ENGINEERS GEOSCIENTISTS MANITOBA

2022 STUDENT ACHIEVEMENT AWARD

Crokibot 9900: The Design and Implementation of an Automated Crokinole-Playing Robot

The Crokibot is an innovative crokinole-playing robot that was created as a capstone design project by Skylar Greenslade, Kennedy Krakolovich, Ben Martin, and Jadon Peters, all in their fifth year of engineering at the University of Manitoba.

The Crokibot is a complex project consisting of three main modules: Crokinole board evaluation, shot planning, and shot execution. For evaluating the Crokinole board, the team used a camera system and image processing tools to detect and locate crokinole stones on the board. Next, the shot planning module used heuristics and an appropriately tuned/modified physics simulator to evaluate shot outcomes. Finally, the shot executing module consisted of a custom 3D printed shot delivery and motor system for positioning the board and taking the desired shot. All three work together to create a complex system which puts up excellent competition.

The team kept the project within the given budget, even when the initial scope and feasibility of success was not clear. The team used all aspects of engineering from requirements gathering, designing, building, and finally validating the end design.

The future goal of Team G05 is to expand the Crokibot and turn it into an educational tool to teach STEM concepts to K-12 students. The team hopes students can use this tool to gain first-hand experience in physics, programming, artificial intelligence, and electro-mechanical systems.

In recognition of their innovative undergradute group project, Crokibot 9900, Engineers Geoscientists Manitoba is pleased to present the inaugural 2022 Student Achievement Award to Skylar Greenslade, Kennedy Krakalovich, EIT, Ben Martin, and Jadon Peters, EIT.