Iris E-course
Innovation through Education
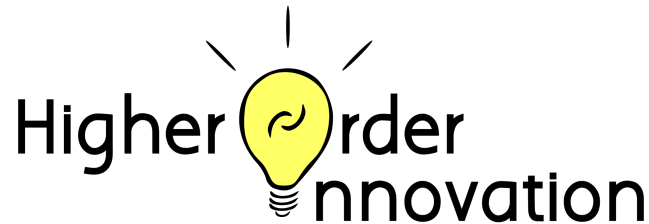
Introduction to the Iris Robot Platform
Appendix C: Default Code with PS4

Presented By:

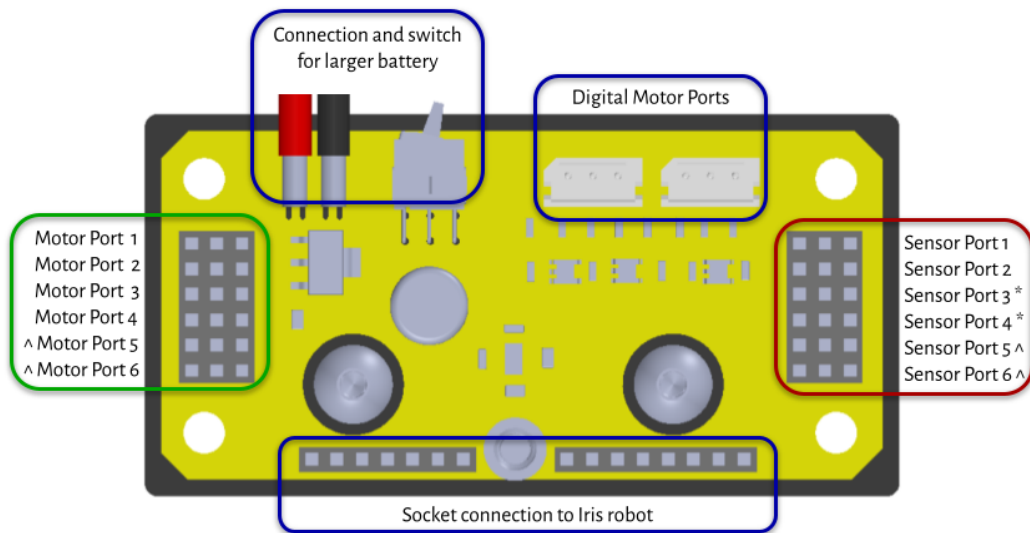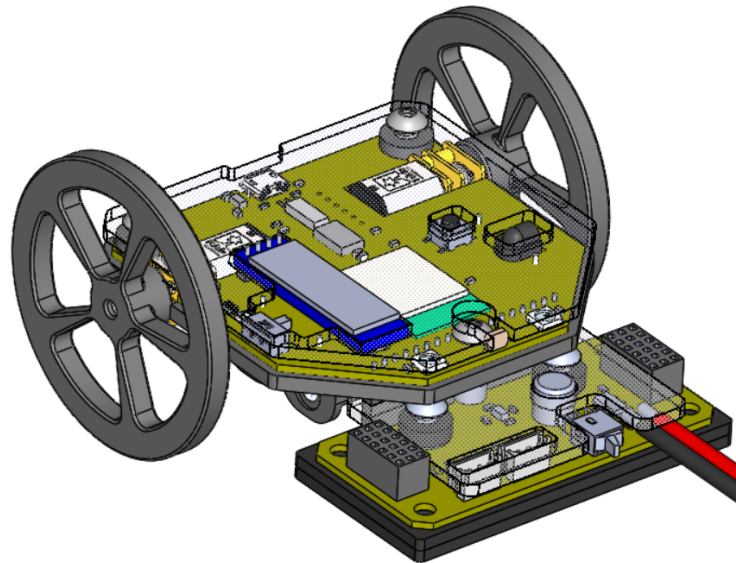## Higher Order Innovation

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Appendix C: Default Code with PS4

C.1 Iris and the Dock

The Iris robot is capable of driving around your desk with the included wheels and leg set. When Iris looks like the figure below (may or may not have the wheels connected), Iris has the expansion Dock already installed. Adding the Dock enables Iris to become the brains for your larger, custom robot. With this expansion of the Dock, there are six motor ports that are made available through the included default code. This guide will help you understand what the default code enables you to do for controlling either your own robot, or the stand-alone Iris Robot.

Connection and switch for larger battery

Digital Motor Ports

Motor Port 1
Motor Port 2
Motor Port 3
Motor Port 4
^ Motor Port 5
^ Motor Port 6

Sensor Port 1
Sensor Port 2
Sensor Port 3 *
Sensor Port 4 *
Sensor Port 5 ^
Sensor Port 6 ^

Socket connection to Iris robot

Notes:
* Sensor Ports 3/4 are SDA/SCL. Using these for other purposes may disable the on-board screen.
^ Motor Ports 5/6 share pins with Sensor Ports 5/6.

C.2 Wiring Motors to the Dock

When attaching 3-wire motors to the Dock for your custom robot. It is important to take note of the orientation of the wires. The motors should be plugged in with the black wire nearest to the edge of the board.

C.3 PS4 with External 3-wire Motors

The default code is programmed such that when the PS4 controller is connected to Iris (Power up Iris and press the PS button on the controller), the program running on Iris will translate controller inputs into commands for the six 3-wire motor ports on the Dock. All of the built-in commands for the motor ports can be found in the table below..

Controller Location	Command	Motor Response	Speed
A	Left Joystick Up	Motor Port 1 Clockwise	Variable
A	Left Joystick Down	Motor Port 1 Counter Clockwise	Variable
B	Right Joystick Up	Motor Port 2 Clockwise	Variable
B	Right Joystick Down	Motor Port 2 Counter Clockwise	Variable
C	Left/Right D-Pad	Motor Port 3 CW/CCW	Full Speed
D	Up/Down D-Pad	Motor Port 4 CW/CCW	Full Speed
E	Left Trigger 1 (L1)	Motor Port 4 Clockwise	Full Speed
F	Left Trigger 2 (L2)	Motor Port 4 Counter Clockwise	Variable
G	Square/Circle	Motor Port 5 CW/CCW	Full Speed
H	Triangle/Cross	Motor Port 6 CW/CCW	Full Speed
I	Right Trigger 1 (R1)	Motor Port 6 Clockwise	Full Speed
J	Right Trigger 2 (R2)	Motor Port 6 Counter Clockwise	Variable

There are some commands that can be sent from the controller that do not directly impact the control of the motors. These commands are summarized below. The controller location references the controller picture on the previous page.

Controller Location	Command	Action
K	Share + Options	Switch between Iris and Dock Mode
L	Trackpad Button	Change the Light on the Controller
M	PS Button	Connect the Controller

C.4 PS4 with Iris

The default code loaded onto Iris that enables PS4 control of the larger, custom robot is also capable of controlling Iris on its own. In order to control Iris, on its own, the dock should be removed and the front leg attached using the steps below.

1. From the top, unscrew Iris from the Dock.
2. Gently lift Iris vertically from the Dock to disengage the connecting pins.
3. Using the same bolt, attach the 1 inch standoff to the front of Iris.
4. A second bolt may be placed at the bottom end of the standoff to improve the sliding on the surface.
   a. TIP. Additional materials such as tape, paper, or cardboard may be used as a "shoe" on the bottom of the leg to further improve the sliding behavior.

When Iris is disconnected from the Dock, a pair of AA batteries is necessary to power the robot. Note that while the USB cable may power the robot, only the AA batteries with a power switch turned on will power the attached motors.

Using the included PS4 code, connect the remote by pressing the PS4 button. Once connected, hold down the Share and Option buttons. This combination will switch the code to allow control of Iris. Once switched, the joysticks will control the left and right motors on Iris.