

# Abstract

In order to assist Silas Hopper, a child with spina bifida, with getting into his wheelchair independently when being on the ground, the senior project team set out to construct a device that would fulfill that purpose. They did this through coming up with a strict definition of the problem to be solved, designing a number of potential solutions for the problem, prototyping to determine the feasibility of the solutions, making design modifications after testing the prototype, and building the final device.

The end product was a device that was able to operate mechanically, with a design that considered safety and ergonomic standards. The estimated material cost of the device was \$265, not counting labor or machinery. Testing yielded that Silas was able to use the device independently and successfully to move from the ground to his wheelchair seat. This had great implications for the lives of both Silas and his parents. After completing further modifications like adding a motor, dual button system to control the motor, and safety coverings to the device, it will be given to Silas permanently. The team hoped that awareness would be brought to spina bifida through the completion of this project, so future senior project groups or companies could use some of the lessons learned during this project and apply them to further improving the lives of those affected with spina bifida.