

The Pedestrian's Motorized Solution for Greener Transportation of Goods

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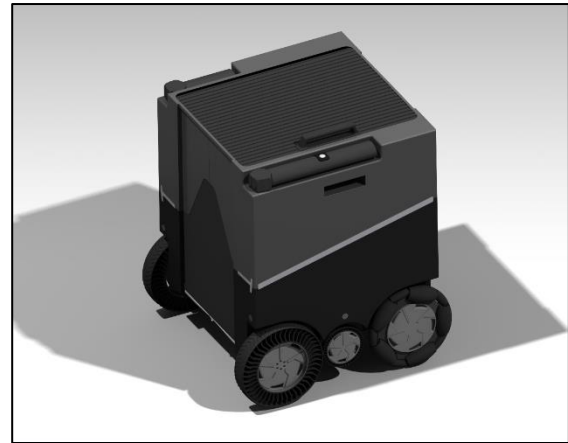
With increasing sustainability goals and denser cities de-prioritizing cars, there's a higher demand for transport companies to develop greener and more efficient solutions. In collaboration with Volvo Car Corporation, a new vehicle has been developed to encourage walking and support individuals in their personal transportation activities.

The EU has set a goal of becoming the first climate-neutral continent by 2050, which will be achieved in part by reducing transportation related greenhouse gas emissions by 90%. These and other environmental goals have made it clear to many transportation companies that electrification of their product offerings is necessary. At the same time, urban development is moving toward a greener mentality, focusing on pedestrians and cyclists while the private car is parked for good.

However, the needs of city residents are not changing. Daily necessities and groceries still have to be obtained. To avoid or ease the burden of carrying, a small, motorized transportation vehicle has been developed with room for two grocery bags.

The vehicle either follows the user through connectivity with the user's smartphone or allows the user to manually control it with handles when the environment or terrain demands it. An electric powertrain enables fast and efficient movement while also allowing for easy charging, either at home or in the user's own car. So, we haven't completely abandoned the car, as last-mile deliveries are still attractive to users who need to walk short distances to and from their car. The vehicle can be lifted into the trunk of the car when fully packed or folded up when empty to be placed behind the driver's seat.

The development of the vehicle was influenced by various requirements in terms of size, features and ease of use. To reduce the number of parts in the design of the vehicle, additive



manufacturing was chosen as the manufacturing method for the most critical part of the vehicle. With additive manufacturing, the part is built layer by layer which enables the design to consist of complex geometries. At the same time, the design of the critical part was optimized to reduce the overall weight of the vehicle. The optimization was iterative and resulted in an 88% reduction in overall weight from the original to the final design of the critical part.

The future is uncertain. How people and transportation will function is difficult to imagine. However, the vehicle and its design are a good example of a possible solution that can achieve sustainability goals while meeting the people's needs. Not only can we achieve a greener future, but also a healthier one if walking becomes the main mode of transportation for the future's residents.

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