**Child Transportation Device Integrated Concept**

The Integrated Design Concept has pulled from each and every design made so far, building on all previous research and design. After evaluating the requirements, several redesigns and upgrades to the previous concepts were created to make an overall better and more inclusive product.

Wheels and tires are very important to a land vehicle. FIrstly, they need to provide good grip to the surface for safety and ease of maneuverability. As well, tires provide a more comfortable experience to the co-user. This is usually solved with air tires or solid tires. These do come with their own disadvantages. Air tires can have leaks and punctures that require maintenance, while solid tires are heavy and transfer too much vibration from the ground. A solution to both of these problems is an airless tire. They do not require air, and unlike solid tires they are filled with a partial infill, allowing for lighter weight and better shock absorption.

The intervention features a spring suspension system in the wheelbase. This provides shock absorption to both the user and co-user, allowing for a more comfortable ride. As well, the suspension allows the navigation of rougher terrain, giving the user more range and flexibility. The suspension system is purely mechanical to reduce the need for maintenance. The smaller amount of failure points makes it more reliable as well.

The most prominent feature of the intervention is the push-button system on the rear axle. This allows the entire intervention to be lifted and operated on one standing caster. The added movement after this alteration allows the intervention to complete 360 degree turns on the spot. It also aids in lifting the intervention above the ground, making small changes in elevation easier to navigate. This function is easy to operate, as it only requires the user's body weight. No strength is needed. The push button greatly increases maneuverability in tight and crowded spaces.

The frame is made to be very adjustable, so people of many different heights and dimensions can easily use it. The frame material chosen is coated extruded aluminum. This material is firstly very lightweight for its strength. This makes the entire intervention light and easy to operate. Aluminum is also cheap to manufacture, reducing the overall cost for the user. Aluminum is also abundant in the manufacturing industry. This allows the use of recycled aluminum, reducing waste and environmental impact. The coating on the metal resists corrosion and increases the longevity of the surface finish.

The folding system that the intervention uses is designed to be easy to use, operate, and handle. Preparing the intervention for folding/unfolding only requires the movement of a few large and easily accessible latches. As mentioned above, the lightweight frame makes moving the different parts of the frame easy to do.

The Integrated Concept has been specifically made to fit the usage scenarios of all personas. People with low strength are able to easily lift, push, and maneuver the intervention due to the lightweight design. Low dexterity is not impacted, as all controls are large and easily reachable. Vision and hearing impairments are not an issue, as there is no requirement for the need. The requirements have been mostly met, and the usage scenarios match very well with the given design.