospital and don't see myself moving (to work) with a vendor anytime soon."

Jose enjoys the most about his new profession as a biomedical engineering technologist is continuing to learn new things.

"I get to keep learning. There never really is a time when I don't learn anything while working. Even on something I have worked on hundreds of times, sometimes I will come up with or find a better way of solving things or fixing problems or troubleshooting. Everything is challenging."

The four schools submit the two best Capstone projects to compete for the award, which was established in 2017 when ASET noticed the projects' calibre and thought they should recognize the work's calibre.

"It is a pretty large field and pretty competitive work," Cavanaugh said. "We then try and bring it to public attention and see if we can do anything to further their careers for them. We do try to find them access to the commercialization of some of the projects. Some (projects) are really not intended to be commercialized, and most of the (grads) are too modest and have never thought about the potential, but this project we are looking at, really needs to be commercialized. It is in the public interest to get that out there."