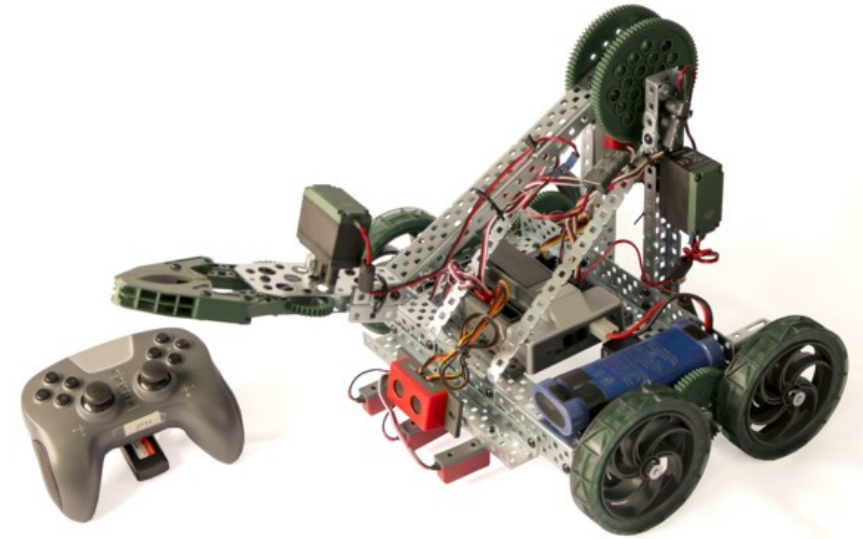


Introduction to VEX Hardware

By MathWorks Student Competition team



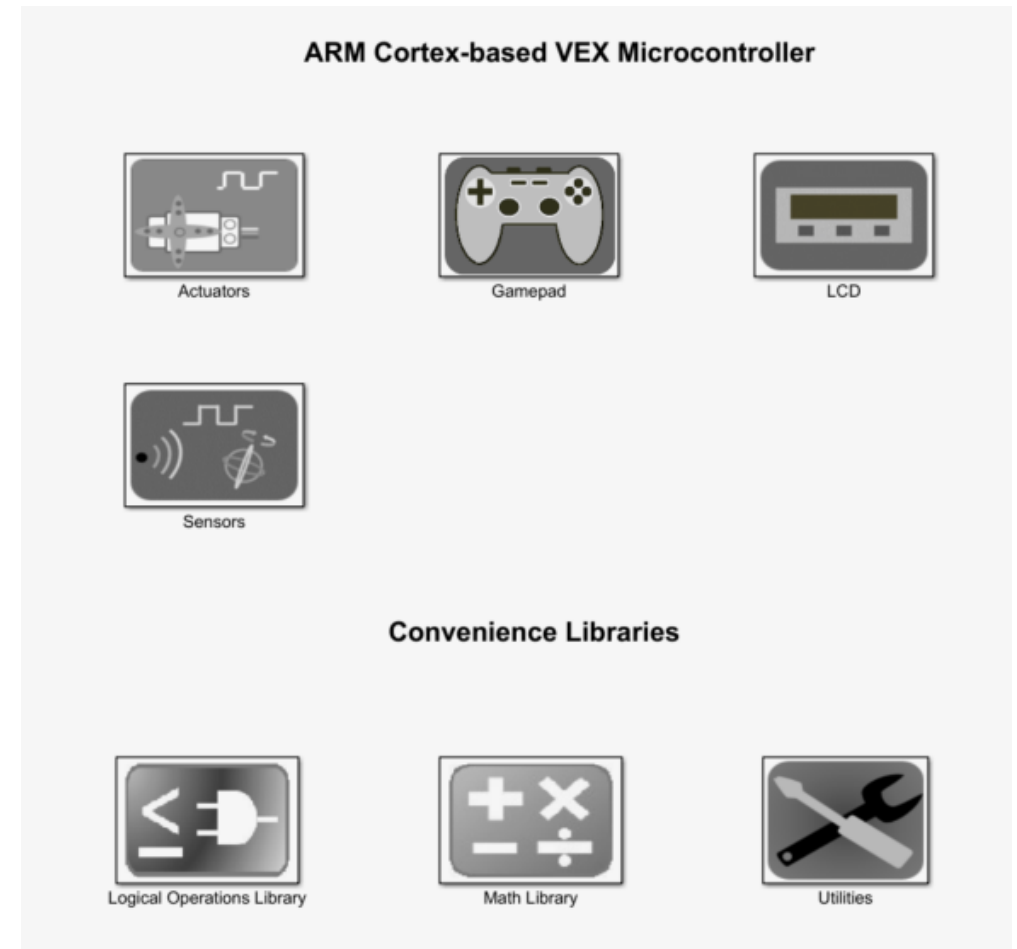
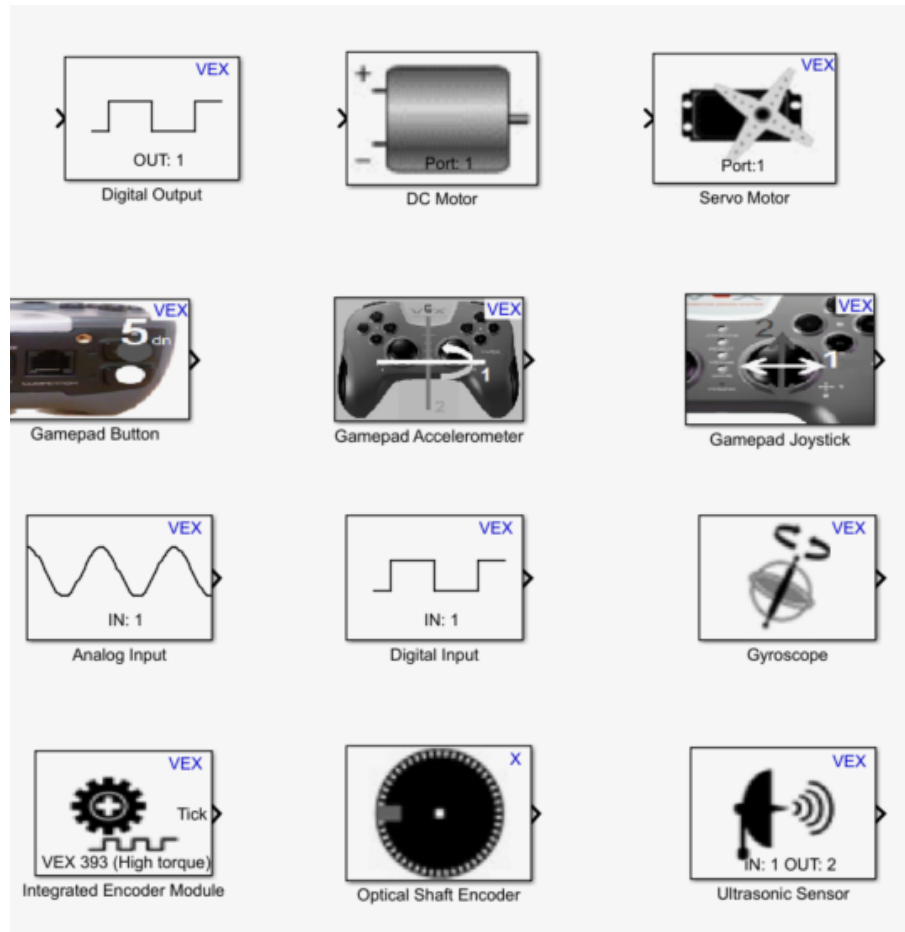
The Hardware – Cortex and Controller

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



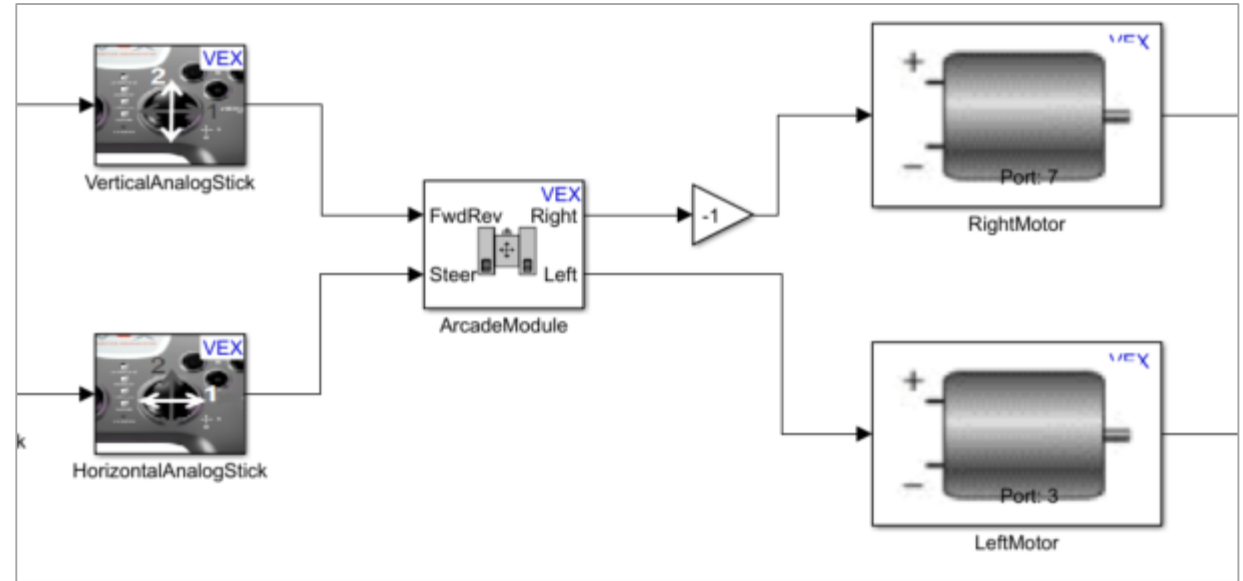
Simulink Library

- Blocks for all supported functionality

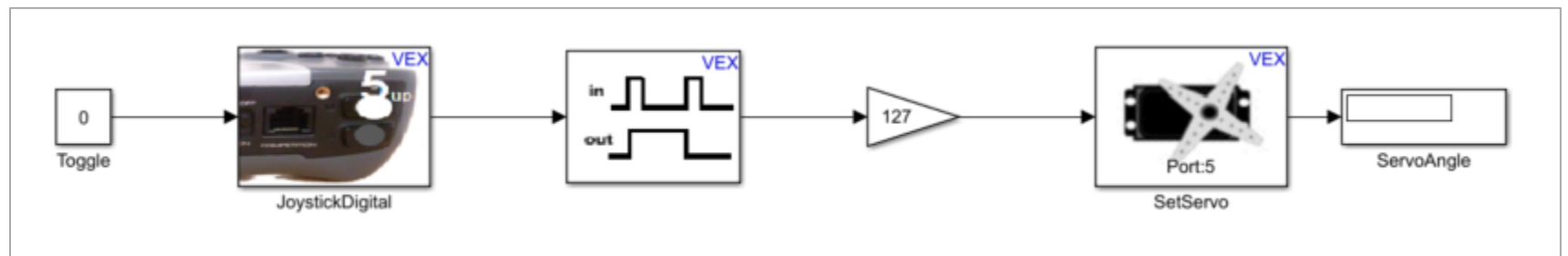


Examples using VEX Blocks

– Arcade Control

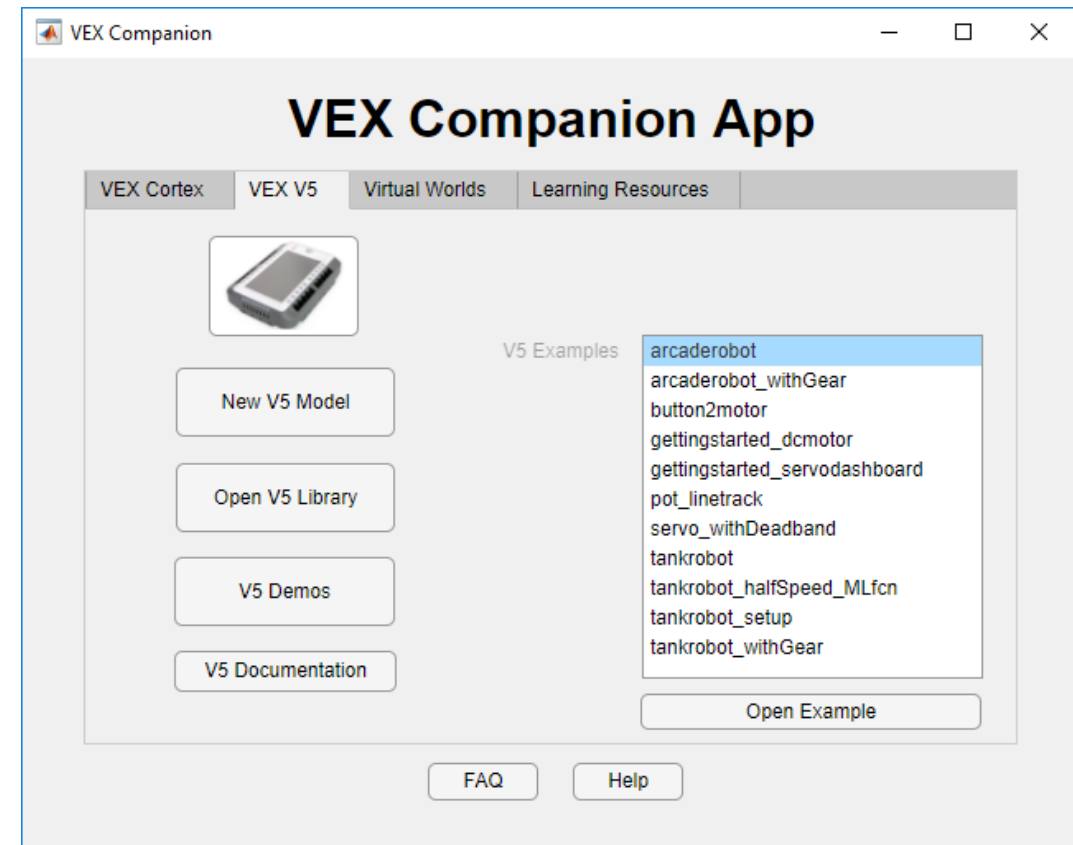
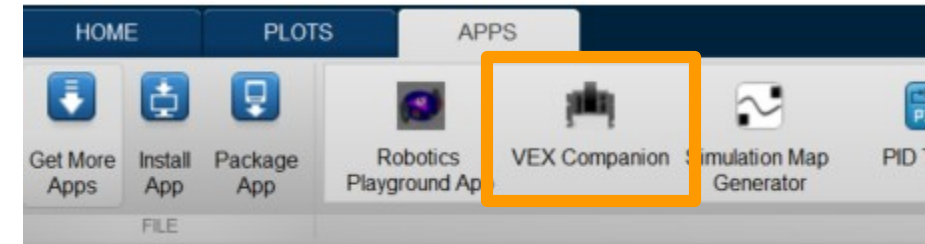


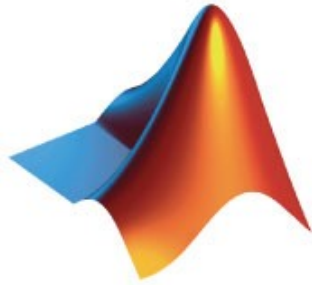
– Single Button Motor Control



VEX Companion App

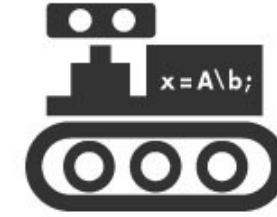
- All Resources in one place
- Install after support package installation
- Extensive list of examples






MATLAB and Simulink

Primary and Secondary School Competitions Hub



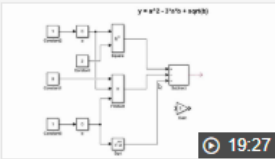
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5:29



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3:30



MATLAB and Simulink PASS Competitions Hub: Path Navigation Using the VEX Robotics Motor Encoders

30:19

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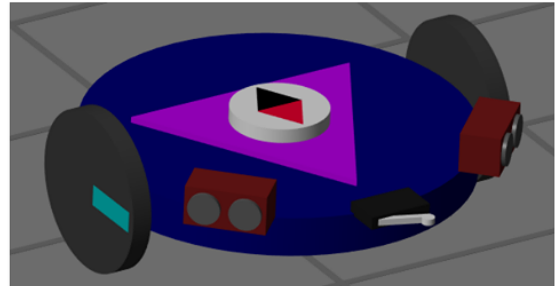
 **José Nicolás Avendaño** shared a link. 20 hrs

Want to learn how to program robots but don't have one yet?

Try our Robotics Playground. This library contains free Simulink virtual environments that will help you get started programming mobile robots. If you participate in a student competition you can already install it and try it out using your complimentary MATLAB license.

<https://www.mathworks.com/.../filee.../67157-robotics-playground...>

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Robotics Playground - File Exchange - MATLAB Central

Simulink virtual environments designed to aid in the teaching of basic concepts in mobile robotics

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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

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