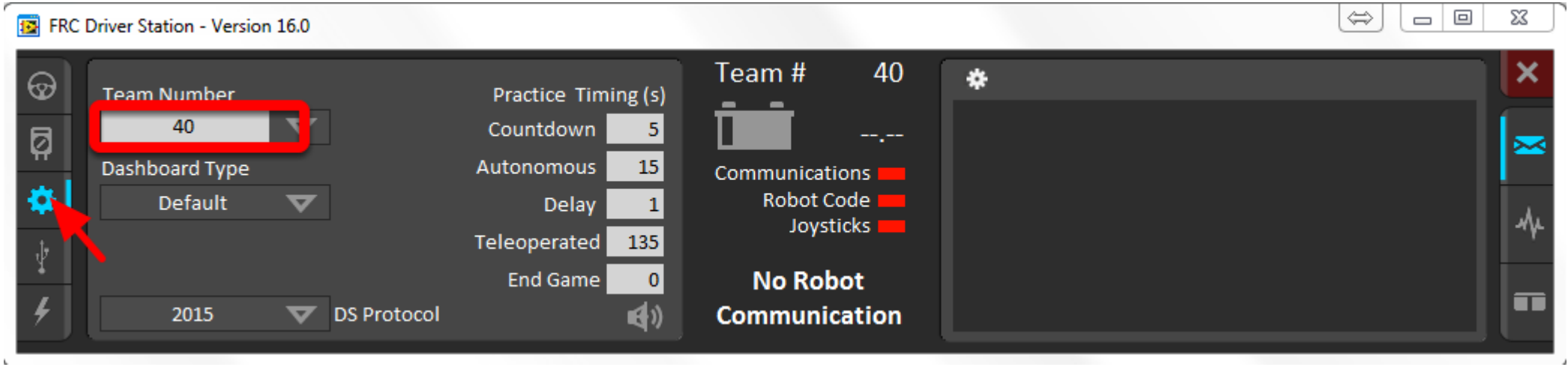
Team 302
Year 1 - WPILIbTraining

Topics

- Drivers Station
- WPILib
  - CANTalon
  - JoyStick
  - DigitalInput
  - AnalogInput

Drivers Station



- https://wpilib.screenstepslive.com/s/4485/m/24192/l/144976-frc-driver-station-powered-by-ni-labview

Robot Code Architecture

- Initialization Routines (run once when that portion is activated)
  - RobotInit
  - AutonomousInit
  - TeleopInit
  - TestInit
  - DisabledInit

Robot Code Architecture

- Periodic Routines (runs approximately every 20 milliseconds)
  - AutonomousPeriodic
  - TeleopPeriodic
  - TestPeriodic
  - DisabledPeriodic

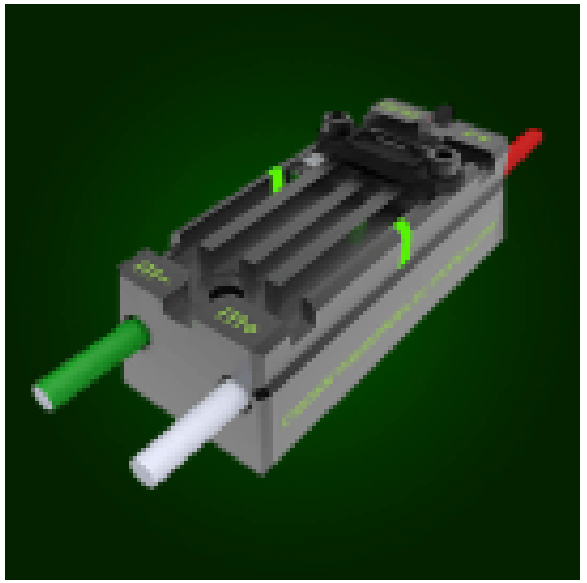
WPILIB

- This is a library provided by FIRST that has classes to interact with the hardware.

- http://first.wpi.edu/FRC/roborio/release/docs/cpp/

WPILIB - CANTalon

- http://first.wpi.edu/FRC/roborio/release/docs/cpp/classCANTalon.html



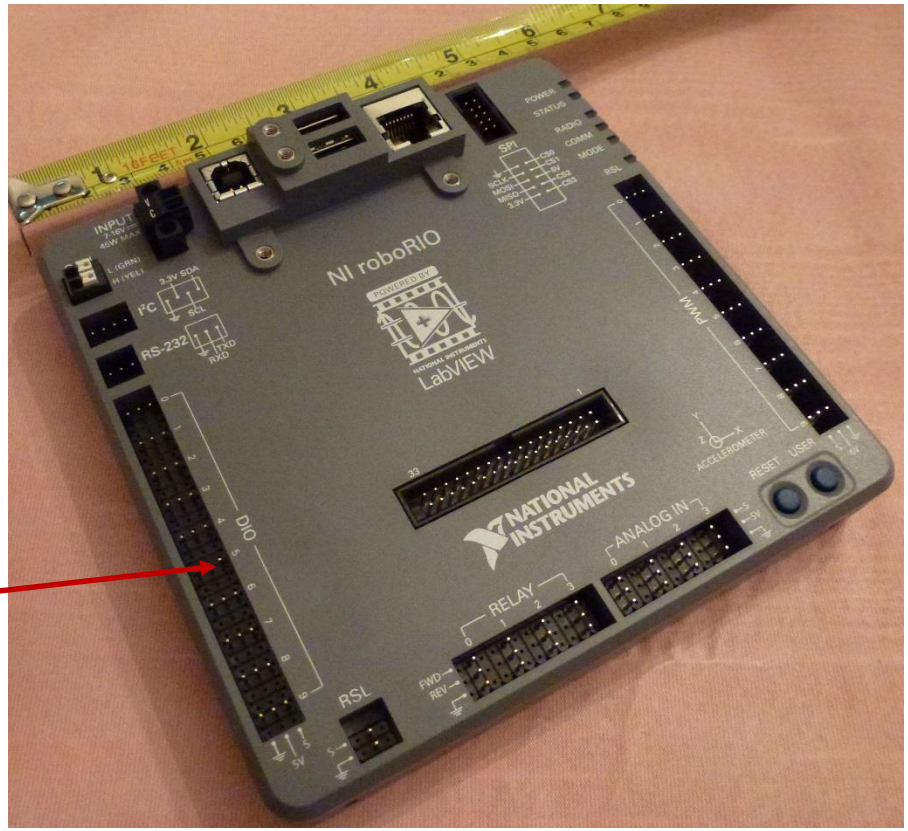
- CANTalon (int deviceNumber)
- Void Set(float value)
- Void ConfigNeutralMode(NeutralMode mode)
  - kNeutralMode_Brake or kNeutralMode_Coast are most common

Activity

- Open Notepad++ from the thumb drive and then open from the thumbdrive, Year1WPILIb\Project\Robot.cpp
- Do the first two items:
  - Make Wheels Turn
  - Make Wheels turn for a certain amount of time
  - As you finish put your name on the signup sheet and when it is your turn we will deploy to the robot for testing.

WPILIB - DigitalInput

- http://first.wpi.edu/FRC/roborio/release/docs/cpp/classDigitalInput.html
  - DigitalInput(uint32_t channel)
  - Bool Get () const

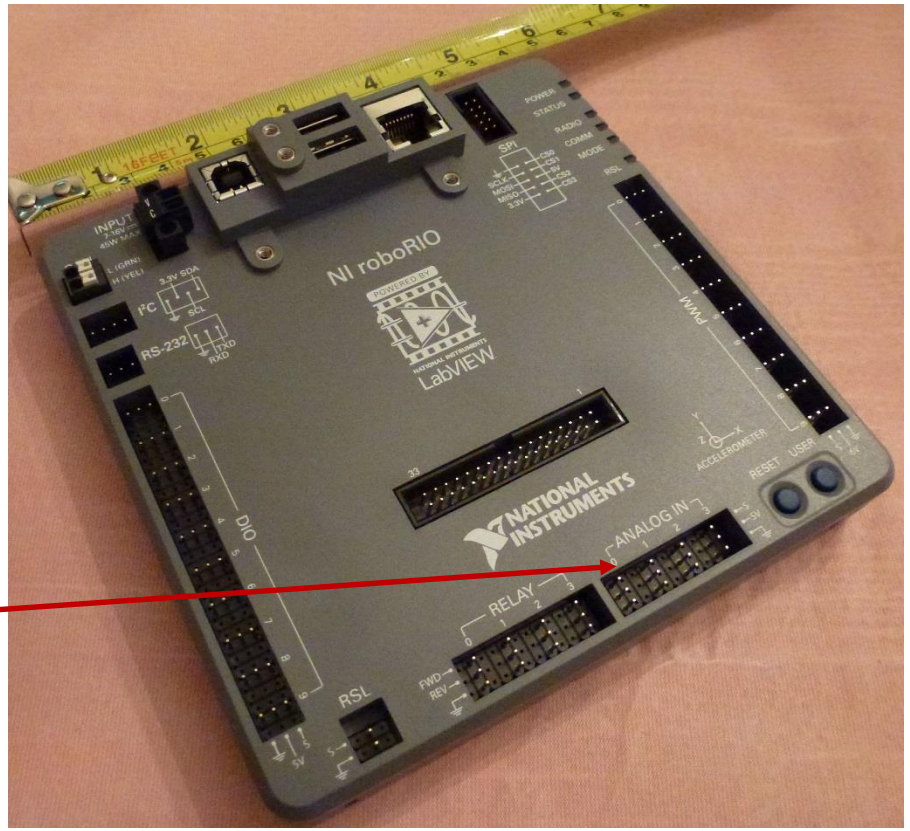


Activity

- Open Notepad++ from the thumb drive and then open from the thumbdrive, Year1WPILIb\Project\Robot.cpp
- Do the next item:
  - Make Wheels Turn when a digital input is tripped and stop when it isn’t

WPILIB - AnalogInput

- http://first.wpi.edu/FRC/roborio/release/docs/cpp/classAnalogInput.html
  - AnalogInput (uint32_t channel)
  - Float GetVoltage() const

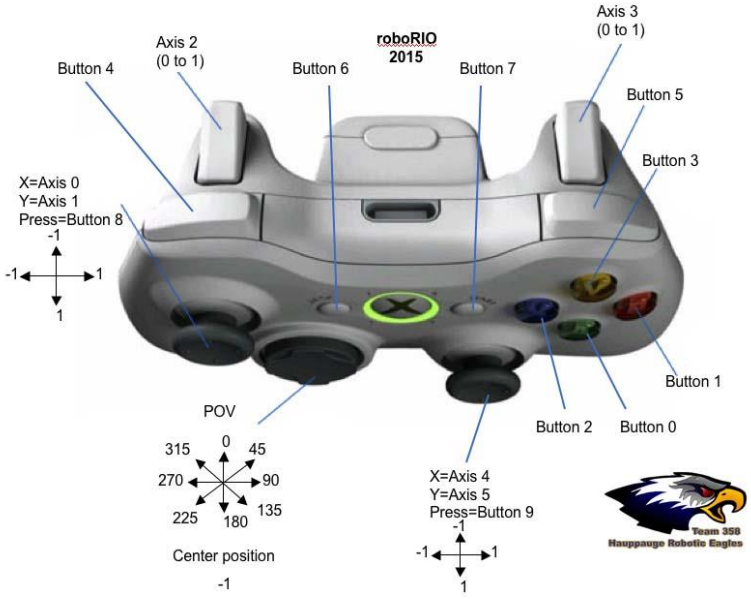


Activity

- Open Notepad++ from the thumb drive and then open from the thumbdrive, Year1WPILIb\Project\Robot.cpp
- Do the next item:
  - Make Wheels Turn based on an analog input

WPILIB - Joystick

- http://first.wpi.edu/FRC/roborio/release/docs/cpp/classJoystick.html
  - Joystick(uint32_t port)
  - Float GetRawAxis(unit32_t axis) const
  - Bool GetRawButton(unit32_t button) const



Activity

- Open Notepad++ from the thumb drive and then open from the thumbdrive, Year1WPILIb\Project\Robot.cpp
- Do the next two items:
  - Make Wheels Turn based on joystick inputs (tank drive)
  - Make Wheels Turn based on joystick inputs (arcade drive)