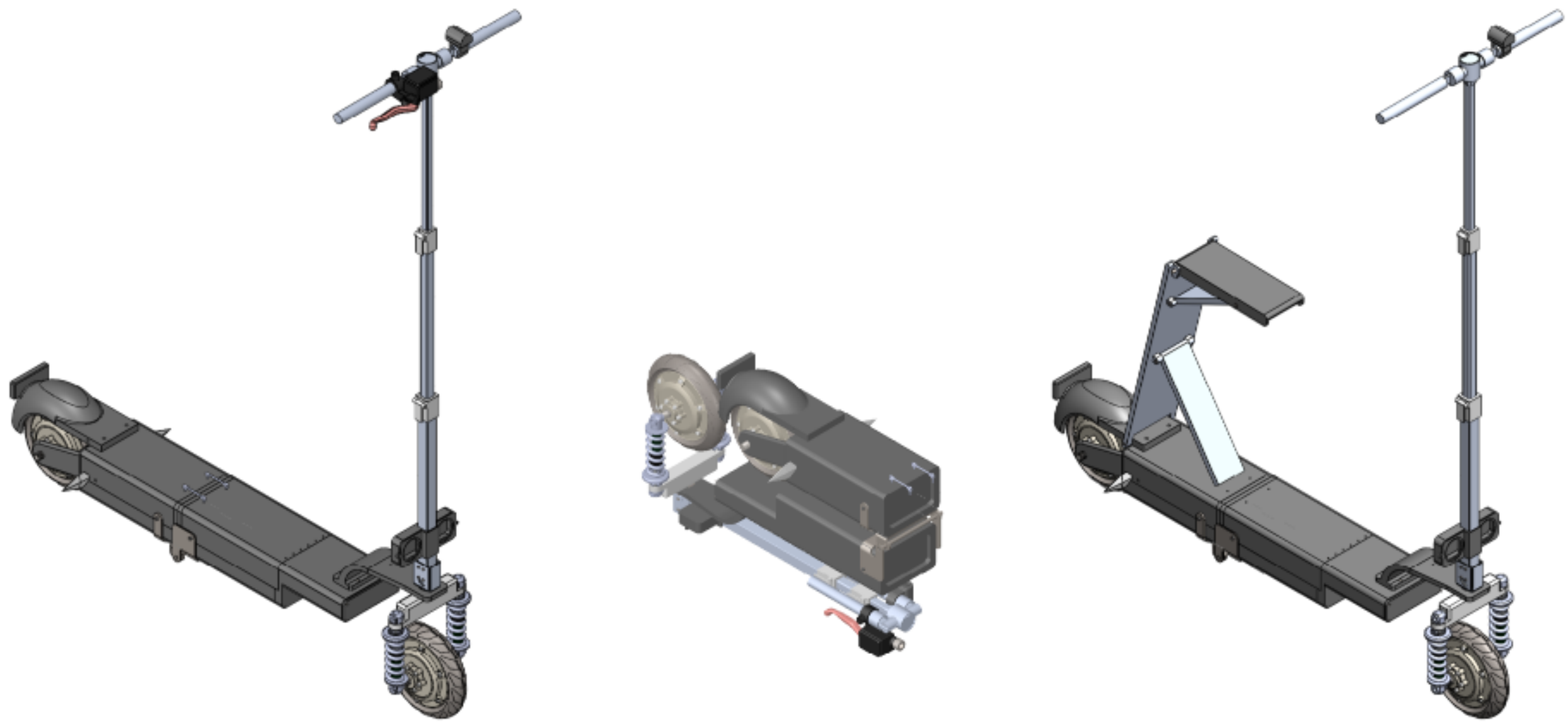


DESIGN OF A FAMILY OF ELECTRIC AND SUSTAINABLE INDIVIDUAL MOBILITY SOLUTIONS FOR PASSENGERS



This article describes the design and prototyping process of a smobility vehicle with minimum emissions, foldable and portable. The design takes into account important aspects such as dimensions, weight, maximum speed, autonomy, folding capacity, manufacturability and cost efficiency. The solution is based on an electric scooter which consists of a foldable structure, 8" radius tires with built-in 350 W, 48V brushless DC motors, an energy storage package containing 23 lithium ion cells of 3.7 V, 4.2 Ah giving a total capacity of 403 Wh, and a handlebar which is coupled to a 3-tube telescopic support for the user to adjust the height to his liking. The technical characteristics of the subsystems of the design include: braking mechanisms, energy management, steering and suspension systems, lighting solutions such as brake and directional lights, connectivity, as well as a control panel located on the top of the handlebar where the user can observe the energy level of the battery and the speed at which the vehicle is being operated.