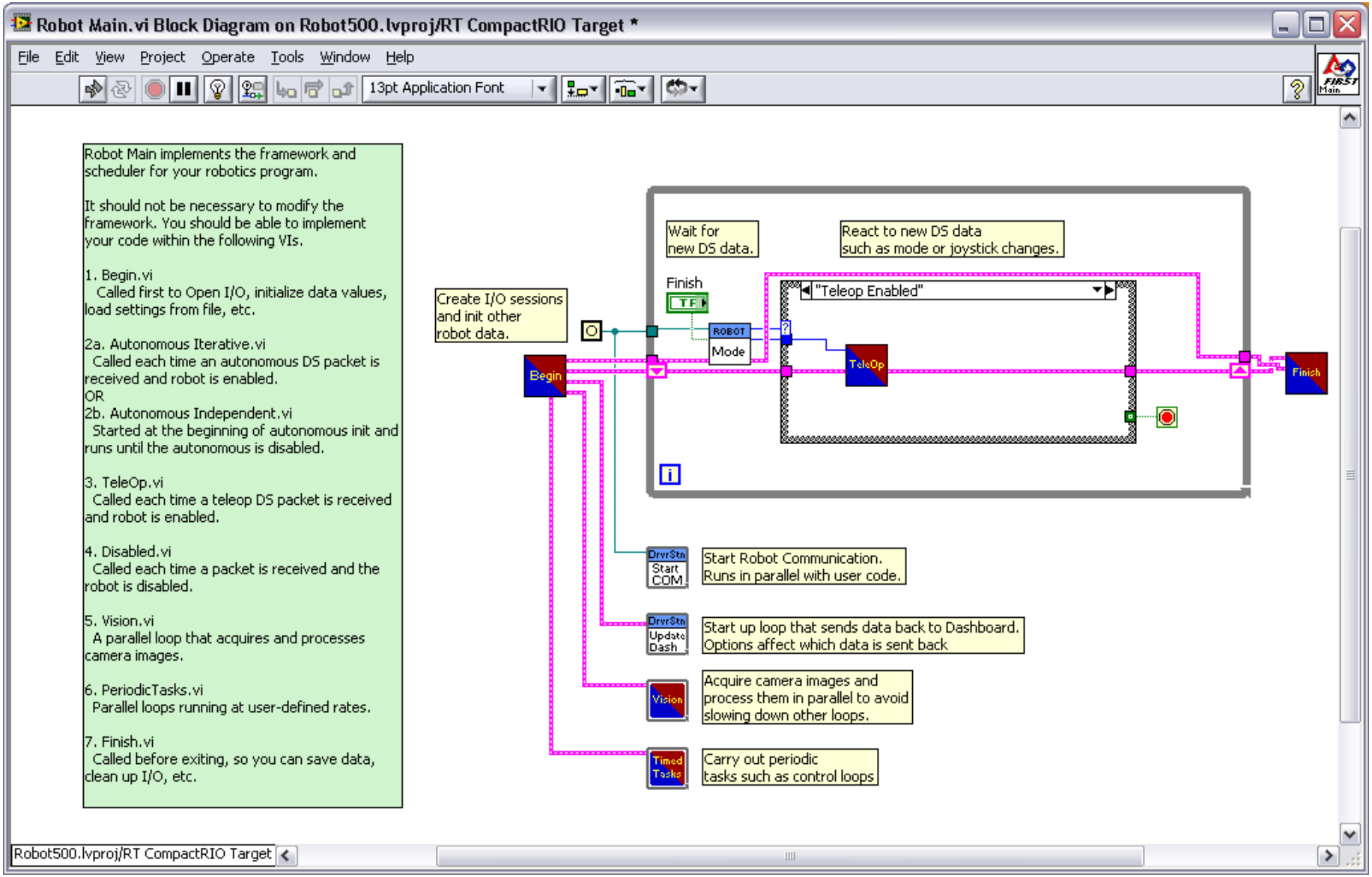
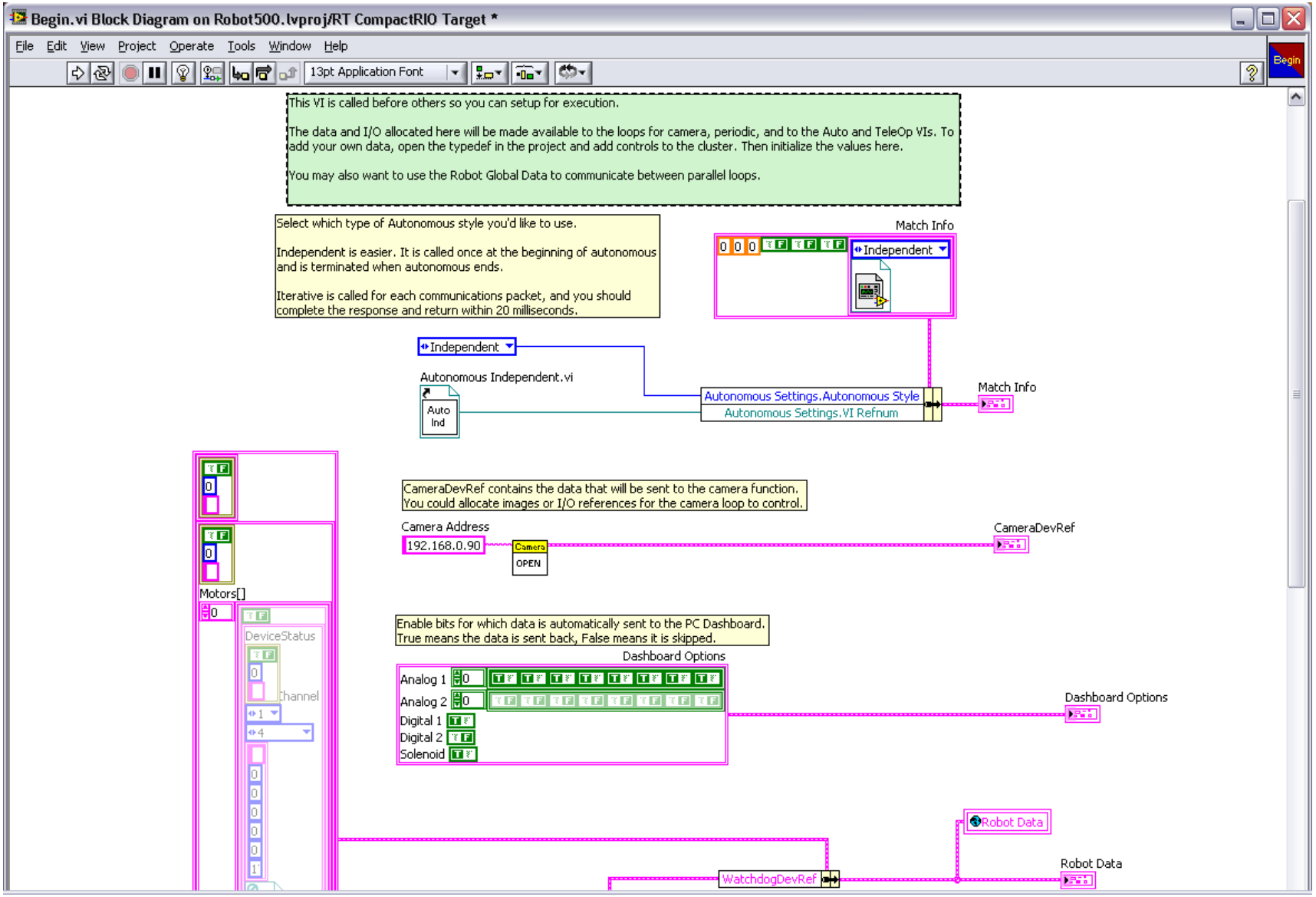
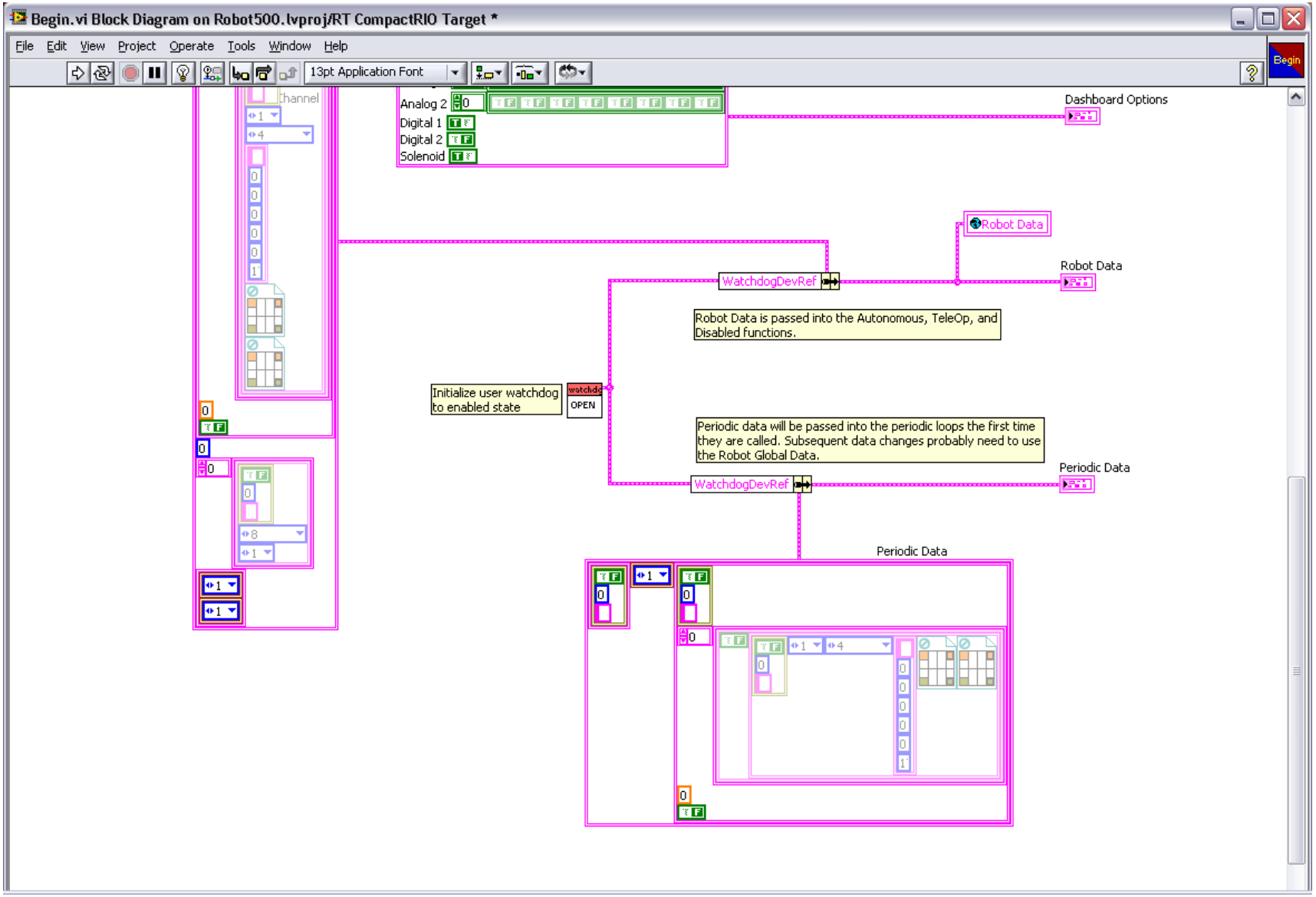
Main Program Loop



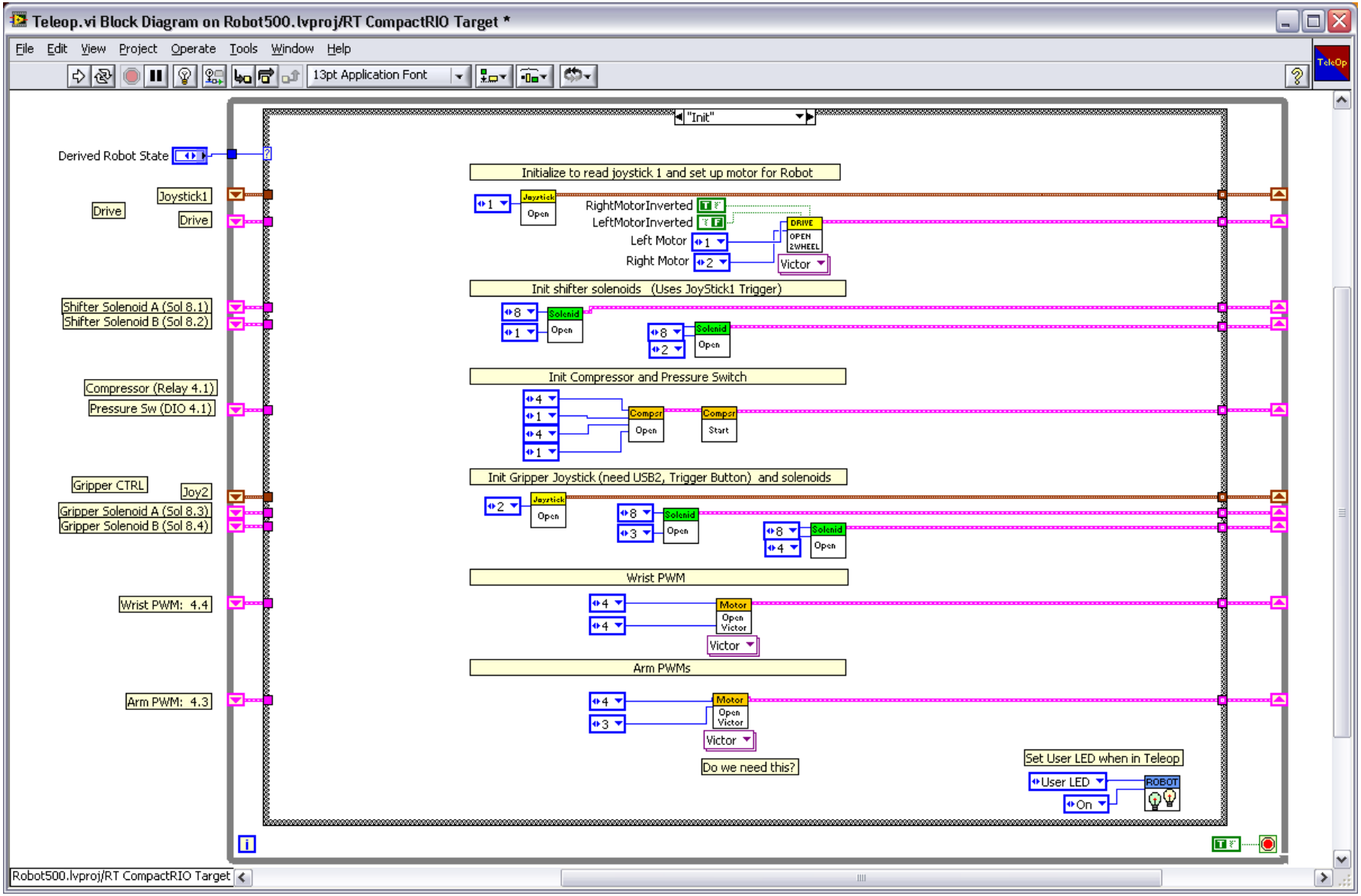
“Begin.VI” part 1:



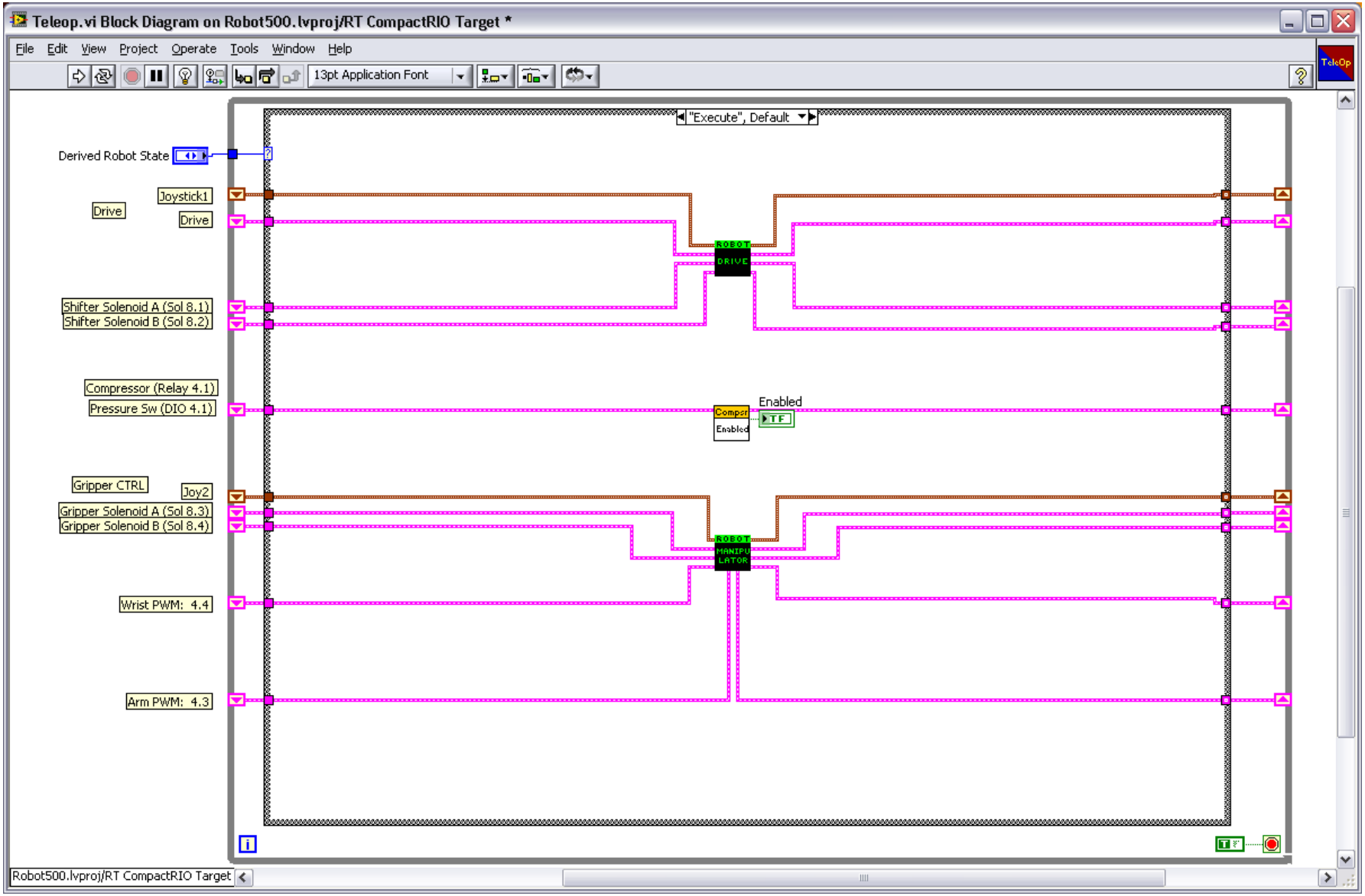
Begin.VI Part 2



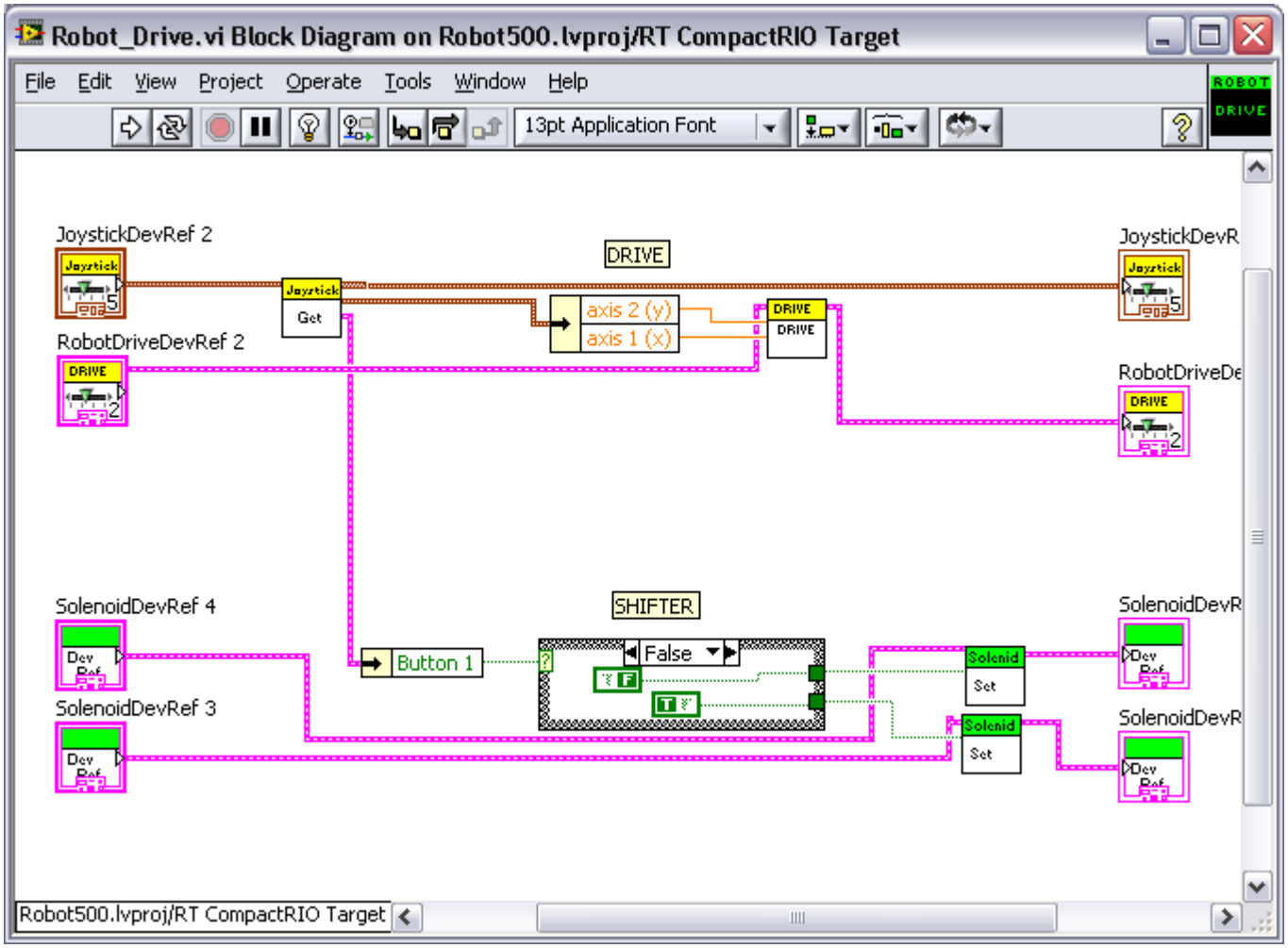
Teleop INIT


Teleop.vi Block Diagram on Robot500.lvproj/RT CompactRIO Target *
File Edit View Project Operate Tools Window Help
13pt Application Font
TeleOp
"Init"
Derived Robot State
Joystick1
Drive
Drive
Shifter Solenoid A (Sol 8.1)
Shifter Solenoid B (Sol 8.2)
Compressor (Relay 4.1)
Pressure Sw (DIO 4.1)
Gripper CTRL
Joy2
Gripper Solenoid A (Sol 8.3)
Gripper Solenoid B (Sol 8.4)
Wrist PWM: 4.4
Arm PWM: 4.3
Initialize to read joystick 1 and set up motor for Robot
Joystick
Open
RightMotorInverted
LeftMotorInverted
Left Motor
Right Motor
DRIVE
OPEN
2WHEEL
Victor
Init shifter solenoids (Uses JoyStick1 Trigger)
Solenid
Open
Init Compressor and Pressure Switch
Compr
Open
Start
Init Gripper Joystick (need USB2, Trigger Button) and solenoids
Wrist PWM
Motor
Open
Victor
Arm PWMs
Do we need this?
Set User LED when in Teleop
User LED
On
ROBOT
Robot500.lvproj/RT CompactRIO Target

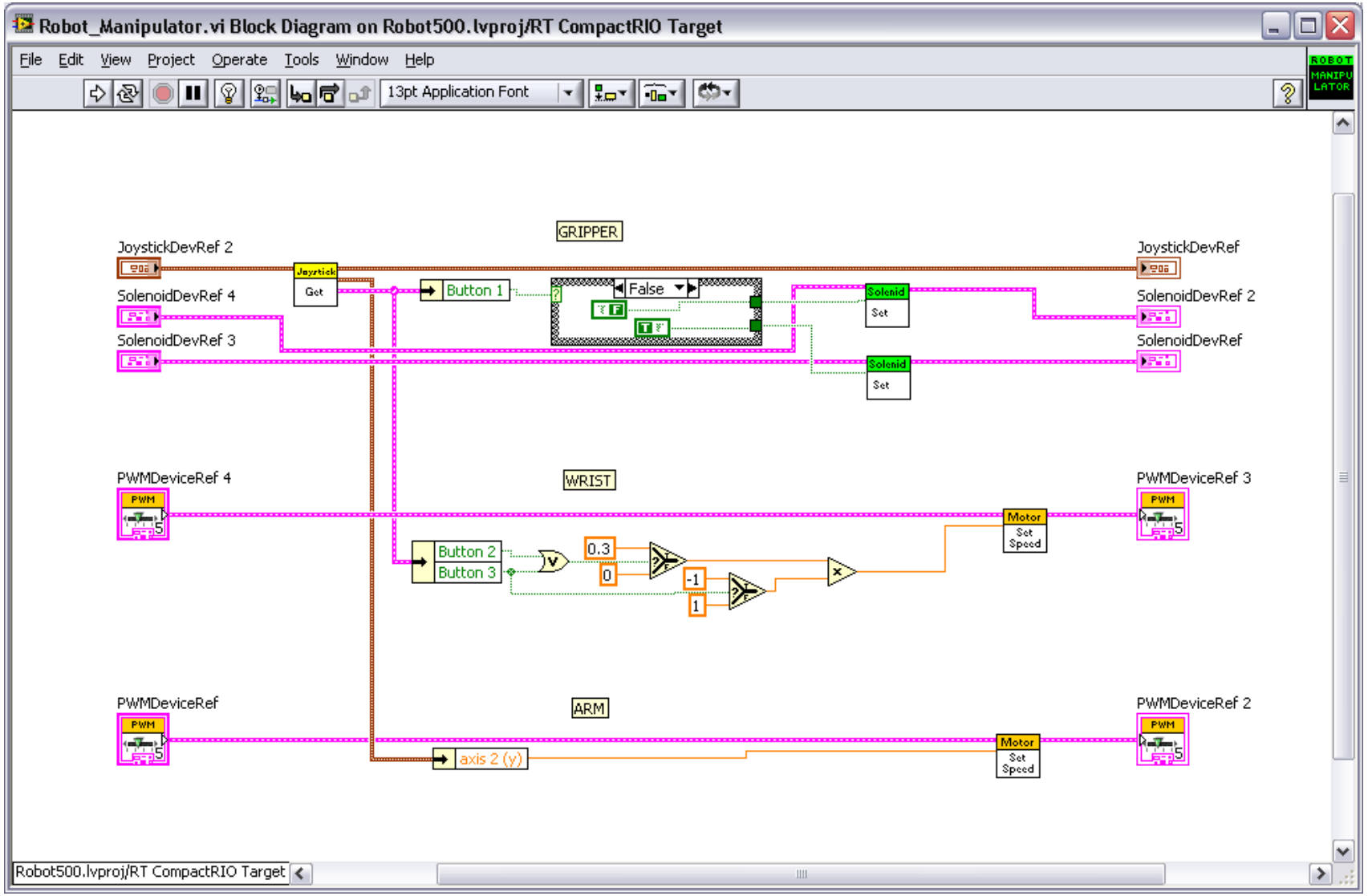
Teleop EXECUTE



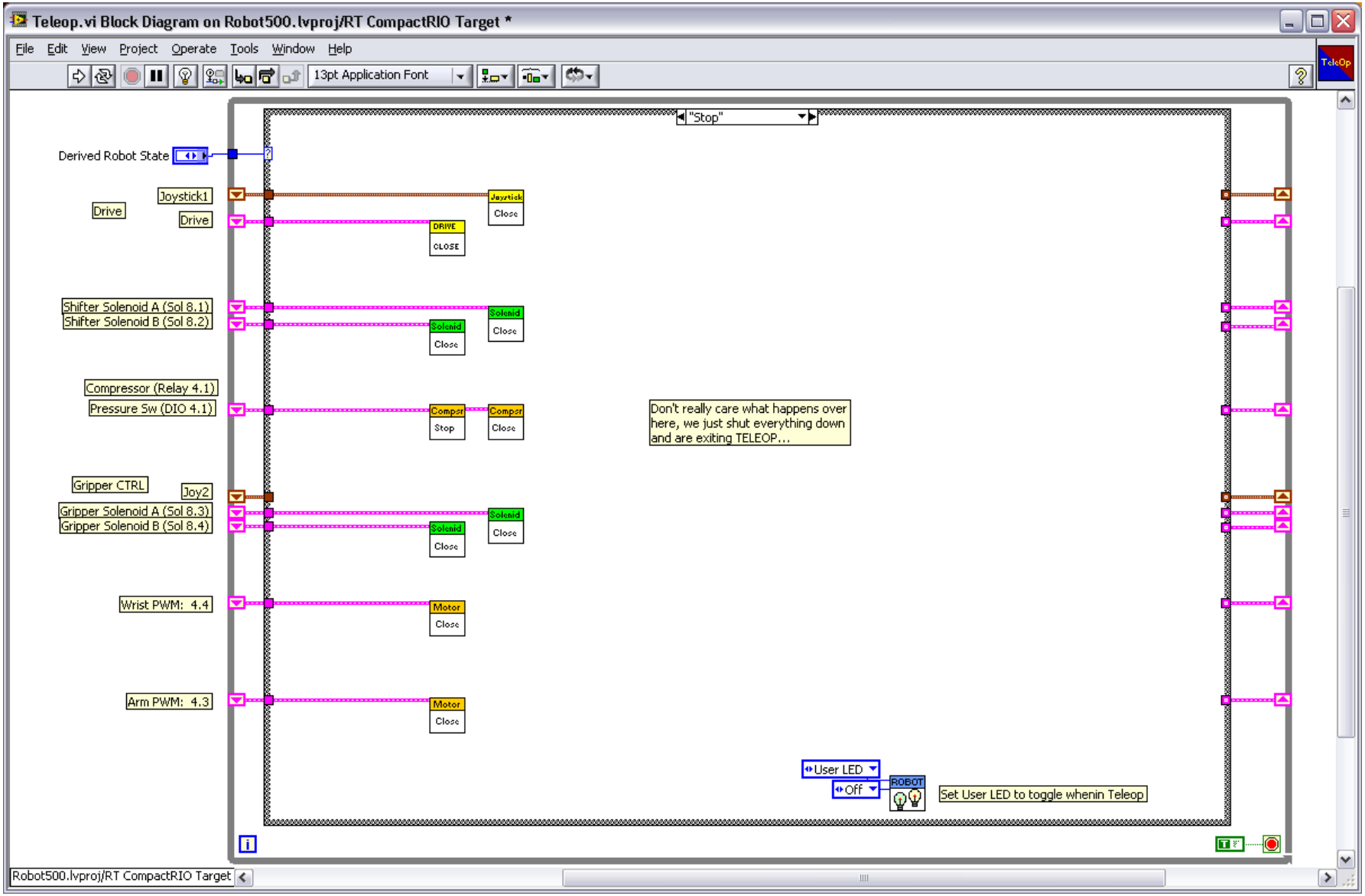
Robot_Drive.VI - This module controls the Motors and shifters. The Joystick Axis control the motor with the Y-Axis being the speed and the X-Axis being the turn rate, the trigger button controls the shifter. If the button is pressed, we apply FALSE and TRUE to the solenoids, else, we apply TRUE and FALSE. That's all it takes to drive the robot with a dual speed gearbox.



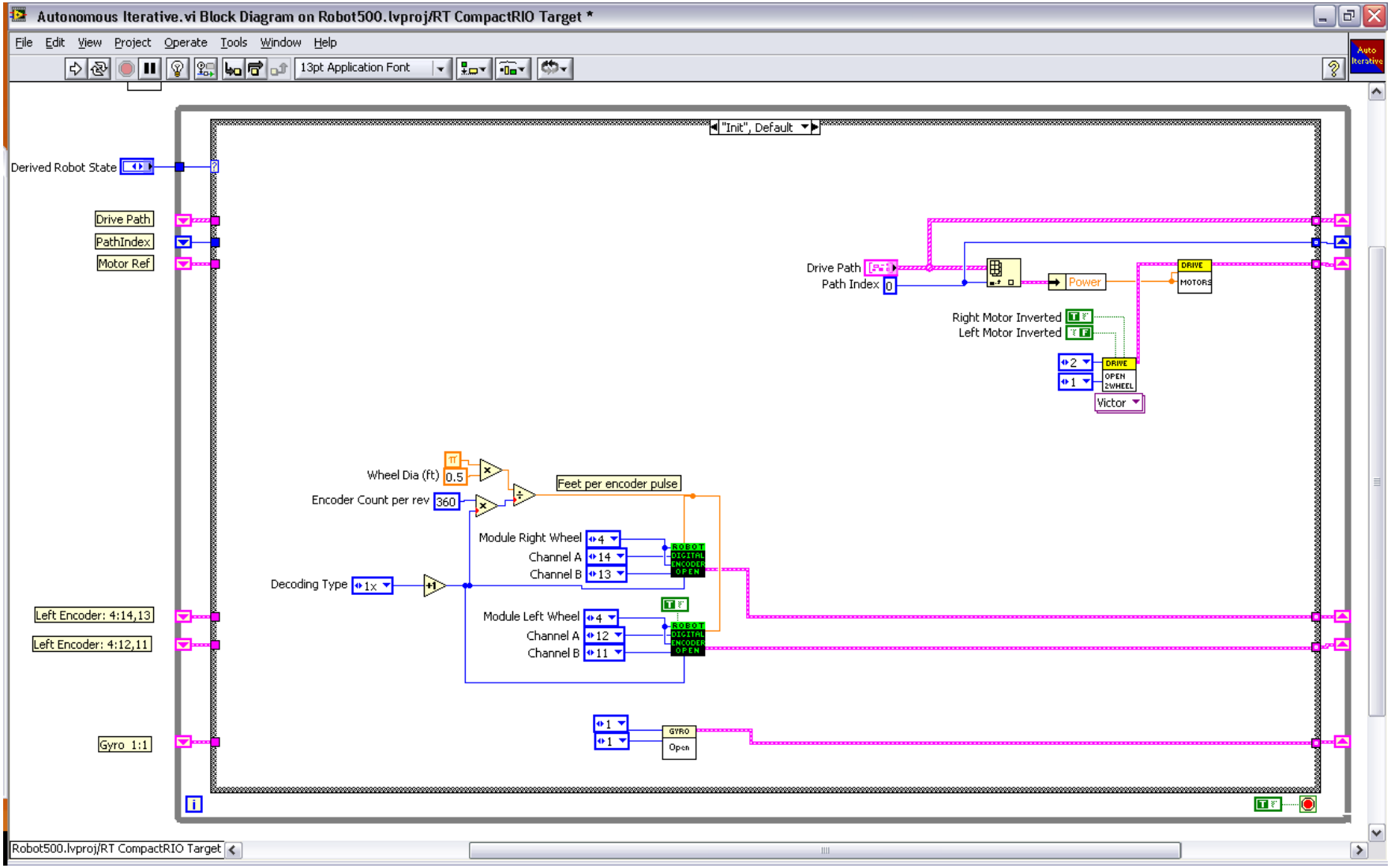
Manipulator.VI – Controls the Pneumatic Gripper, Motor Driven Wrist and Motor driven arm. Buttons are used to control the wrist and a joystick axis is used to control the arm (just to show variety).



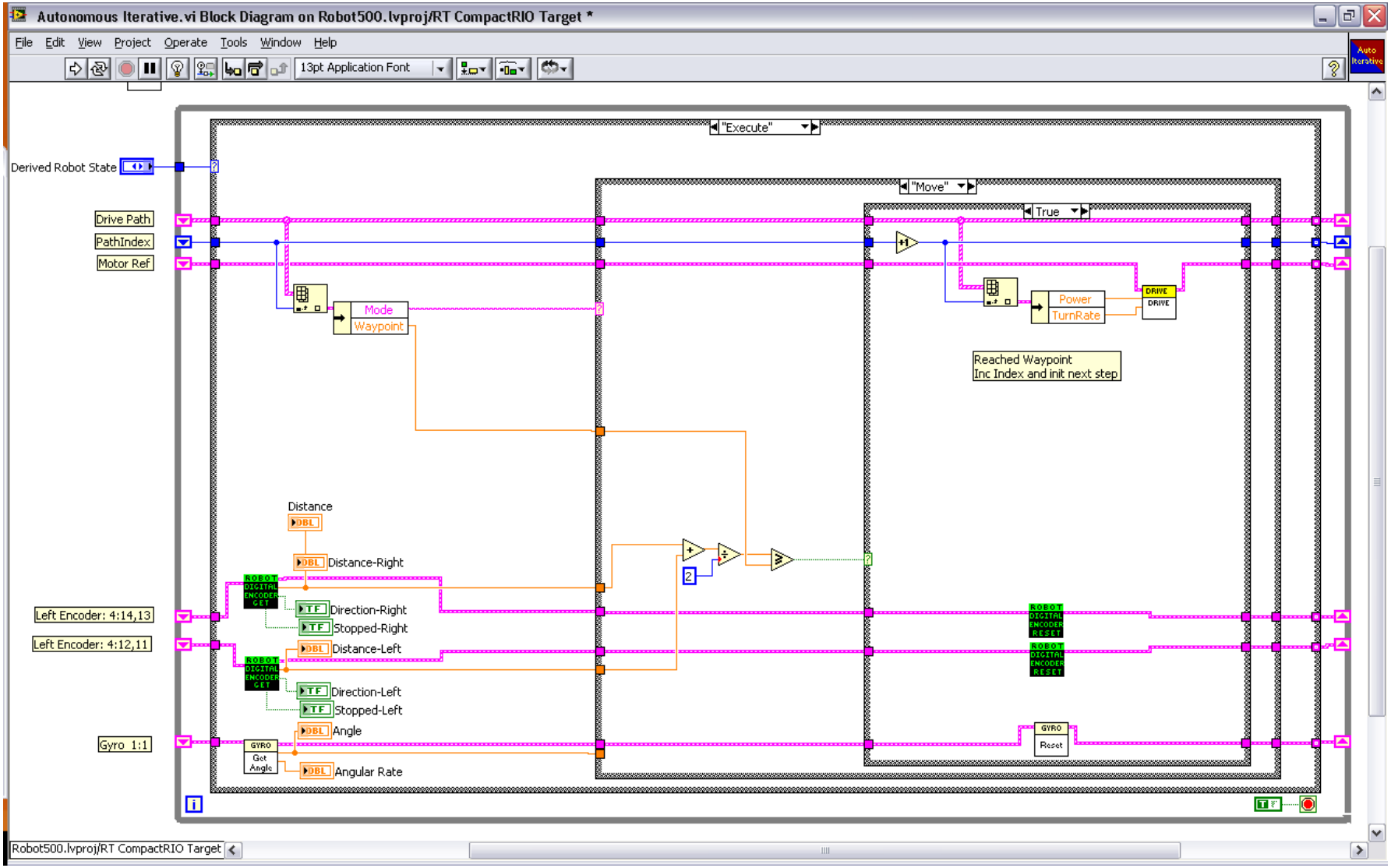
Teleop STOP


Teleop.vi Block Diagram on Robot500.lvproj/RT CompactRIO Target *
File Edit View Project Operate Tools Window Help
13pt Application Font
TeleOp
"Stop"
Derived Robot State
Joystick1
Drive
Drive
Joystick Close
DRIVE CLOSE
Shifter Solenoid A (Sol 8.1)
Shifter Solenoid B (Sol 8.2)
Solenid Close
Solenid Close
Compressor (Relay 4.1)
Pressure Sw (DIO 4.1)
Compsr Stop
Compsr Close
Don't really care what happens over here, we just shut everything down and are exiting TELEOP...
Gripper CTRL
Joy2
Gripper Solenoid A (Sol 8.3)
Gripper Solenoid B (Sol 8.4)
Solenid Close
Solenid Close
Wrist PWM: 4.4
Motor Close
Arm PWM: 4.3
Motor Close
User LED
Off
ROBOT
Set User LED to toggle whenin Teleop
Robot500.lvproj/RT CompactRIO Target

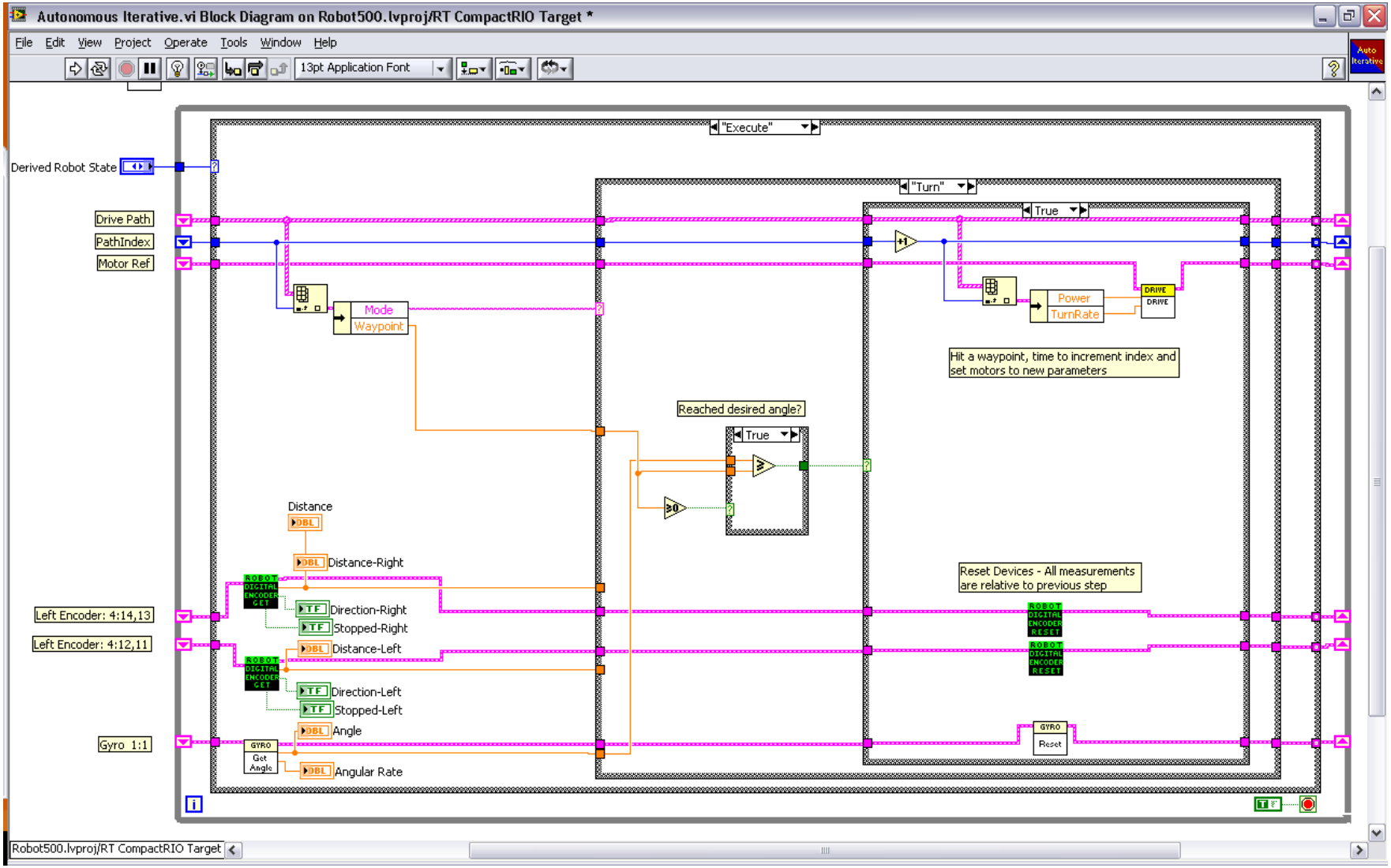
Auton: INIT


Autonomous Iterative.vi Block Diagram on Robot500.lvproj/RT CompactRIO Target *
File Edit View Project Operate Tools Window Help
13pt Application Font
"Init", Default
Derived Robot State
Drive Path
PathIndex
Motor Ref
Left Encoder: 4:14,13
Left Encoder: 4:12,11
Gyro 1:1
Drive Path
Path Index
Power
DRIVE
MOTORS
Right Motor Inverted
Left Motor Inverted
DRIVE
OPEN
2WHEEL
Victor
Wheel Dia (ft)
0.5
Encoder Count per rev
360
Feet per encoder pulse
Module Right Wheel
Channel A
Channel B
Decoding Type
1x
Module Left Wheel
Channel A
Channel B
ROBOT
DIGITAL
ENCODER
OPEN
GYRO
Open
Robot500.lvproj/RT CompactRIO Target

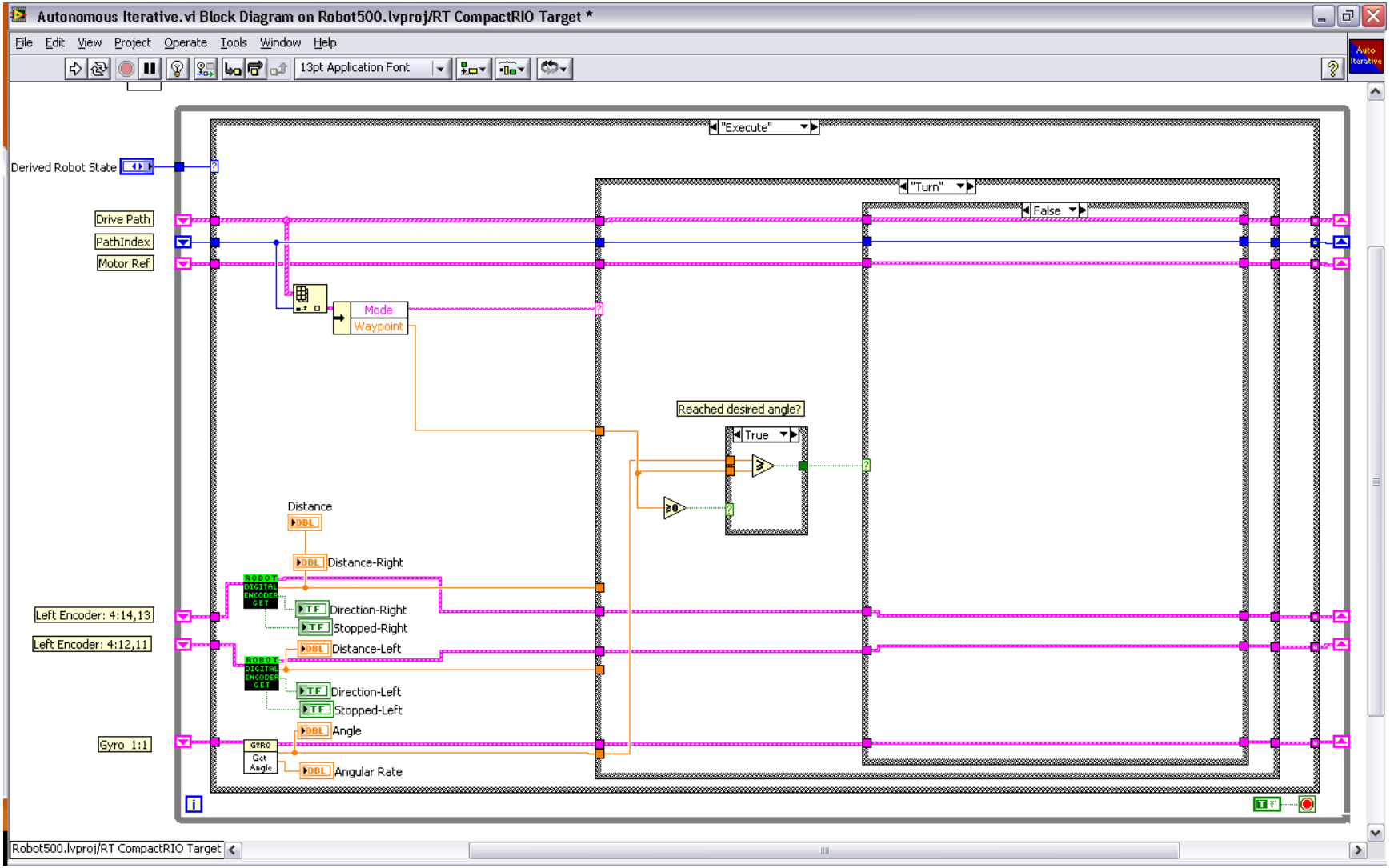
Auton: EXECUTE: “Move” - Waypoint reached



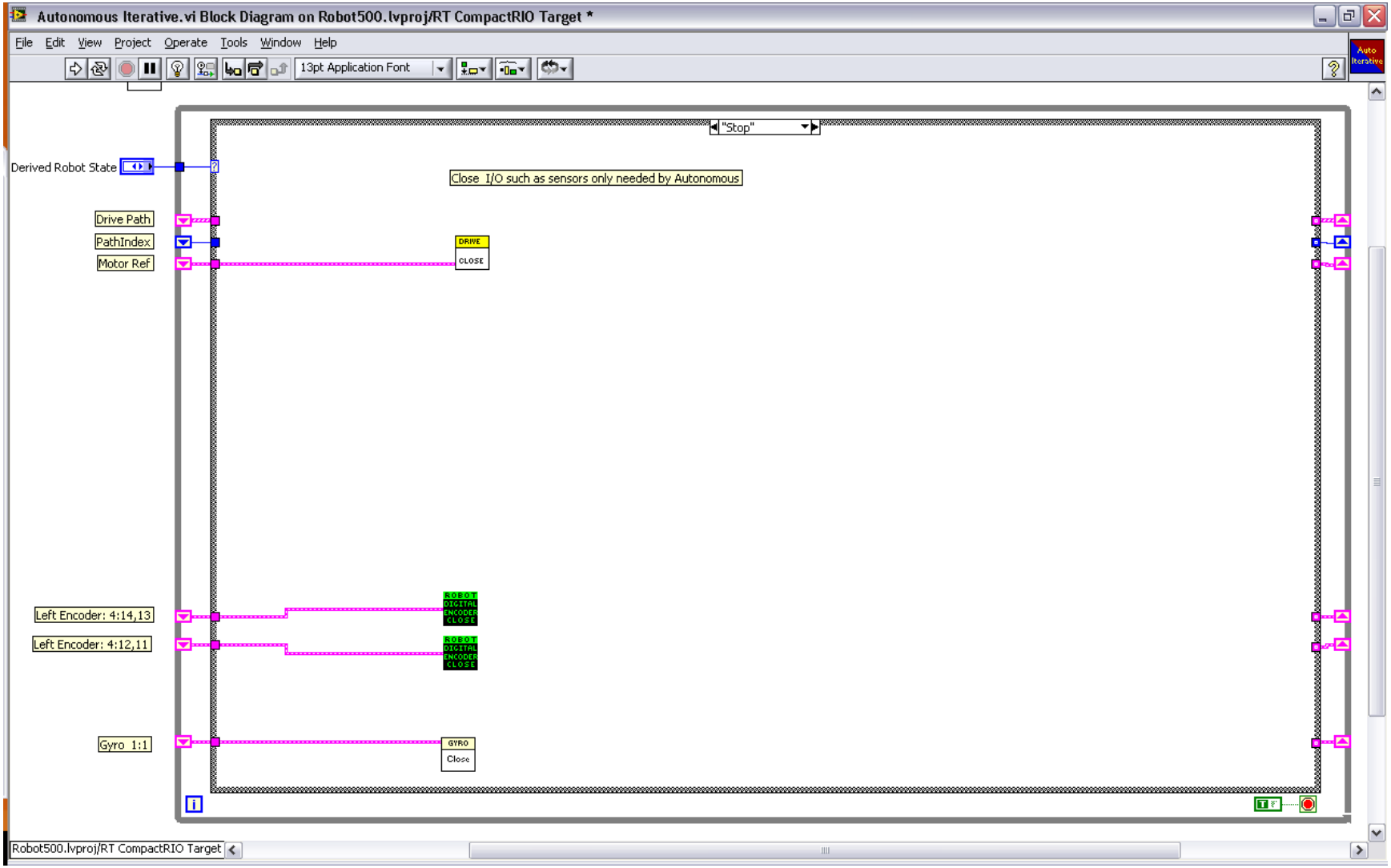
Auton: EXECUTE: “Turn” - Waypoint reached



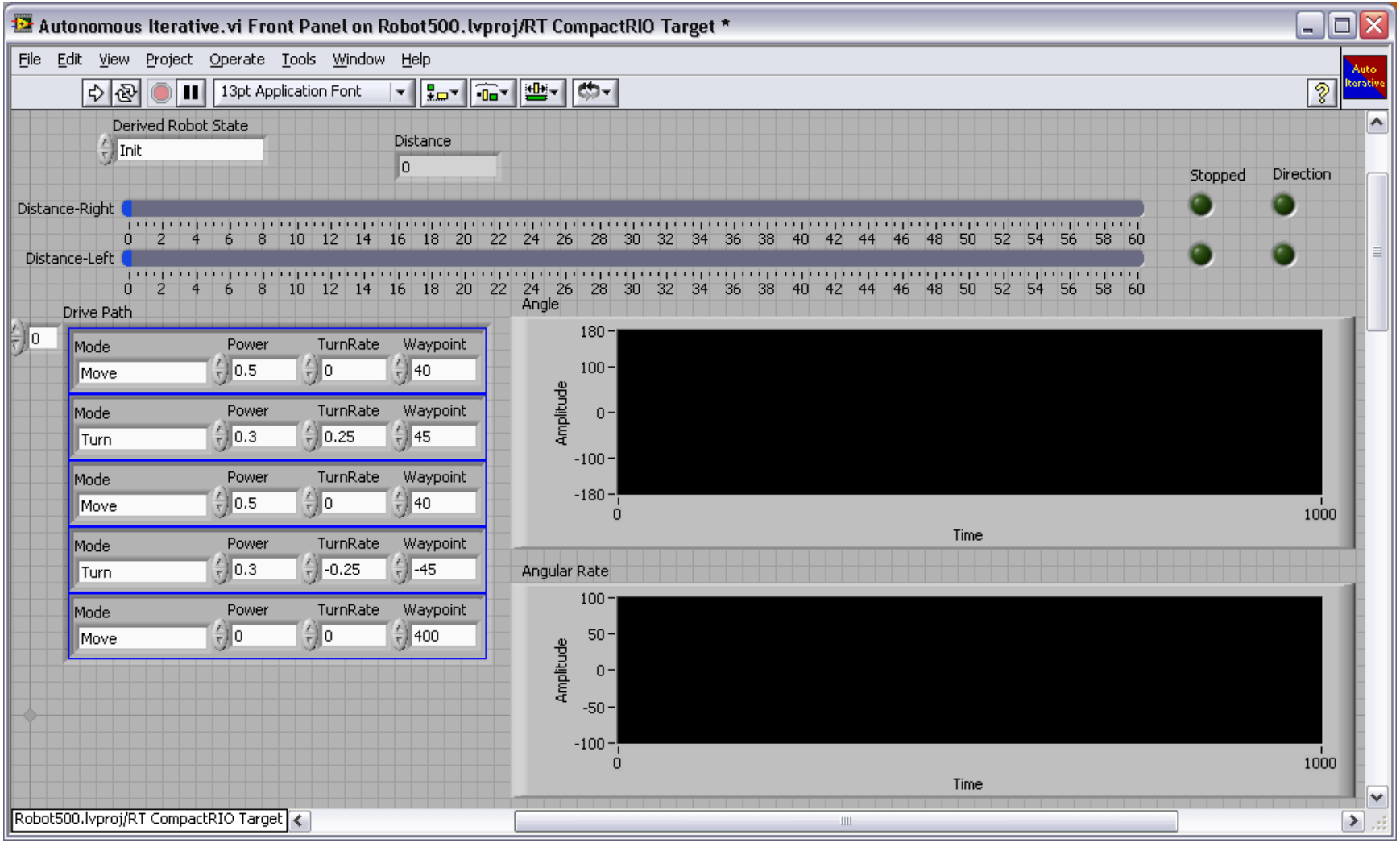
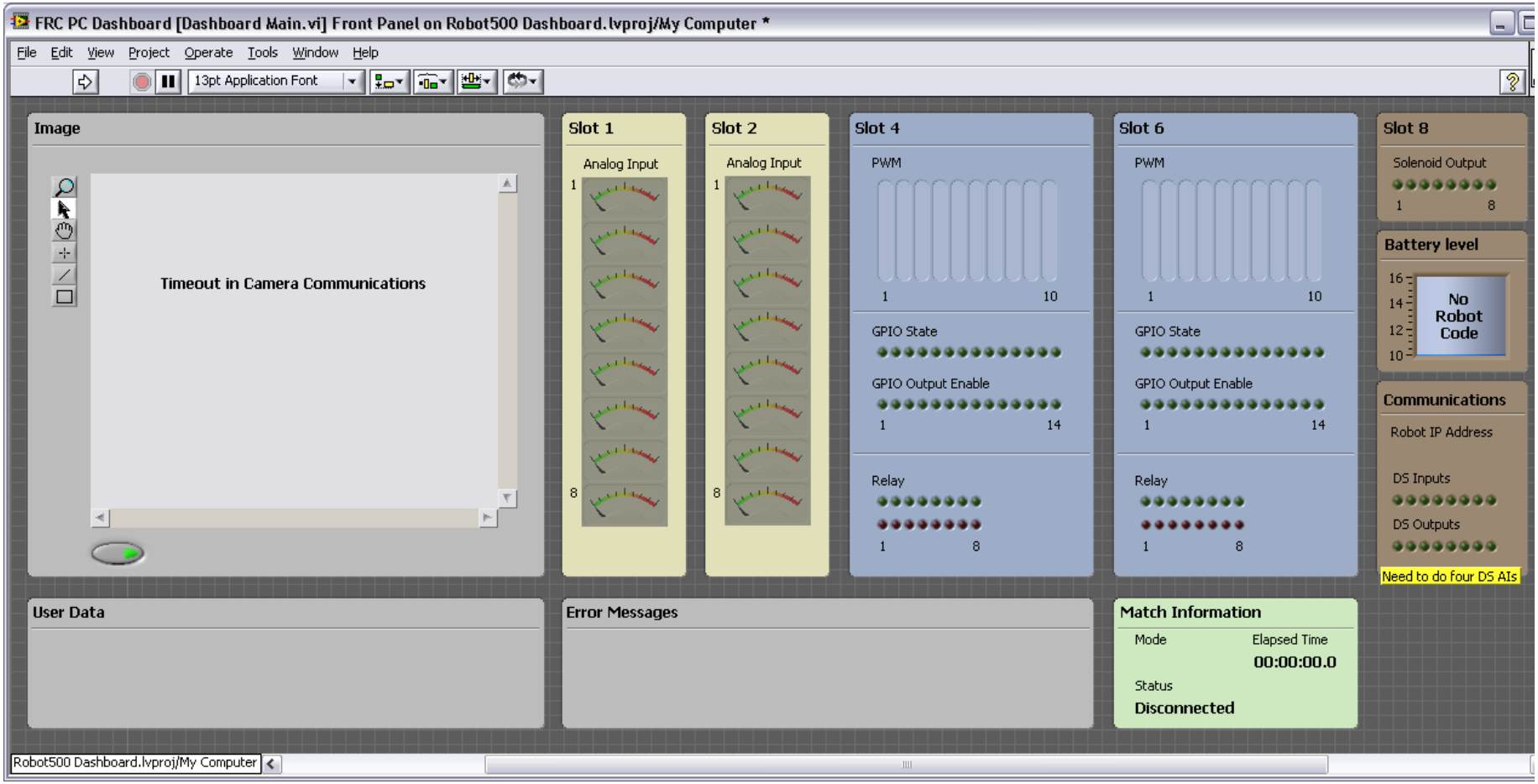
Auton: EXEUCTE: “Turn” - Waiting for waypoint



Auton: STOP


Autonomous Iterative.vi Block Diagram on Robot500.lvproj/RT CompactRIO Target *
File Edit View Project Operate Tools Window Help
13pt Application Font
"Stop"
Derived Robot State
Close I/O such as sensors only needed by Autonomous
Drive Path
PathIndex
Motor Ref
DRIVE
CLOSE
Left Encoder: 4:14,13
Left Encoder: 4:12,11
ROBOT DIGITAL ENCODER CLOSE
Gyro 1:1
GYRO
Close
Robot500.lvproj/RT CompactRIO Target

Auton Front Panel



Dashboard Front Panel