GABRIEL GALDWELL, OWEN KELLER, WEIDONG LIAO, & OSMAN GUZIDE, Department of Computer Science, Mathematics and Engineering, College of STEM, Shepherd University, Shepherdstown, WV 25443. Project-Based STEM Learning: A Case Study on the Educational Applications of Pololu Zumo Robots

Hands-on robotics platforms provide a critical bridge between theoretical computer science and practical engineering. The Pololu Zumo Robot offers an accessible, compact hardware design that facilitates this transition. Its key educational benefits include versatile C++ programming via the Arduino IDE and a rich sensor array that allows students to explore intelligent system design. This poster presents a case study on utilizing Zumo robots to build foundational STEM skills among [insert student demographic, e.g., undergraduate computer science students]. We will outline our pedagogical approach, demonstrate several completed mini-projects, and discuss how working with constrained hardware environments enhances students' problem-solving abilities and understanding of embedded systems.