Technical Report
P17046, Overcomer - Upper Extremity

Bringing sports to a wider audience through user friendly design.

Abstract

Physical disability prevent people of all ages and backgrounds from having the opportunity to be involved in may physical activities. Being physically active can help young child develop strong interpersonal and interaction skills as well as allow all ages to improve stamina and muscle strength while promoting general feelings of well-being.

In order to provide a solution Joe Kabes, founder of Inclusivity Incorporated, has developed and tested an initial prototype of the The Overcomer: Lower Extremity (OLE). The OLE is an assistive technology to allow children or adults who are confined to wheelchairs and walkers to participate in typical recreational activities such as soccer, hockey, golf and several more.

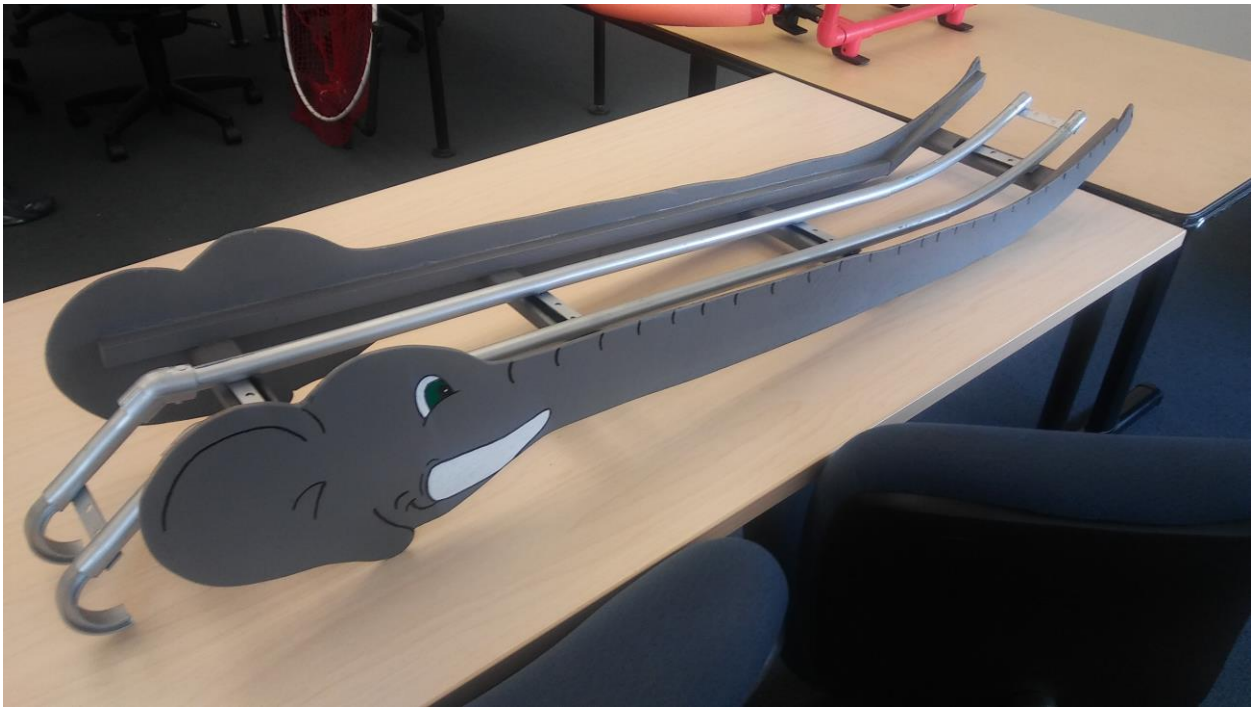
The goal of this project and partnership with RIT is to continue improving the current design as well as move the project from prototype to manufacturing. In addition, there is a parallel project to develop The Overcomer: Upper Extremity to increase the functionality of the device.

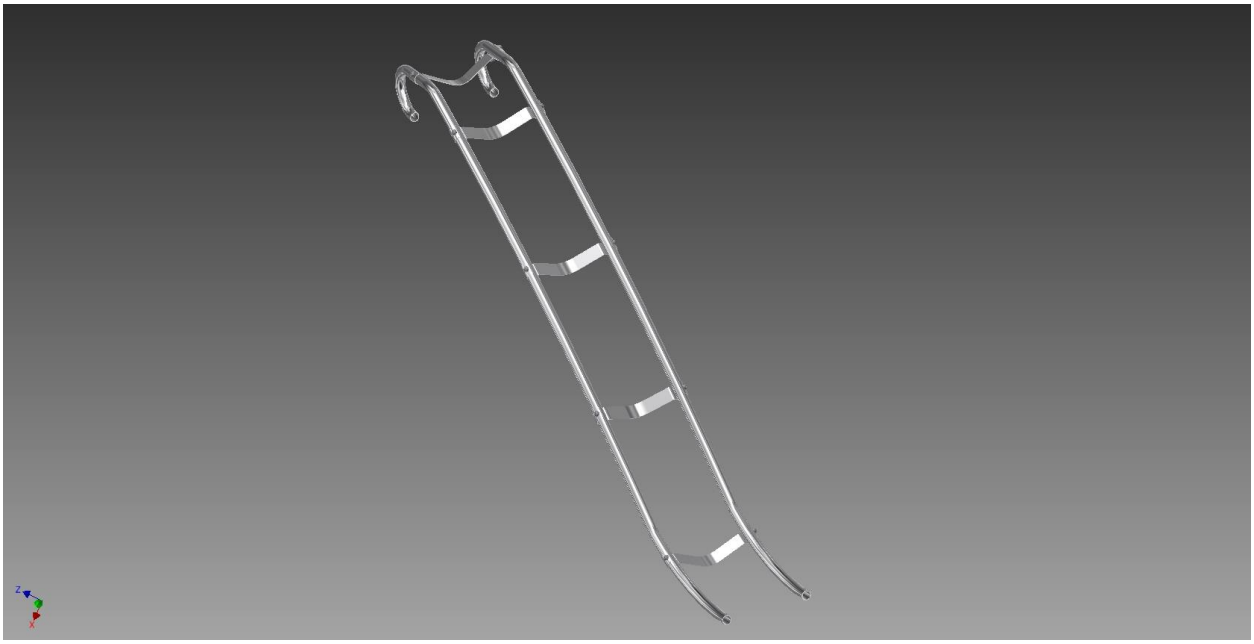
Introduction

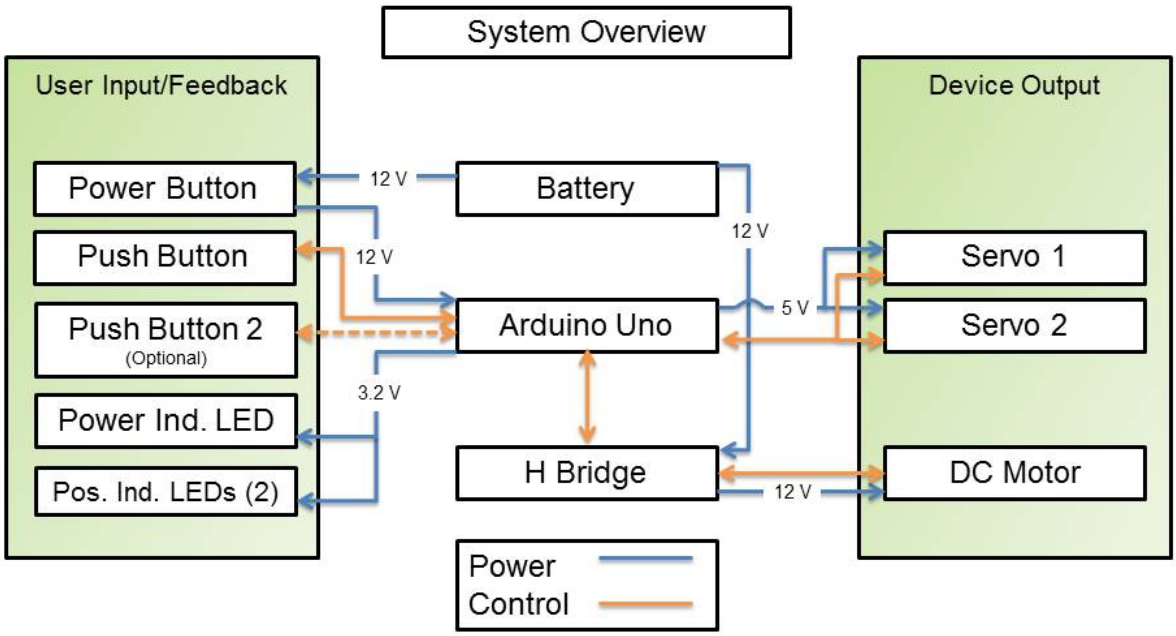
In addition to accomplishing our goals and completing all of the assigned deliverables, we brainstormed different methods it would take to accomplish the necessary tasks to participate in typical recreational activities such as soccer and bowling and also how to attach OLE, Overcomer Lower-Extremity, to the wheelchair and walker. We were able to compare and contrast our current prototype to our concept development. This allowed us to see what areas could be improved. We are still pursuing our desired goal of improving the current design as well as moving the project from prototype to manufacturing. Paperwork for the Institutional Review Board approval to conduct testing is submitted we are collaborating with Overcomer Upper-Extremity team to conduct interviews and get some inputs on our current prototype

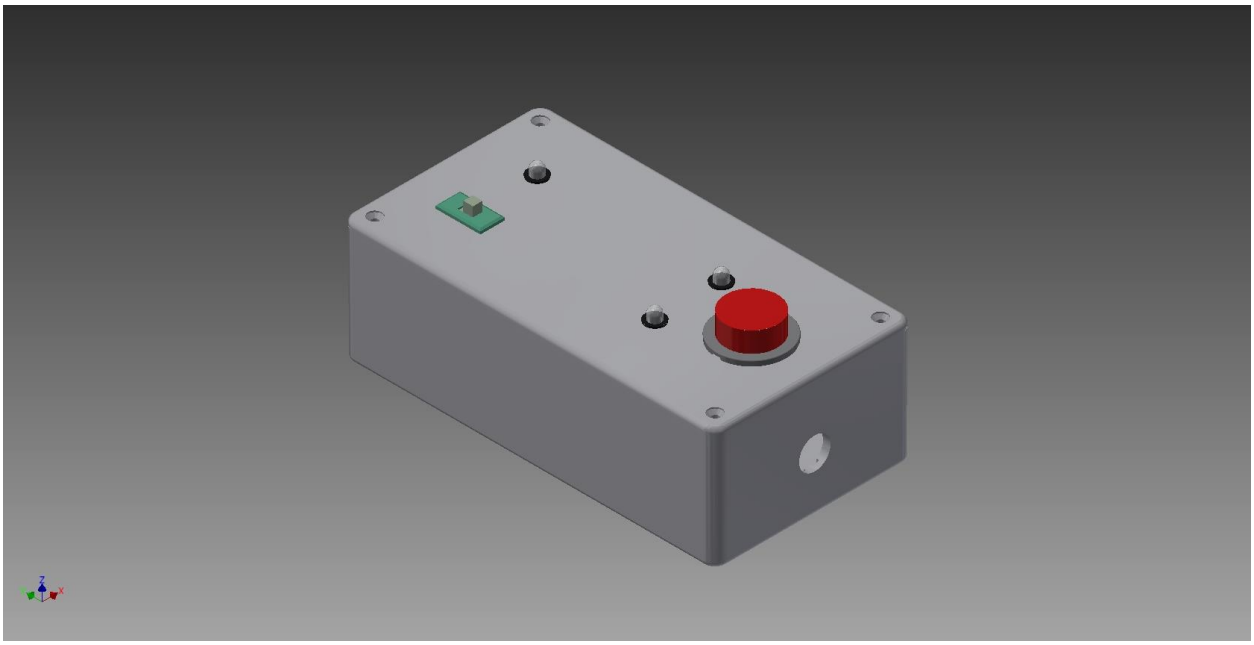
Background

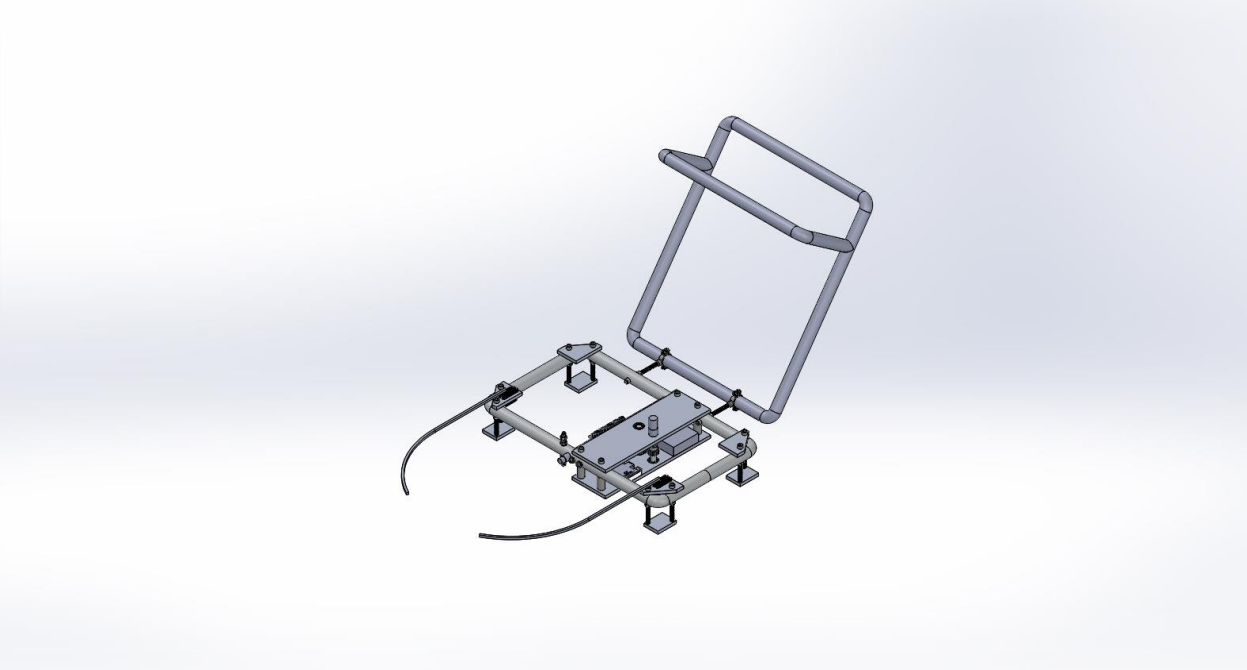
Discussion






System Overview
User Input/Feedback
Device Output
Power Button
Push Button
Push Button 2
(Optional)
Power Ind. LED
Pos. Ind. LEDs (2)
12 V
12 V
3.2 V
Battery
Arduino Uno
H Bridge
12 V
5 V
12 V
Servo 1
Servo 2
DC Motor
Power
Control





Conclusion