Novel Mobility Device For Conjoined Twins

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Abstract

This is a single device system developed for a pair of craniopagus twins seeking increased independence. This lightweight and mobile device will allow for mobility in common settings and will replace their currently used device. This device will have the capability to raise and lower its platform to any necessary height to allow for comfort and increased mobility of the users.

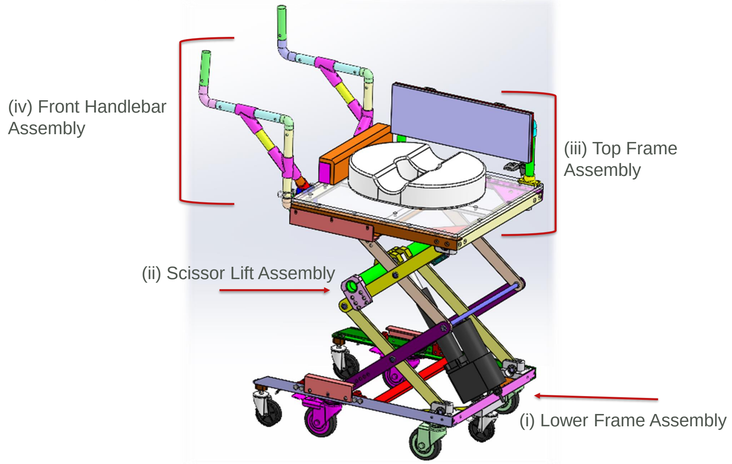
Introduction

This project provides a solution to a problem faced by a pair of conjoined twins. With their desire to become fully independent, the clients require an improved mobility device. The current device served as an immediate remedy to meet their needs; however, limitations exist which are intended to be addressed by the new device. This project will produce a solution that is not only more effective, but also adaptable to the clients as time progresses and their needs change. The clients are now reaching a point where more independence is desired, meaning unique features will need to be constructed to fit the needs and wants of the clients.

Methods and Materials

I. MECHANICAL

The bottom frame of the device is 26.5” x 20”. The device can be actuated from 18” to 28.875” tall. This device is comprised of four separate mechanical subassemblies (i) lower frame, (ii) scissor lift, (iii) top frame assembly, and (iv) front handlebar assembly.

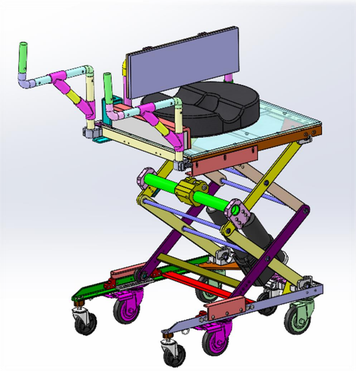


II. ELECTRICAL

The electrical system controls the actuator that drives height adjustment on the platform. Power is supplied to the linear actuator by two 12V batteries regulated by a control box, which supports the use of a remote. An emergency stop is implemented as a safety feature. Remaining battery life is displayed via a voltmeter.

Discussion and Results

Throughout testing, the mobility device preformed as expected. With any issues the team faced with the design, solutions were created instantly to create a safe and effective mobility device.



Conclusions

This novel mobility device will allow for the improvement in the lives of its users. More mobility and independence will also be gained, along with allowing the clients to feel more at ease with its use. The multiple devices currently in use by the clients will be replaced by this single device, which will allow for more opportunities and accessibility for the clients.

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