

High Speed Transport in a Vacuum Sealed Tube

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Abstract: The transportation industry has remained largely unchanged in the last century, despite increases in worldwide population and congestion in cities. In 2013, Elon Musk proposed the “Hyperloop”, a new mode of transportation utilizing a network of vacuum tubes to allow a pod to travel up to 700 mph in the absence of air resistance. In the years following this proposal, a challenge was posed to students across the world to design a pod that could autonomously travel the length of a vacuum tube. The following paper outlines a pod designed to travel the length of a straight 10 km tube. The pod incorporates an in-wheel motor in the front wheel to propel the pod forward, stability and braking systems to ensure safety and functionality, and a network of Arduinos for communication. Once constructed, a variety of tests will be performed to verify our requirements and the requirements of SpaceX.

Keywords: High-Speed Transportation, Vacuum Sealed Tube, Hyperloop