Auto Folding Clothes Drying Rack – Global Project

Overview
The purpose of this project is to design an automatically folding, unfolding, and rotating clothes drying rack. The main client for the rack is a woman in South Korea who is confined to a wheelchair due to cerebral palsy. She has limited use of her hands and wants an easier and more efficient way to dry her clothes.

Objectives
The main objective of this project is to design and build a clothes drying rack for our client that she can use easily from her wheelchair. A secondary objective is to develop skills for working on a global team.

Approach
- Team, sponsor, and client weekly communication was established.
- The client was asked what she is looking for in a clothes drying rack.
- Background research and patent searches were conducted globally.
- Teams brainstormed and chose a final idea.
- Final design and manufacturing was split between the three universities.
- Solidworks models were made to convey ideas to other team members, the sponsor, and the client.
- Prototypes were made to check for problems before the final product was manufactured.
- Finite Element Analysis was performed to check for problems in the design.
- The final product was manufactured in South Korea and tested at Penn State.

Outcomes
- The client can fold and unfold the rack with the push of a button on a remote.
- The client can easily rotate the unfolded rack by hand.
- The client will have an easier time using this rack and therefore her quality of life will be improved.
- The rack is marketable to both the disability and non-disability market.