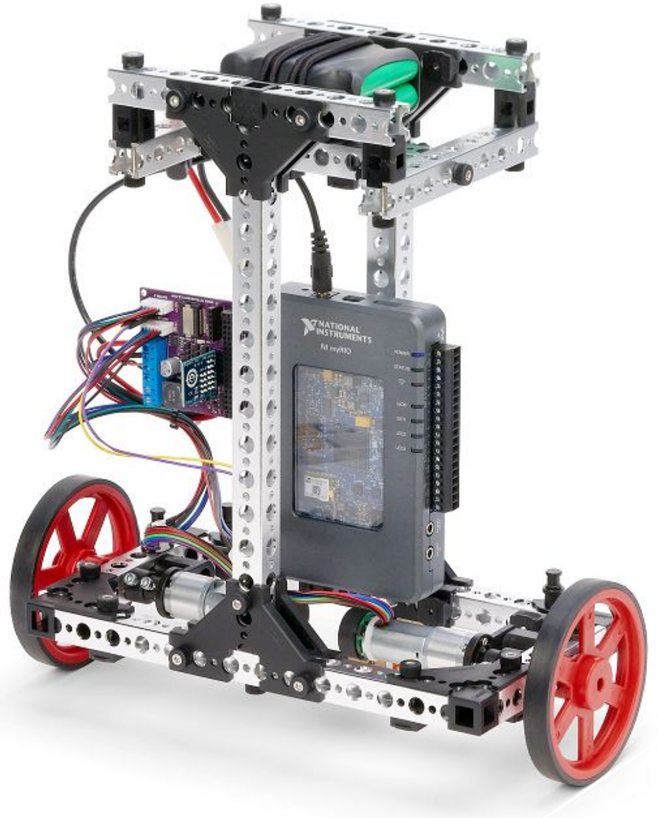
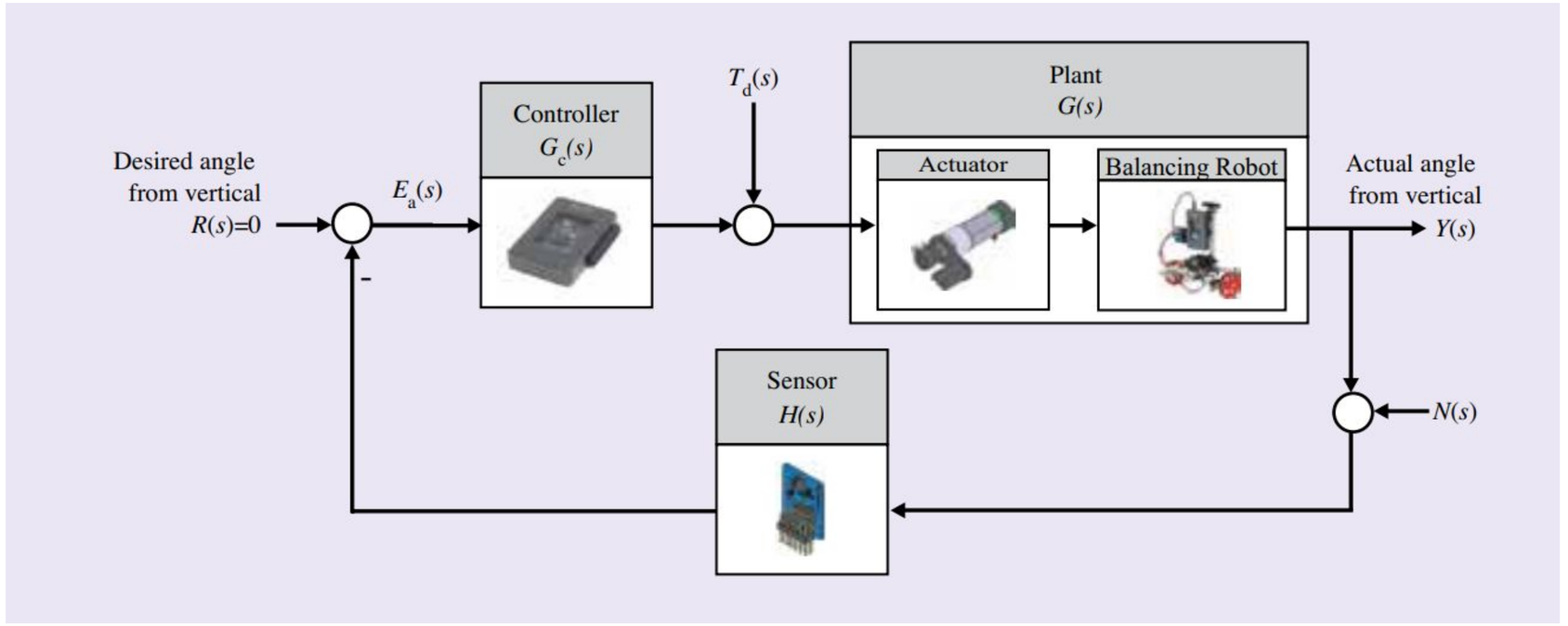
MICROPROCESSOR AND MICROCONTROLLER

ASSIGNMENT PRESENTATION

SELF BALANCING ROBOT



Working



Plant	Self-balancing robot
Sensor	Accelerometer, gyroscope, and encoder sensors
Actuator	DC servo motors
Performance	Robust stability, disturbance rejection, and measurement noise attenuation
Design objectives	Tune the control system by adjusting PD gain constants & stabilize the robot at the vertical
Reference inputs	Regulation to zero angle (vertical pose)

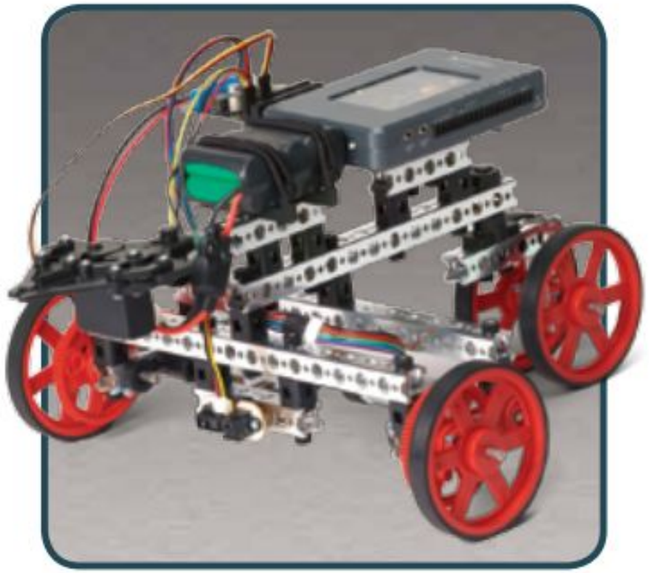
Robot assembling

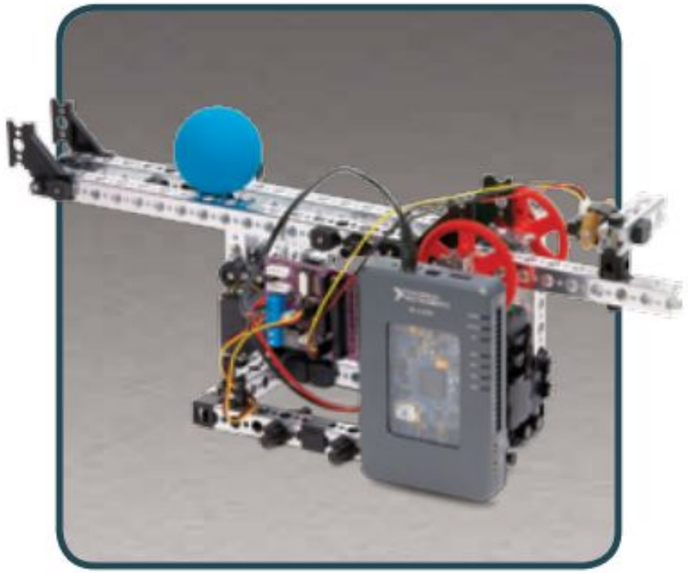
PITSCO

TETRIX® PRIME

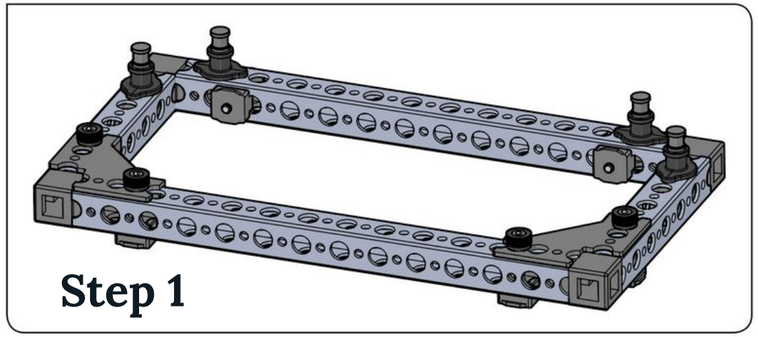
Robot Builder's Guide

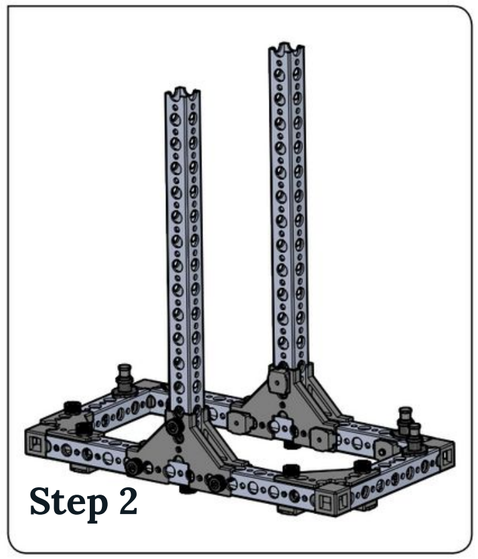
for NI myRIO

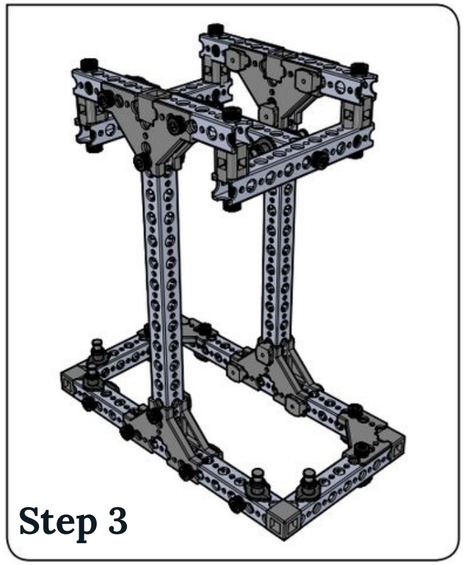


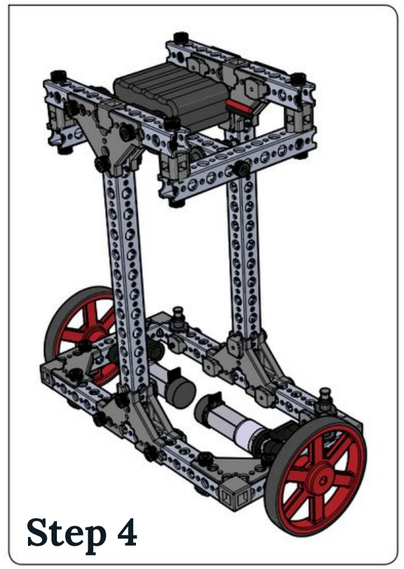


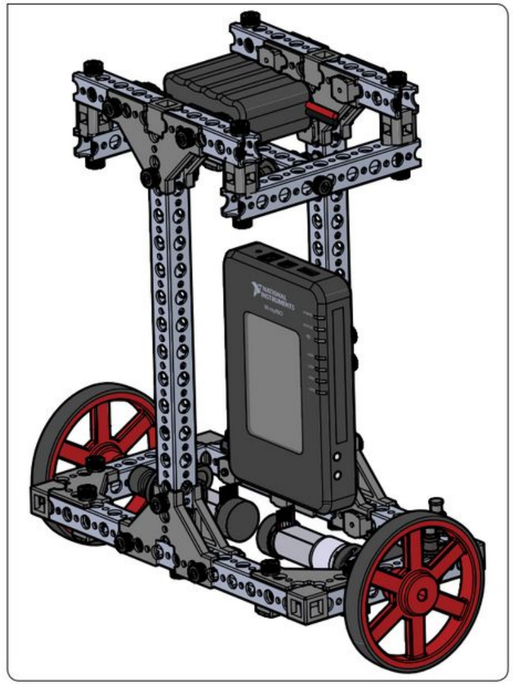
Robot assembling

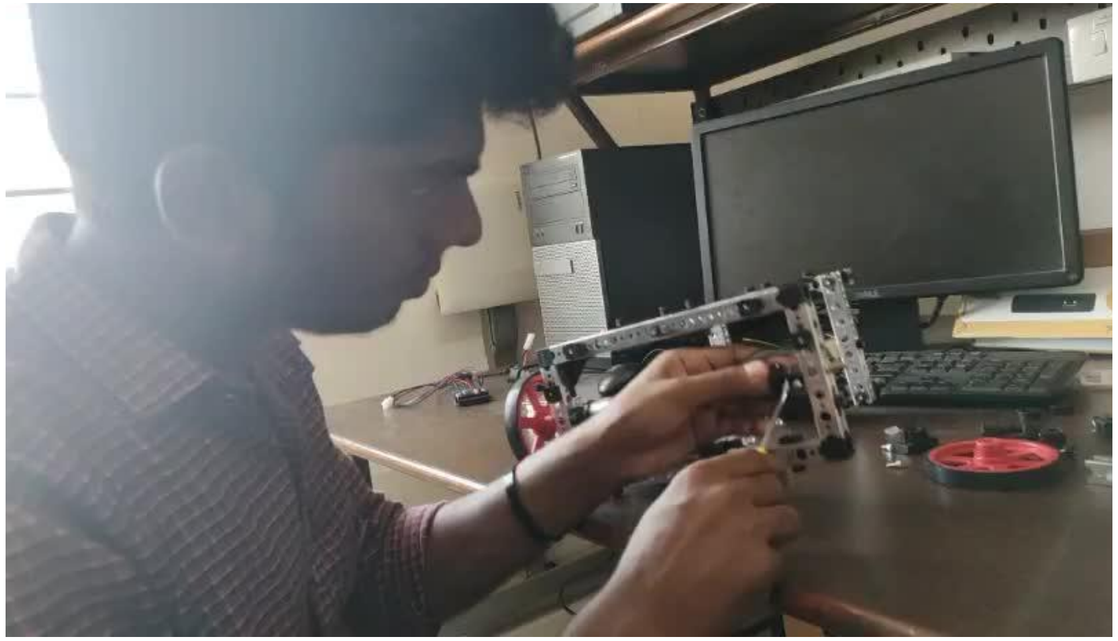




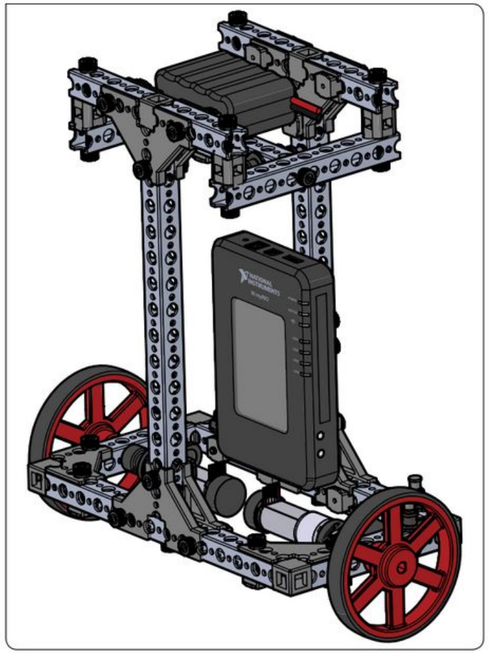


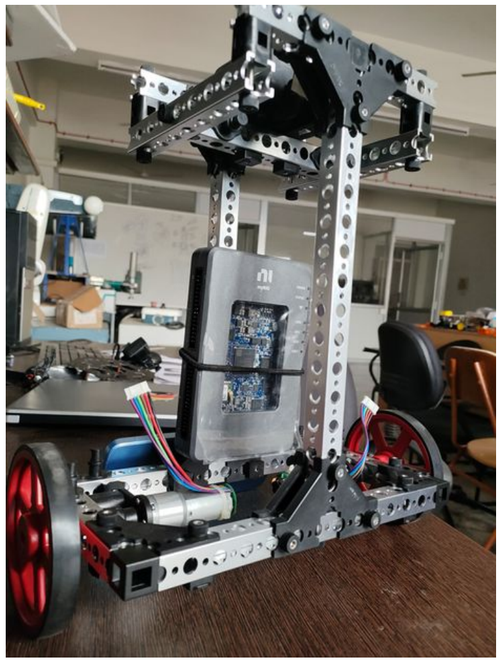


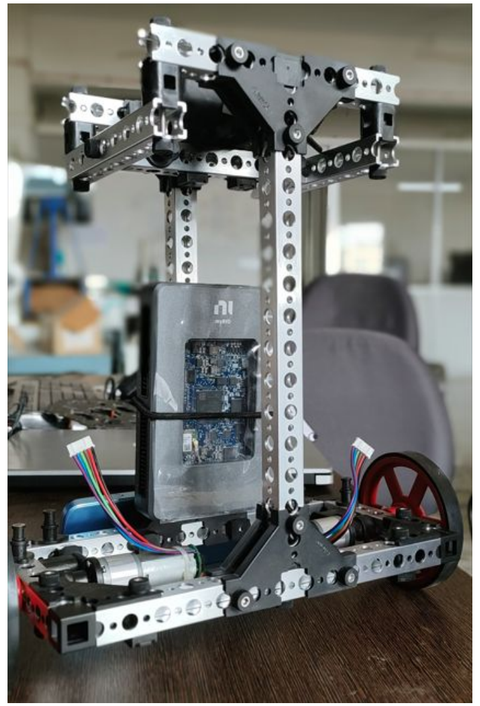


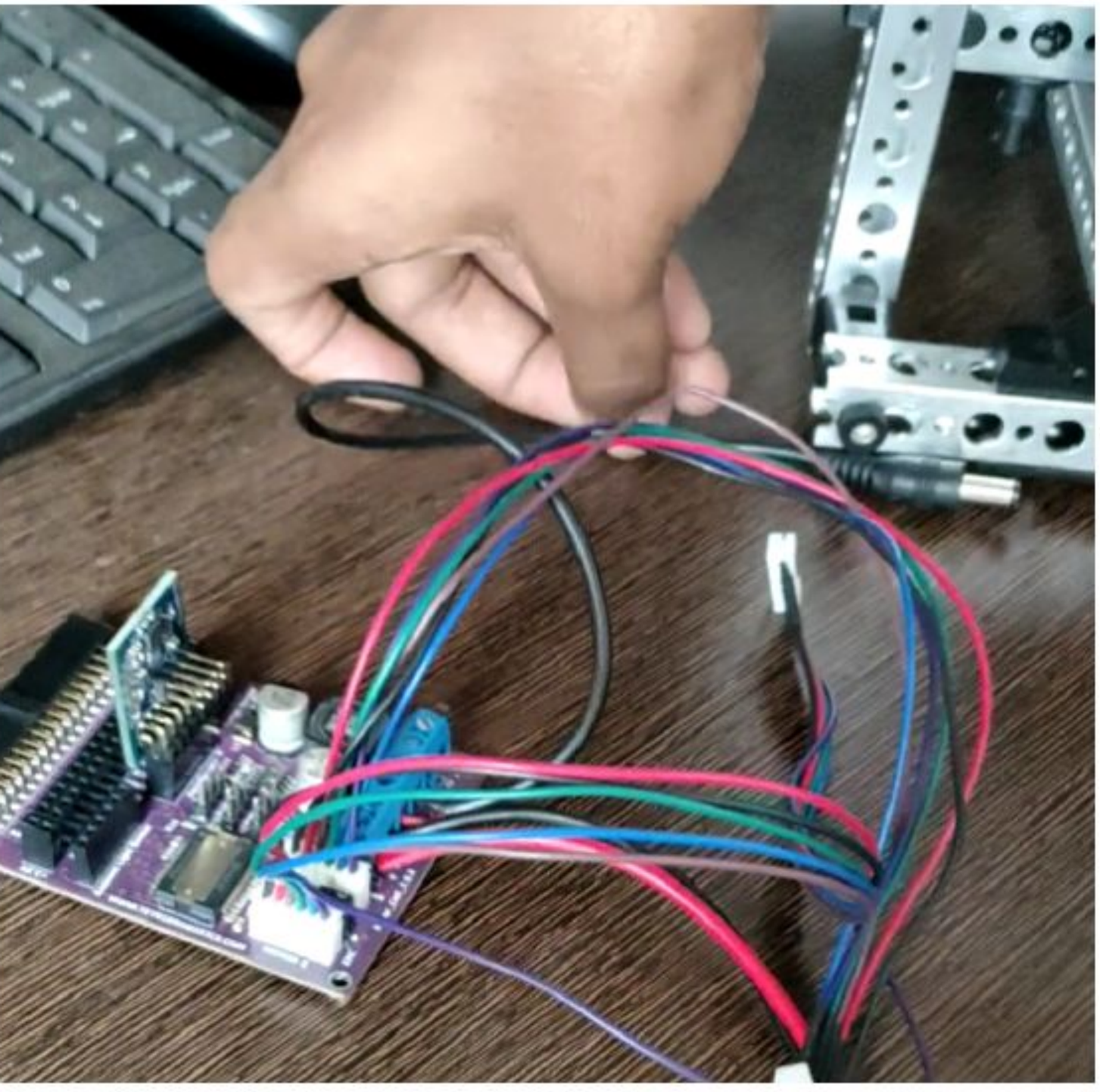


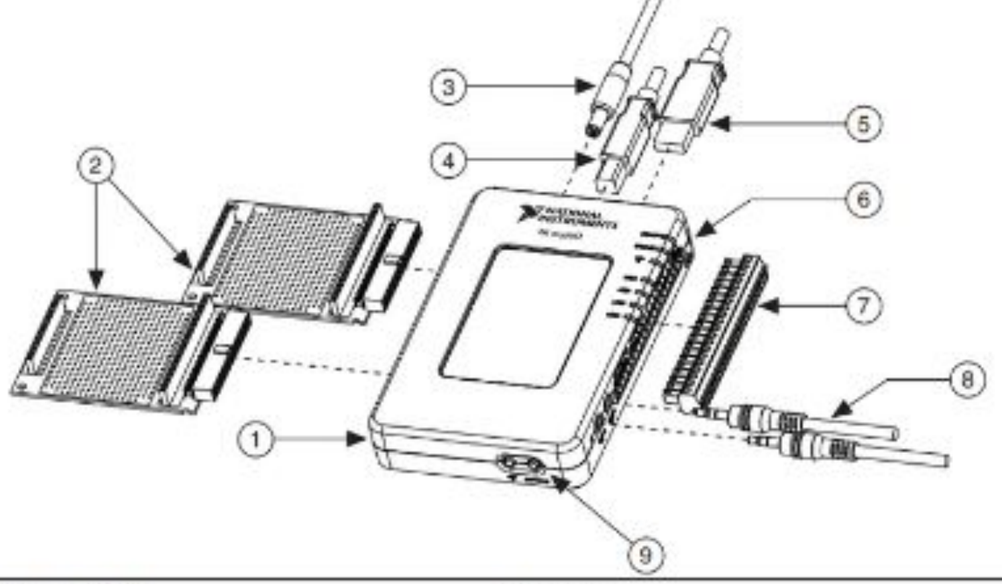
Finished assembly



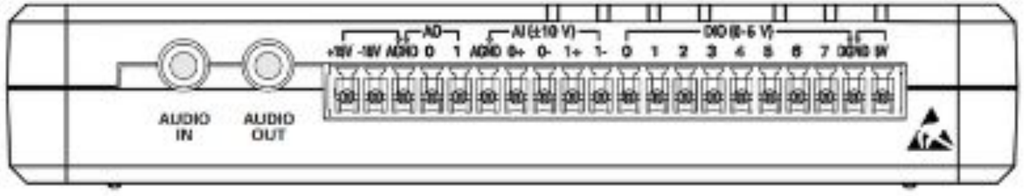


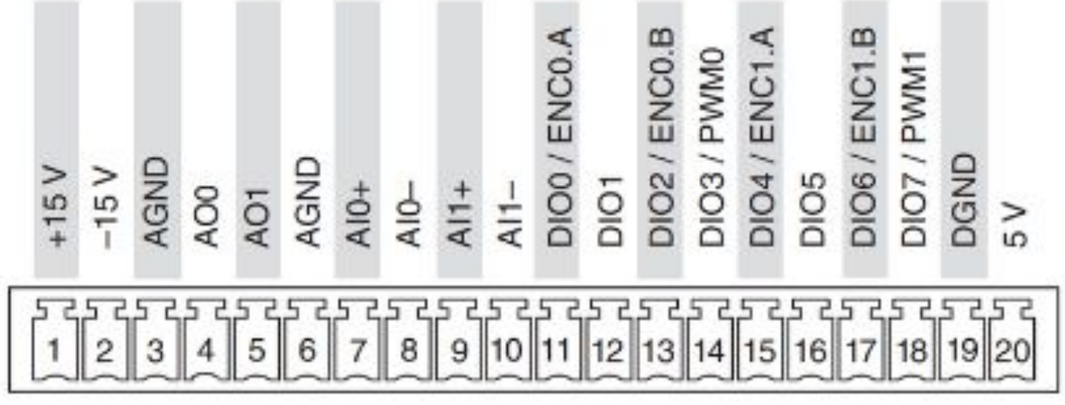






1 NI myRIO-1900
2 myRIO Expansion Port (MXP) Breakouts (One Included in Kit)
3 Power Input Cable
4 USB Device Cable
5 USB Host Cable (Not Included in Kit)
6 LEDs
7 Mini System Port (MSP) Screw-Terminal Connector
8 Audio In/Out Cables (One Included in Kit)
9 Button0





Setting up Labview Software

myRIO USB Monitor

NI-myRIO-1900-03246ae6

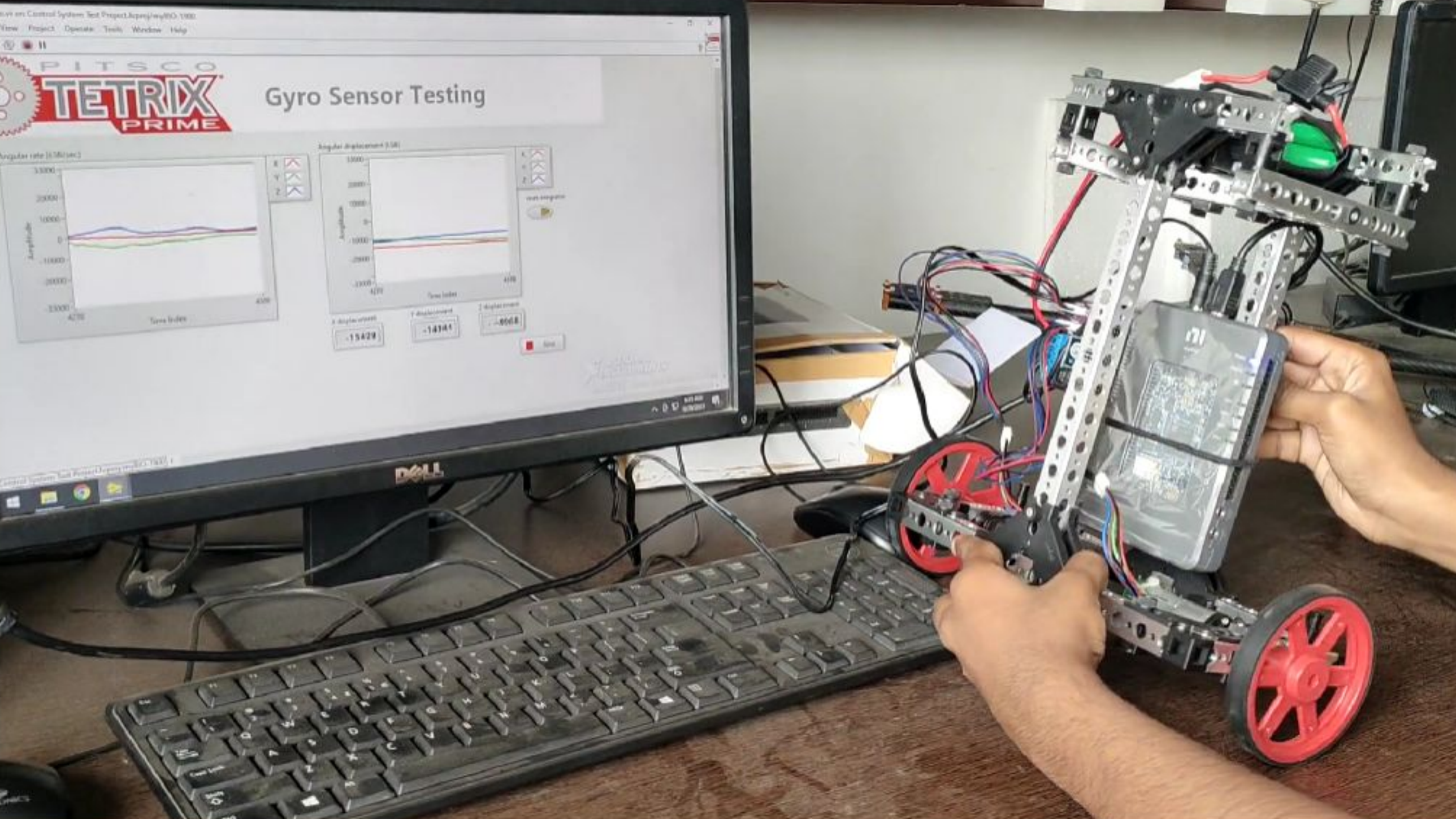
Serial Number: 03246AE6

IP Address: 172.22.11.2

Options

- Launch the Getting Started Wizard
- Go to LabVIEW 2019
- Launch the I/O Monitor
- Configure myRIO
- Do Nothing

GYRO SENSOR TESTING

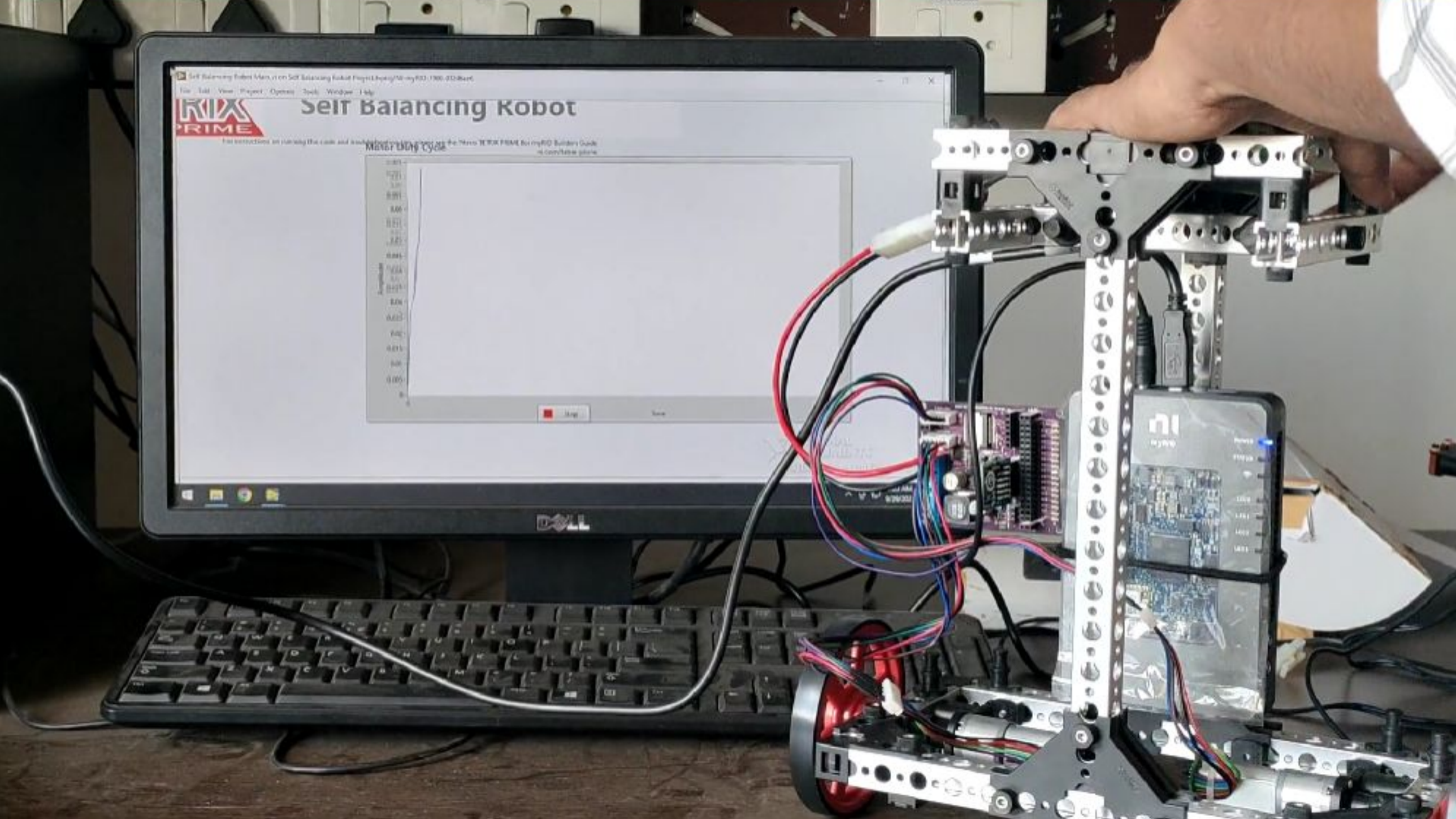

PITSCO
TETRIX
PRIME
Gyro Sensor Testing
-15429
-14141
-8068
DELL

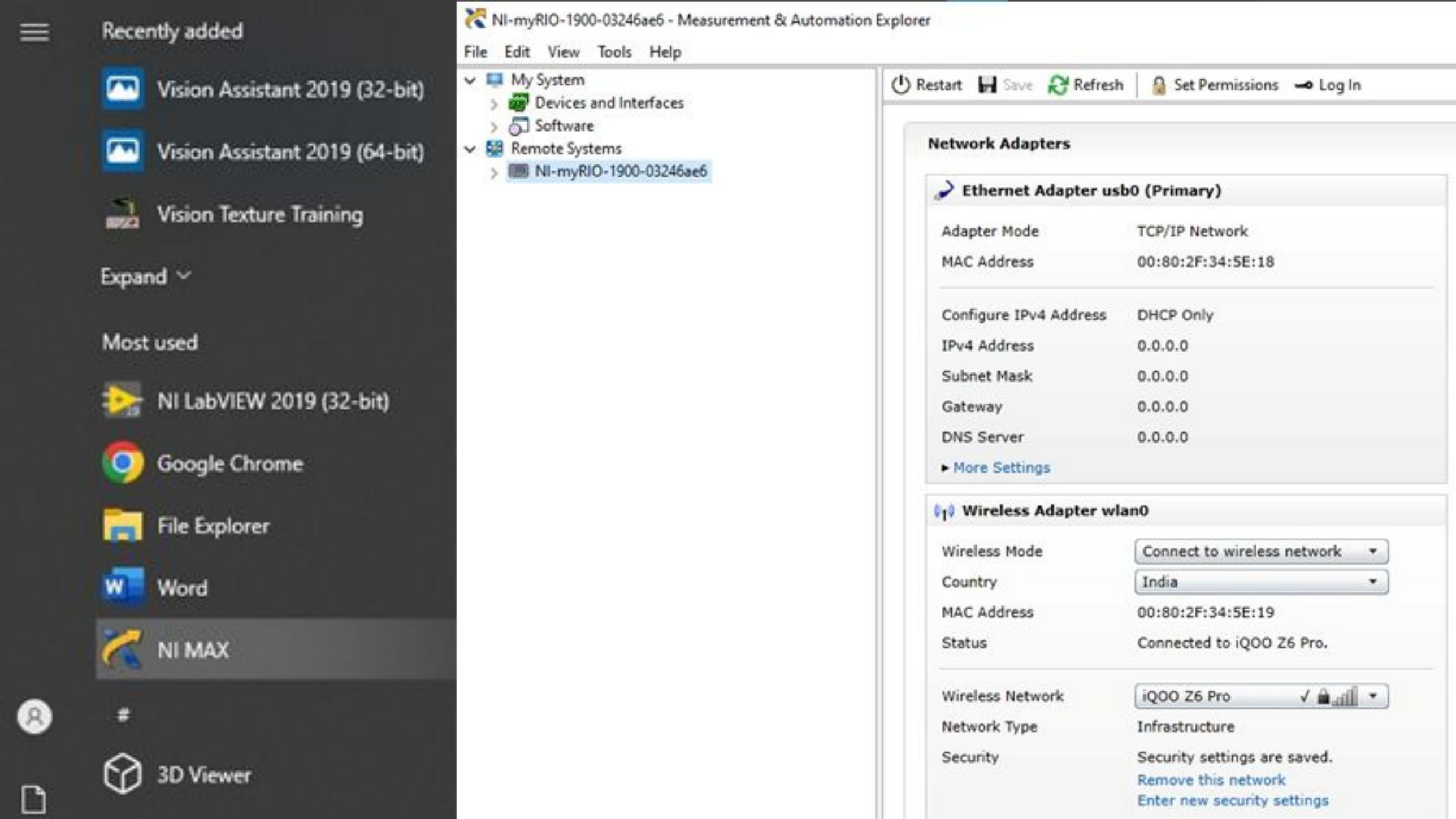
DC MOTOR TESTING


TETRIX
PRIME
MOTOR 1

RUNNING

Self balancing robot MAIN VI


Self Balancing Robot
DELL


Recently added
Vision Assistant 2019 (32-bit)
Vision Assistant 2019 (64-bit)
Vision Texture Training
Expand
Most used
NI LabVIEW 2019 (32-bit)
Google Chrome
File Explorer
Word
NI MAX
3D Viewer
NI-myRIO-1900-03246ae6 - Measurement & Automation Explorer
File Edit View Tools Help
My System
Devices and Interfaces
Software
Remote Systems
NI-myRIO-1900-03246ae6
Restart
Save
Refresh
Set Permissions
Log In
Network Adapters
Ethernet Adapter usb0 (Primary)
Adapter Mode TCP/IP Network
MAC Address 00:80:2F:34:5E:18
Configure IPv4 Address DHCP Only
IPv4 Address 0.0.0.0
Subnet Mask 0.0.0.0
Gateway 0.0.0.0
DNS Server 0.0.0.0
More Settings
Wireless Adapter wlan0
Wireless Mode Connect to wireless network
Country India
MAC Address 00:80:2F:34:5E:19
Status Connected to iQOO Z6 Pro.
Wireless Network iQOO Z6 Pro
Network Type Infrastructure
Security Security settings are saved.
Remove this network
Enter new security settings

THank you !

Done by

21R218 - JAISURYA
21R226 - PRIYADHARSHAN
21R242 - SIVANESAN