



In 2013, Elon Musk suggested an innovative and futuristic solution to the increasingly worsening transportation issue - the Hyperloop. It is a proposed method of high speed transportation between cities, such as Los Angeles and San Francisco, constituting of a pod that is propelled through a low pressure steel tube while levitating to minimize friction. To help make this idea a reality, SpaceX created an international competition to test various half-scale pod designs on a mile-long test track in Hawthorne, CA. As one of the few teams chosen to construct a pod to compete at the test facility, the UCSB Hyperloop team's BLINK pod travels at speeds up to 218mph in a low-pressure environment, while transmitting telemetry data via an ethernet link to the outside. It levitates using six of ArxPax's HE 3.0 magnetic levitation engines, powered by a number of LiPo batteries. The sleek and lightweight fiberglass outer shell ensures minimum drag while the robust aluminum and steel base frame provide strong structural support. The custom-made PCB has two microcontrollers to manage all on-board electronics, such as the braking system and pod telemetry. A dual induction and friction braking system provides reliable and stable deceleration for high and low speed braking, respectively. A variety of peripheral devices, including photoelectric and ranging sensors, accelerometer and thermometer keep track of the speed, temperature, and location of the pod in the tube. All of the pod's subsystems were designed with safety and redundancy in mind, while also keeping the final product as low-cost as possible in order to maintain its scalability to a full-size system.

