Evaluation kit for education on motor control and control systems

Features

- Rotary inverted pendulum kit for education
- Included stepper motor and quadrature rotary encoder
- Low cost and easy to assemble interlocking acrylic frame
- Included power supply (100-240 V): 12 V, 1 A
- Based on the NUCLEO-F401RE development board
- X-NUCLEO-IHM01A1 expansion board with L6474PD microstepping motor driver
- Open source educational material available

Description

The STEVAL-EDUKIT01 is designed to represent a complex, non-linear and unstable oscillator for university-level robotics projects. It consists of a transparent structure holding a free-swinging pendulum, whose movement has to be stabilized by a stepper motor with feedback from a high performance rotary encoder reading the pendulum angle.

The STSW-EDUKIT01 firmware includes critical, high-speed algorithms that interpret encoder data and allow the stepper motor to counter the movement of the pendulum so that it remains vertical.

The educational set, with real-time Matlab viewer and interface, helps you build your understanding of ARM-based embedded architecture (STM32CubeIDE), stepper motor control and real-time systems based on proportional, integral, derivative (PID) control, as well as more advanced techniques such as State Space or State Space with linear quadratic regulator (LQR).

A further set of open source tutorials and training material is at your complete disposal at www.st.com/motorcontrol-edu.

Product summary

Product summary	
Evaluation kit for education on motor control and control systems	STEVAL-EDUKIT01
Firmware for STEVAL-EDUKIT01	STSW-EDUKIT01
Stepper motor driver expansion board based on L6474 for STM32 Nucleo	X-NUCLEO-IHM01A1
STM32 Nucleo-64 development board with STM32F401RE MCU	NUCLEO-F401RE
Applications	Factory Automation Industrial Motor Control

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For further information contact your local STMicroelectronics sales office.

www.st.com

Revision history

Table 1. Document revision history

Date	Version	Changes
04-Mar-2020	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY