Technology and Innovation
A 3 wheeled hand truck design allows smooth transition up the stairs. The lever arm allows for easier cranking of the mechanical system. The system stores energy and releases it through reinforced axle rotation. Auto rotation will be inhibited by a one way sprocket.

Technical Objectives
This hand truck is intended to allow the operator to climb stairs easily and smoothly while maintaining a safe robust operation. The user should exert minimal effort during operation.

Related Work and State of Practice
Design classes at WSU helped with the development of this design idea and structure. Skills learned in this design contributed to the team knowledge with testing, troubleshooting, and validating design components effectively.

Technical Approach, Accomplishments, & Results
Our design process took on multiple variants. Through the use of Pugh analysis, we were able to chose a design that met our criteria the best. Simplicity, cost, ease of use, and weight were all critical factors. We have chosen a design that would only cost 30% more than the average hand truck. It has added safety functions and can be used in a multitude of scenarios.

Next Steps for Development and Test
Product development is a crucial part of a system design and marketing. Currently the team is spending time manufacturing and assembling system parts, with the help of the university machine shop. We will have a completed prototype within two weeks.

Commercialization Plan & Partners
- Steps to Commercialization
  Finalize and optimize design to match the voice of the customer
- Series of utility and design patents
- Feasibility study to research supply logistics and target demographic
- Licensing agreement with big name tool manufacturers

Conclusion
Our three wheeled energy storing hand truck provides a simple solution to a daunting task. Its hand crank design allows it to be used in a variety of situations. The compact and simple design means it is rugged and suitable for both industrial and residential usage.