INTRODUCTION

Hyperloop was created by Elon Musk as his vision for the future of transportation. The original idea behind it was to get from Los Angeles to San Francisco in 30 minutes, cheaper than a plane and faster than a car. The system consists of self propelled pods traveling in low pressure tubes completely autonomously. To accomplish this challenge, Elon and SpaceX created an annual hyperloop competition where universities and private groups are seeking to create a scaled down version of the hyperloop pod. This year VCU has announced it would begin competing in the hyperloop competition. The VCU hyperloop team is split into 3 subteams: mechanical, propulsion, and controls.

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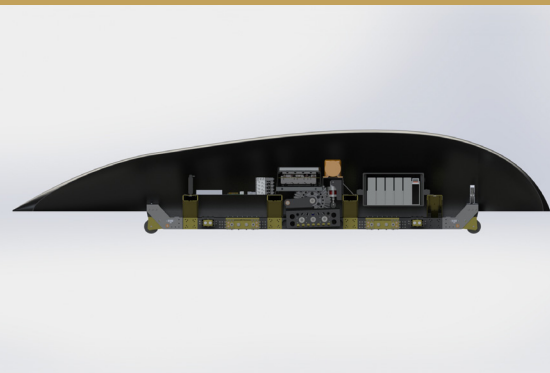Software Specialist

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HYPERLOOP

VIRGINIA COMMONWEALTH UNIVERSITY

MECHANICAL

With the exception of the motor assembly, mechanical focuses on designing all mechanical systems on the pod. Specifically, the frame, brakes, lateral stability, suspension, and pod shell. Their primary CAD software is SOLIDWORKS. ANSYS is used to perform static analyses of parts, frames, and systems as well as used to perform thermal and flow analyses of the pod.

PROPULSION

The propulsion team is responsible for propelling the pod through the low pressure tube. Their current design involves using an electric motor, designed for cars in formula E, to get the pod up to speeds of over 200mph. The team works extensively with matlab, writing physics simulations in order to discover the optimal method of propelling the pod forward.

CONTROLS

The controls team works with all of the pod's sensors and microcontrollers that act as the pod's eyes, ears, and brain. They design and implement the internal communication system, system command list, sensory microcontrollers, and develop low level system + high level network software.

Design by Maya Barnes