

2019 STEM Robotics Challenge

MARITIME & LOGISTICS

Design Brief: Elementary School, Middle School, High School

Challenge:

Build a robot that uses Raspberry Pi or microcontroller technology to perform tasks commonly seen in the maritime transportation industry. These tasks may involve moving cargo via trucks/trains to designated loading/unloading locations within a specific time frame. Teams will chronicle the Engineering Design Process via a new E-Portfolio process.

Background

Hampton Roads officially referred to as the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area (MSA) is home to the third-busiest container port on the East Coast.

Additionally, our region offers a strong intermodal (two or more different modes of transportation in conveying goods) infrastructure that includes 2 "Class I" railroads (Norfolk Southern and CSX) and major interstate highway connections. Approximately 2/3 of the U.S. consumer population and manufacturing base are within a 750-mile radius of Virginia Beach.



Hampton Roads, is a region defined by the presence of water and its robust maritime industry. Shipyards provide critical repair and maintenance service to military and commercial customers. Many corporate distribution centers are located in the region because of the proximity to the ports and their mid-Atlantic location. Companies such as Target, Dollar Tree, and Wal-Mart are able to depend on our ice-free ports which have 50 foot channel depth that allow unobstructed access year round. Once in port, goods travel efficiently via our major rail companies Norfolk Southern and CSX, or by truck on one of the major highway systems.