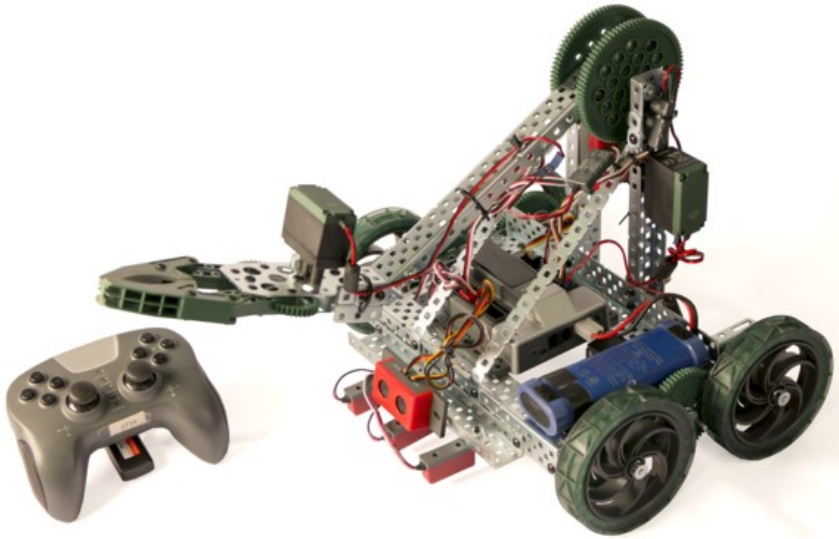
Introduction to VEX Hardware



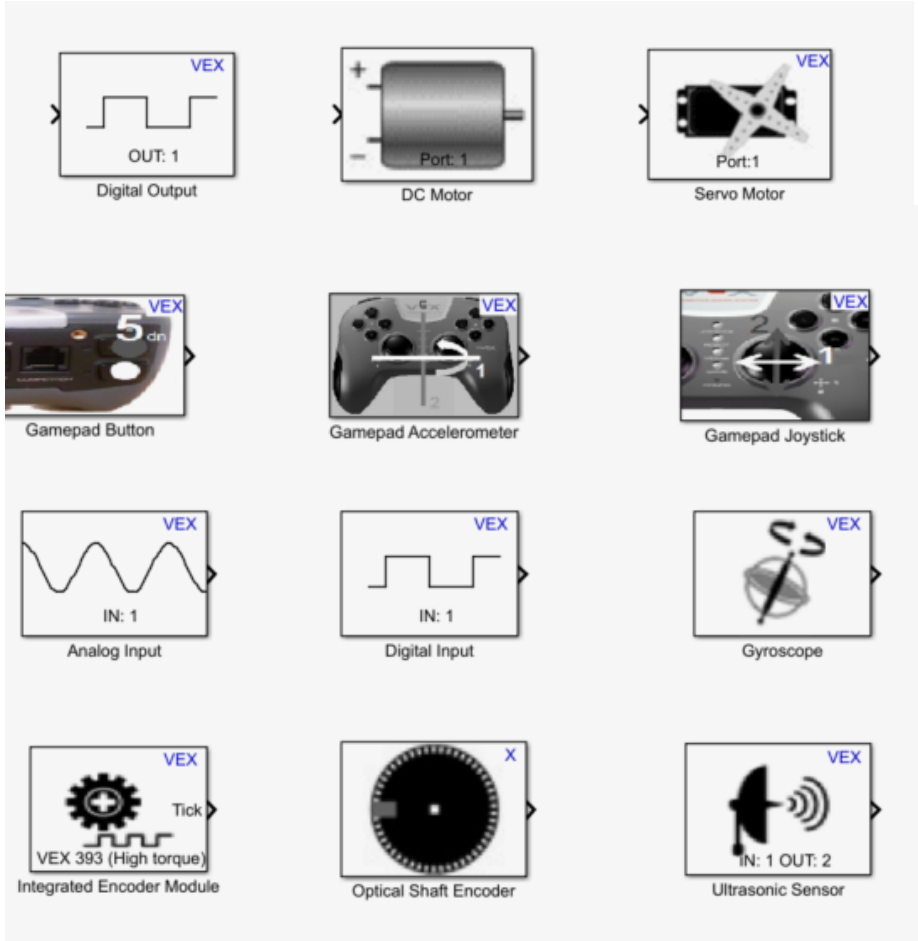
By MathWorks Student Competition team

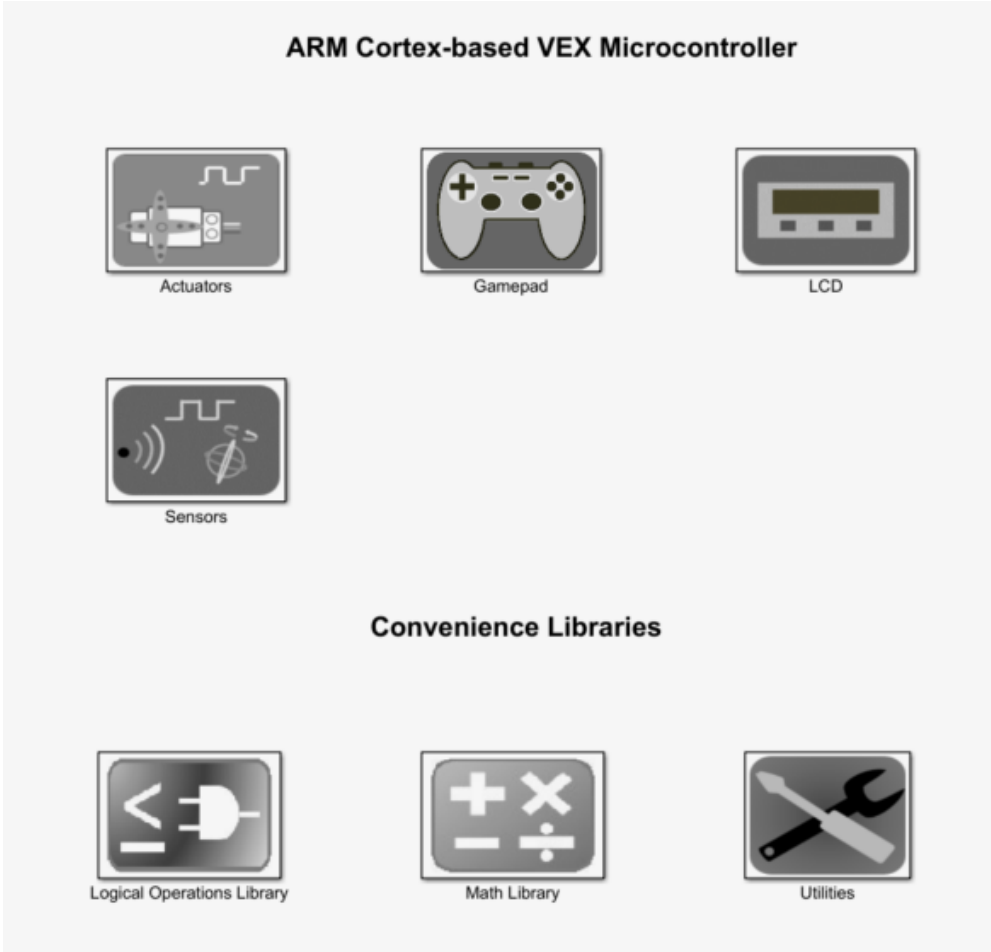
The Hardware – Cortex and Controller

- VEX Arm-Cortex Based Microcontroller (Brain)
- Gamepad Controller
- Actuators (Motors)
- Sensors

Simulink Library

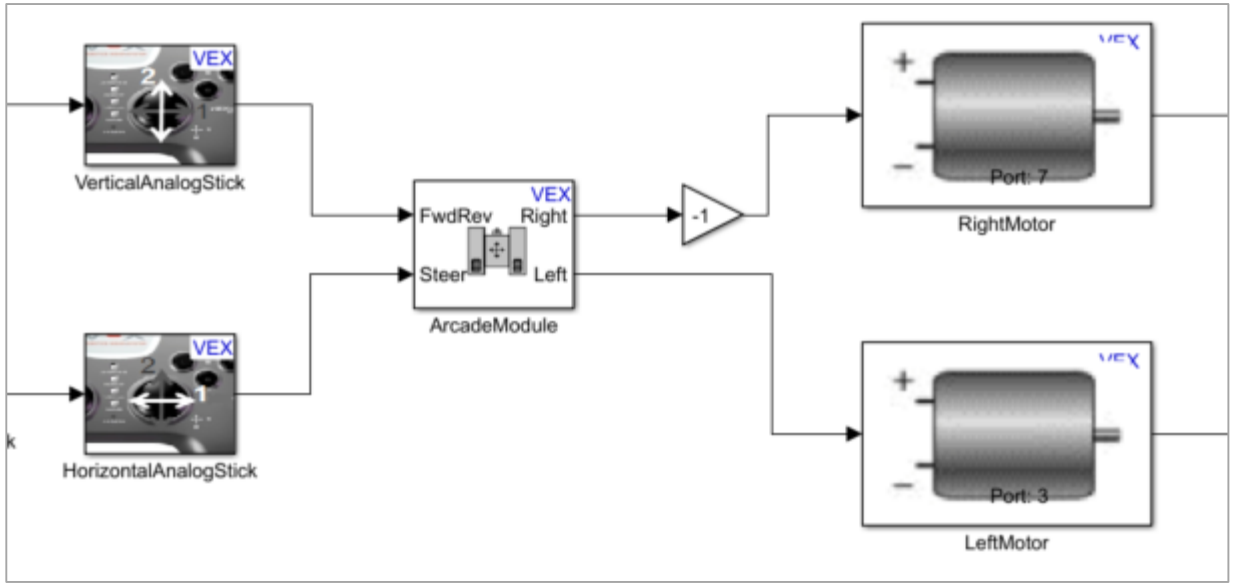
- Blocks for all supported functionality



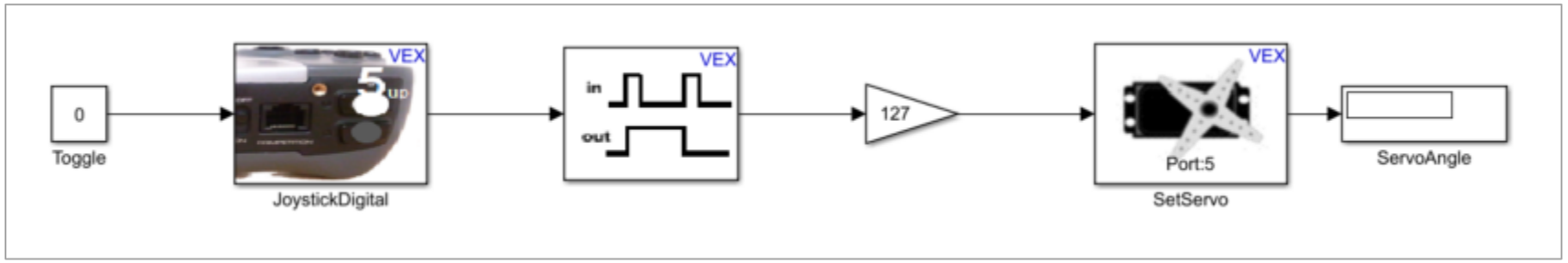


Examples using VEX Blocks

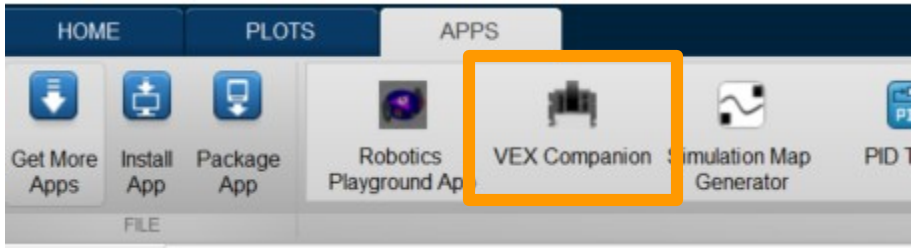
– **Arcade Control**



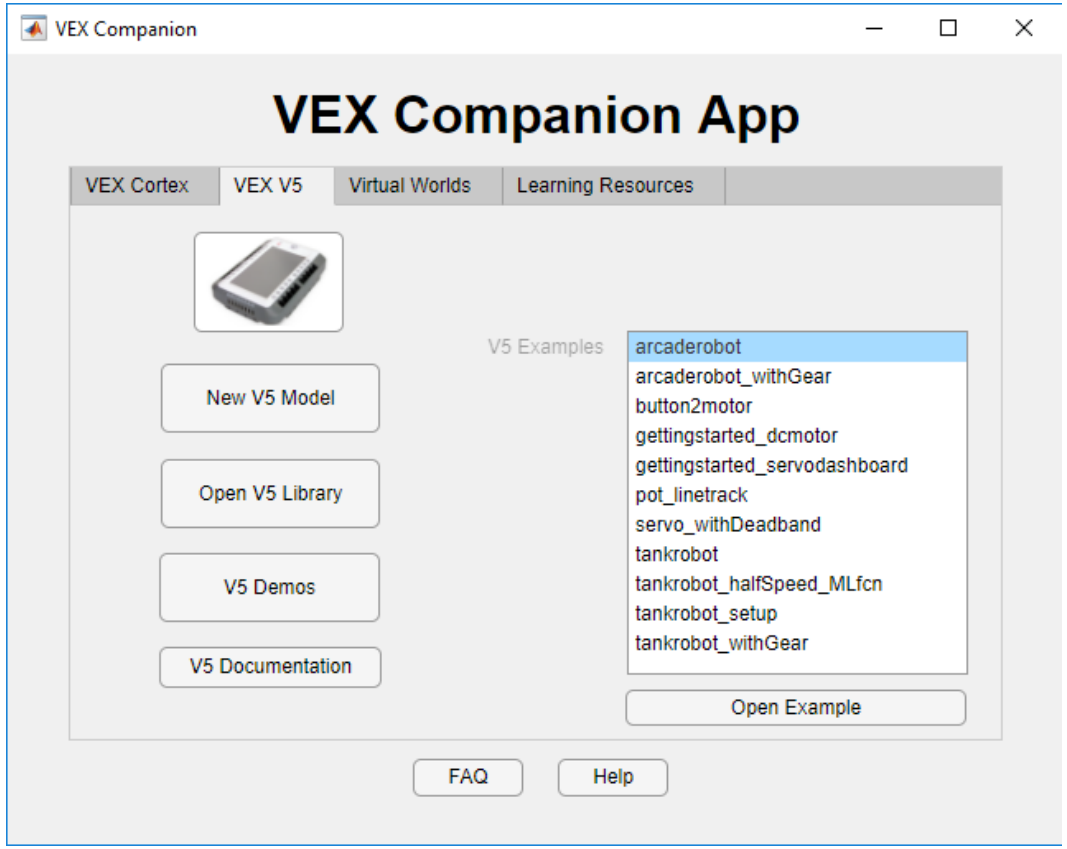
– **Single Button Motor Control**



VEX Companion App



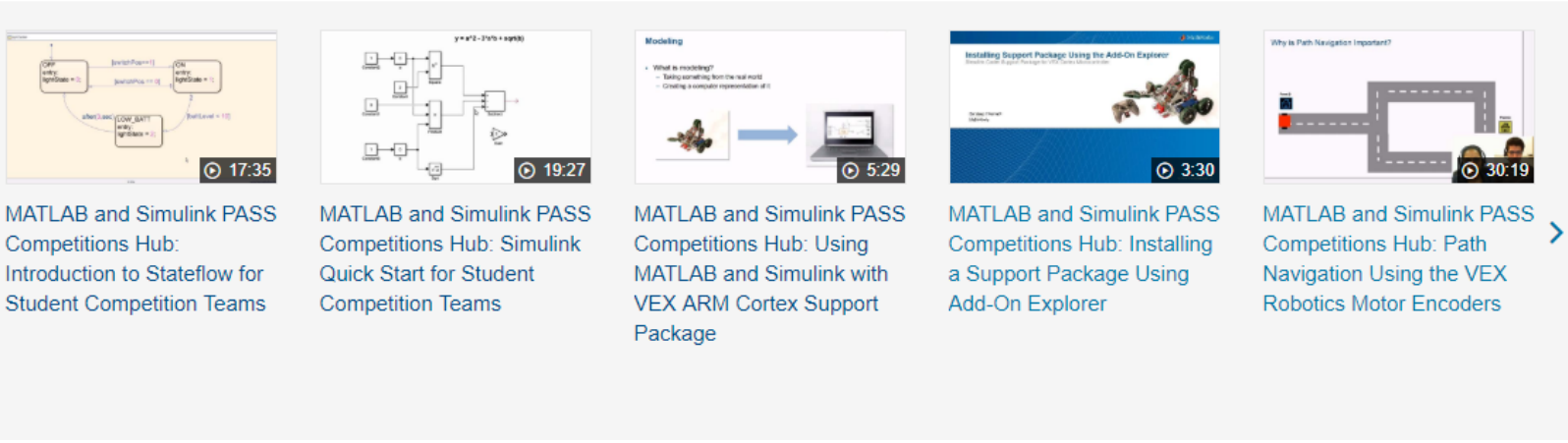
- All Resources in one place
- Install after support package installation
- Extensive list of examples

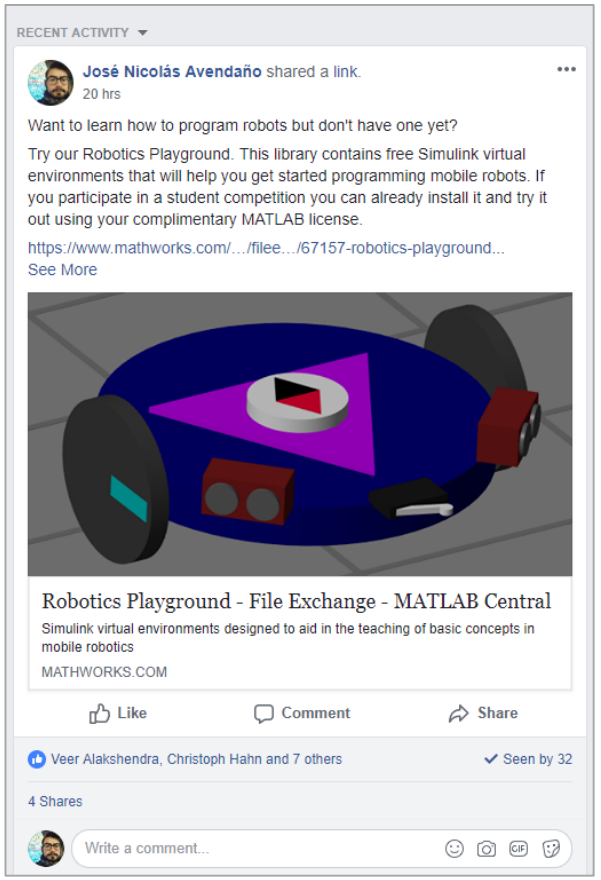


MATLAB and Simulink Primary and Secondary School Competitions Hub

- Video tutorials
- Facebook group
  - Robotics and product news
  - Forum
- Support
  - passcompetitions@mathworks.com

Most Recent Videos





Resources – FREE Training on Mobile Robotics

Student Competition: Mobile Robotics Training

The training materials in this video series will enable your team to get started with designing and simulating common mobile robotics algorithms in MATLAB and Simulink. You will learn how to design open and closed loop feedback control systems for your robot to perform tasks like dead reckoning, line following and obstacle detection. You will also understand how to use the custom simulation tools to test your algorithms within Simulink before deploying them to an actual robot.

- Part 1: Controlling Robot Motion
- Part 2: Using PID Controllers
- Part 3: Line Following Algorithms
- Part 4: Obstacle Detection Algorithms
- Part 5: Path Navigation

» See detailed outline

Student Competition: Mobile Robotics Training: Overview