ENGINEERING

**Hands-on Robotics Lab at Bellarmine University**, CHRISTOPHER STEITZ\*, STEPHEN BROWN, and DR. AKHTAR MAHMOOD, Department of Physics, Bellarmine University, 2001 Newburg Road, Louisville, KY 40205.

Robotics is an exciting field that has seen big advances in the past few years. Various types of robots are being used in many sectors of industry. Since robotics technology has witnessed a remarkable growth, there is a need to educate the next-generation undergraduate students in robotics in order to provide a career path for those who want to enter the robotics job sector. At Bellarmine University, we have setup and implemented a hands-on Robotics Lab for the undergraduate STEM students. The Robotics Lab is open to any students who are interested in using microcontrollers, motors/servos, sensors, and Arduino/Raspberry-Pi boards, in their research projects.  In the Robotics Lab, students can conduct inquiry-based activities with various types of robotic devices and can work on various hands-on robotics projects. In the Robotics Lab, students can build their own robotic devices and platforms. Student can also use the 3D-printer to build any parts they need for their project. We have also built a semi-autonomous hexapod robot in order to aid humans in search-and-rescue operations. In our Robotics Lab, we have a programmable humanoid robot, called NAO that has the ability to detect the surroundings and can hear, communicate, and carry out conversations with humans. NAO has multiple touch sensors. NAO can be programmed in Python to carry out specific tasks in the lab and is able to work alongside with students. We will demonstrate some of the robotics projects we are have worked on in our Robotics Lab.