Puma's In A Half-Shell Robotics Research Project: Donashello

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Abstract

The goal of this project is to gain hands-on experience as well as expand on and learn about the necessary skills and techniques for building rovers. Specifically by building and coding Donashello. Donashello is an autonomous, imitation mars rover capable of navigating and mapping territory similar to Mars. The chassis was designed and 3D printed; the programming language is Arduino, and that communicates directly with the Arduino Due board. Months of designing, prototyping, and testing revealed different design flaws that we had to fix and work around, as well as develop better ways to do different things. This has all been in order to test how Donashello will perform in a simulated Mars environment, which we did at the Great Sand Dunes in Alamosa on April 15th through the COSGC Robotics Team. Developing the project while working with and relying on varying levels of experience allowed for a lot of growth and ideas to improve upon Donashello in each stage. Donashello is now capable of basic navigation and mapping in sandy terrain.