

BACKGROUND

The purpose of this project is to design, create, and implement a device usable by a person living with physical disabilities to complete tasks in a garden setting. These tasks may include watering, harvesting, trimming, and planting flora along with pulling weeds or moving pots. The team's primary objective is to create a device that effectively and reliably accomplishes at least one of these tasks. This device must be comfortable and safe to use without demanding much physical exertion from the user. The team will be working with the Hozhoni Foundation, a disability awareness group based in Flagstaff. Their facility houses several foundation members, most with physical disabilities, and on-site extracurricular activities including an art studio and a garden in which the device our team designs will be implemented. Our primary stakeholders will be the Foundation itself and, more importantly, the individuals who will use our device. The simplest definition for designing for disabilities is to create a device which gives a person with disabilities the ability to accomplish a task they could not before. While this definition is true, it does not place enough emphasis on why such undertakings are important. If the purpose was simply to perform a task an able-bodied person could complete, then it would be done by an able-bodied person. Instead, a large motivator for designing for disabilities is the positive psychological effect on the users. People living with disabilities value self-sufficiency since it counteracts the feelings of helplessness or lack of control that may arise from their disability. Improving a person's mental health has a massive, positive impact on their life, and it is our duty as engineers to maintain and improve the wellbeing of our society through the application of science and mathematics. Doing so at an individual level is just as important. Our client recognizes this. The Hozhoni Foundation's mission statement is, among other things, "... to enhance quality of life, self-sufficiency, dignity and self-respect of the individuals we serve." Our team aims to do so.

Project Description

"The Hozhoni Foundation in Flagstaff, AZ has a large outdoor area for their clients with disabilities to enjoy during the day. Many areas of the gardens are wheelchair accessible. Many of the clients who have limited mobility desire the opportunity to interact more with the garden (water the corn field, rearrange potted flowers, etc.). Currently, there are no provisions that allow this in their gardens. This capstone team will develop and implement solutions that allow clients with disabilities opportunity to interaction with the gardens in new ways."

Our team is comprised of self-motivated individuals with a similar interest; each member wishes to improve the quality of life of a person with disabilities. Due to this interest, the team will meet with the foundation several times over the coming year to discover what specific needs are unmet and what can be done to meet them.