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Guides and Resources: Basic IO - QBot 2

LEDs

This document will summarize how to command the QBot 2's 2 LEDs.

Writing to LEDs

Note: Ensure that your QBot 2 is powered ON and that a connection has been established to it. Follow the steps under Charging Vehicle Batteries and Communicating with the QBot 2 in the Research Studio Setup Guide.

Note: Ensure that you have read and understood all the safety procedures and guidelines regarding charging Lithium Polymer batteries as well as guidelines on using the QBot 2 in a safe manner outlined in the Research Studio Setup Guide. If you have any concerns or questions, please contact Quanser technical support (tech@quanser.com).

Note: Safety eye glasses should always be worn, even outside the net.

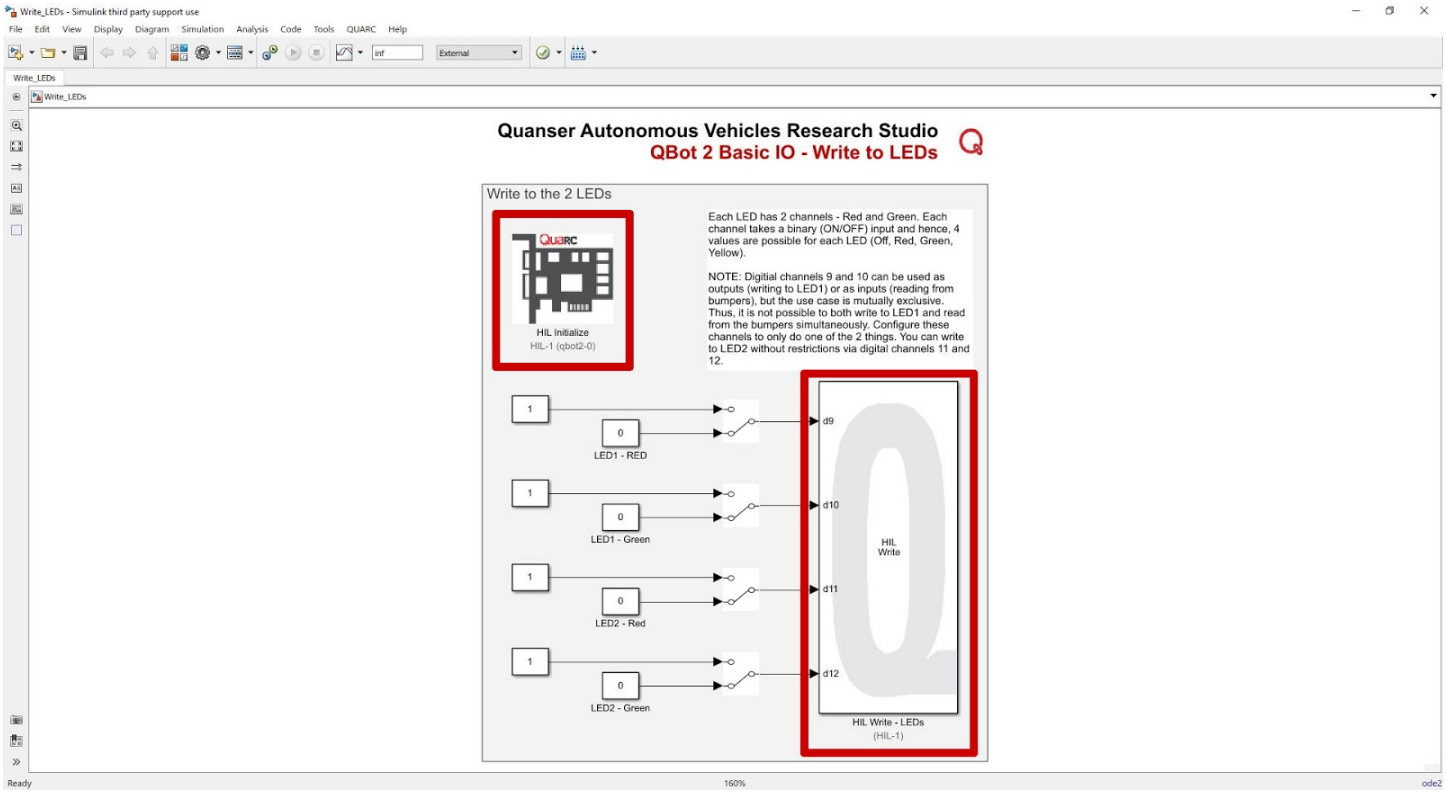

Figure 1: Write_LEDs.slx model, highlighting the HIL Initialize and HIL Write blocks

1. Under the Guides and Resources > Basic IO > QBot 2 > Software folder, open Write_LEDs.slx (Figure 1)

Note: For the latest documentation and controllers, please visit Autonomous Vehicles Research Studio Resources.

Autonomous Vehicles Research Studio Resources weblink:
https://www.quanser.com/products/autonomous-vehicles-research-studio/

2. Under Model Configuration Settings, enter the correct QBot 2 IP address.

Note: See the QBot 2 IO Check section in the Research Studio Setup Guide for more information.

3. Build the model (QUARC menu > Build).

4. Start the model (QUARC menu > Start).

5. The QBot 2 will emit a sequence of beeps signifying that the model is running.

6. Change the 4 manual switches between 0 and 1 to change the 2 user-programmable LEDs on the QBot 2 between the 4 states - OFF, Red, Green and Yellow. The corresponding LED on the QBot 2 should change its color accordingly (Figure 2).

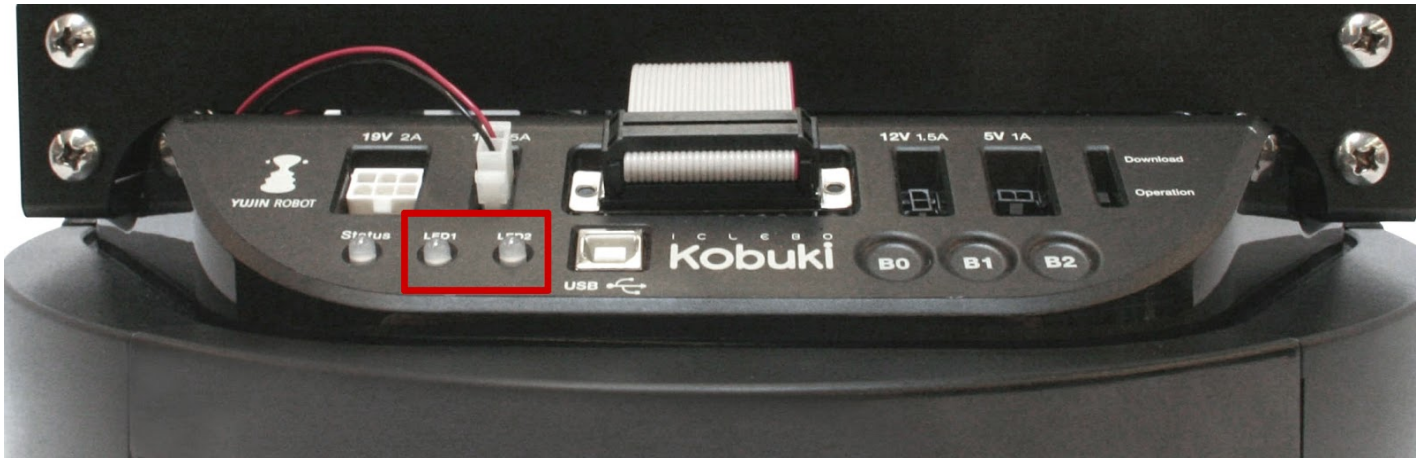

Figure 2: User programmable LEDs on the QBot 2

Note: A HIL Initialize block must always be present and configured correctly for any IO to take place. The HIL read/write blocks allow you to read from and write to the channels configured in the HIL Initialize block. See Guides and Resources > Concepts for more information.

Note: Digital Channels 9 and 10 have dual use. They can be used as input channels to read bumper data, or output channels to write commands to LED#1. These two functionalities are mutually exclusive. Thus, it is not possible to read bumper data AND write to LED#1 at the same time.

7. Stop the model.

This completes a tutorial on how to write values to the LEDs.