

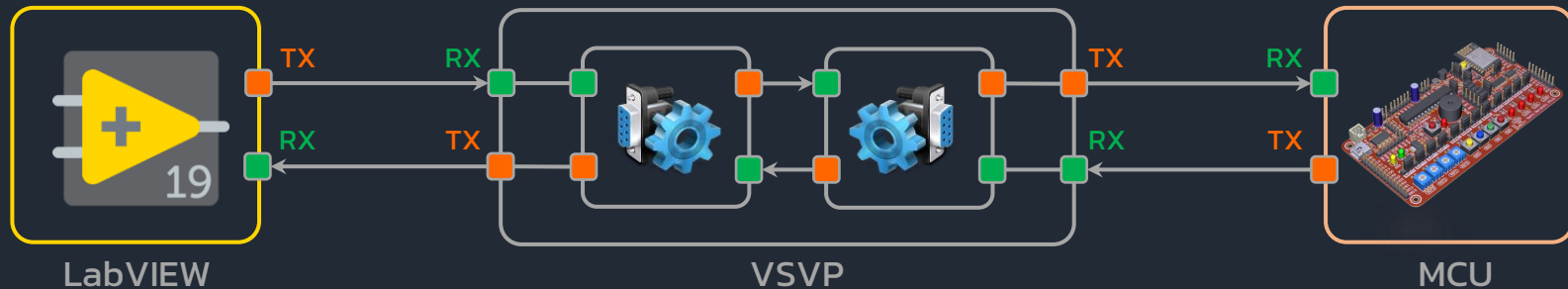
INC352
2020

INC352 (Part #2)

LabVIEW for Automation Systems

Lec-Lab-1

Getting Started with LabVIEW



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In the first half of our class, we already learned the [Embedded Systems](#) and [Embedded C Programming](#). We can build many microcontroller-based control and monitoring applications including the three main topics:

- Digital and Analog inputs/outputs manipulation
- Event-driven and multitasking concepts and programming techniques
- Serial port communication, the microcontroller and computer co-operation

In this second half of our class, we will learn how to build some industrial control and monitoring systems using [LabVIEW](#), a powerful tool for automation systems. The LabVIEW interfaces to the microcontroller via the [serial port using UART protocol](#). The serial port communication is the principle of Modbus (RS485), the classical machine-to-machine communication used in the industrial systems.

This section is divided into three main topics:

- LabVIEW Programming
- LabVIEW and Microcontroller Interfacing
- Industrial Protocols Design and Implementation

Impotent Note:

All software tools used in this class (and other software tools used in industrial) must be [Run as administrator](#) (Right-click and choose the Run as administrator) to be sure they work as expected.

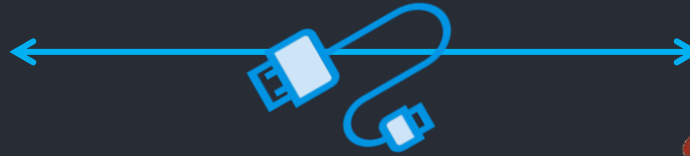
System Overview

LabVIEW Application



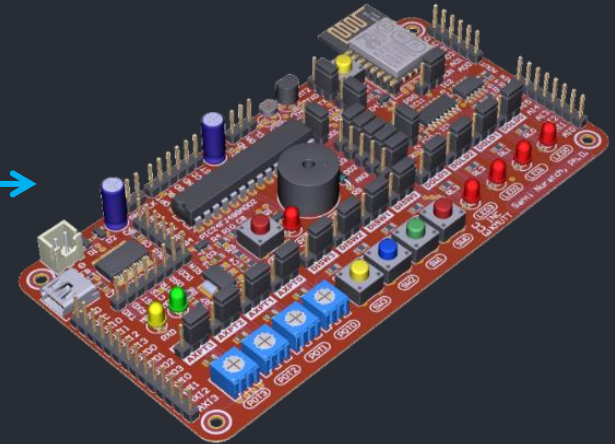
Build your industrial-based control and monitoring applications using LabVIEW (some special libraries will be provided)

USB Cable



LabVIEW and Microcontroller exchange their data through USB cable (USB-to-UART)

Microcontroller

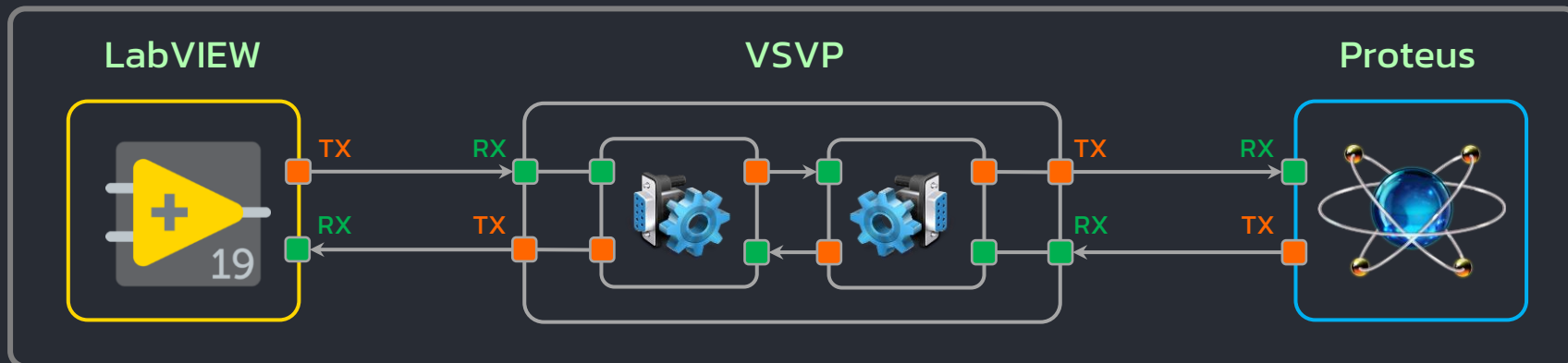


The MCU is programmed to execute commands received from the LabVIEW application

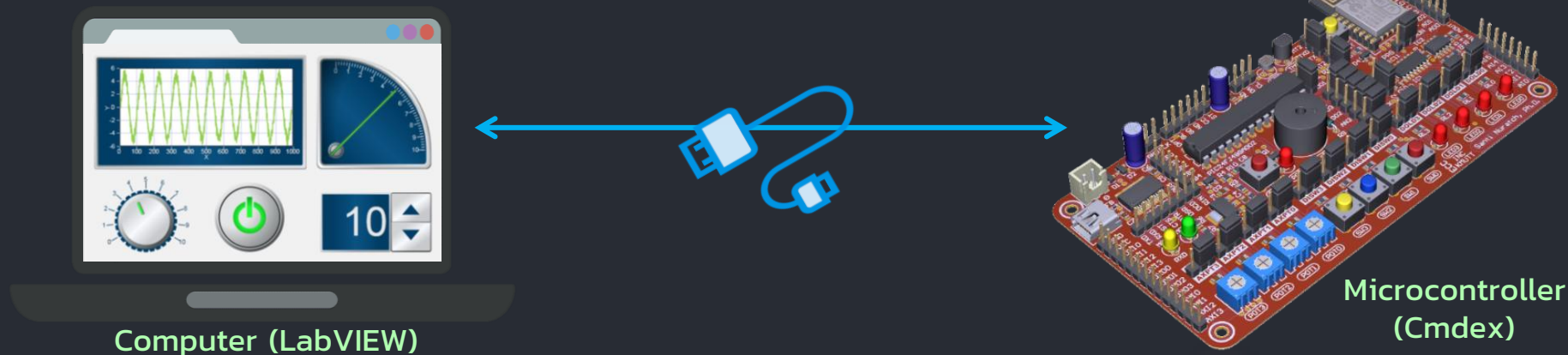
Development Environment

For the **development** environment, all components are on your computer.

Computer



For the **real-world** application, the LabVIEW and the MCU exchange their data over the serial port.



Getting Started with LabVIEW



The 32-bit version of LabVIEW 2019 is recommended in this class

www.ni.com/en-th/shop/labview.html

What Is LabVIEW?

LabVIEW is systems engineering software for applications that require test, measurement, and control with rapid access to hardware and data insights.

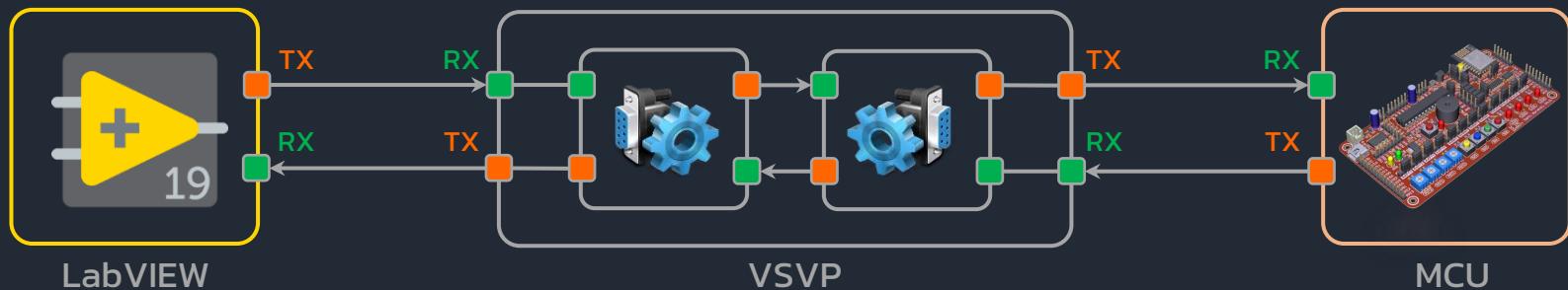
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THANK YOU!



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