Goal: To introduce how to write MATLAB functions and control branching for the LED light.

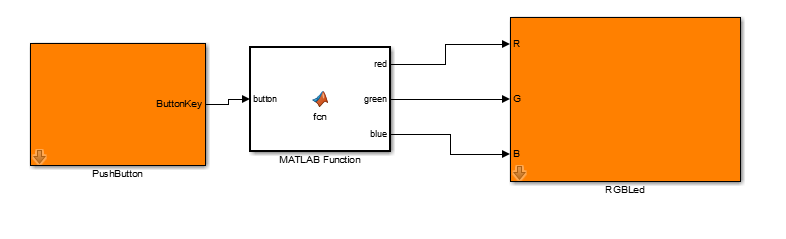
Standards Covered: (f),(g),(h)

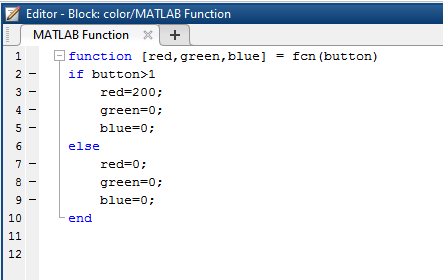
Sequence:

1. Open up the MiniQ library in the Simulink Block Builder and create the following model:

“Button With Lights Function Style”

Example Model: ButtonWithLightsFunctionStyle.slx

1. Constructing a MATLAB Function block for Simulink *(30 min)*
2. Install the MiniQ library and drag in a push button block.
3. Also drag in an RGB led block and set them apart from each other.
4. In the middle you’ll need to drag in a MATLAB function block
5. Double click into the MATLAB function block and enter the code below as a script *(20 min)*



1. Our objective is to get a red light to turn on when the button is pressed otherwise, there should be no light shown on the MiniQ. Test this by deploying the model to hardware *(10 min)*

Evaluation/Activity:

1. Students should experiment with getting different colors to light up depending upon which button is pressed.
2. Inform students that on the miniQ each button outputs its value. Therefore, it is possible to adapt the MATLAB function so 3 different colors appear when a specific button is pressed. (60 min)
3. Show students how to find a “RGB” color table through a web search. This will help them create the specific colors they want on their miniQ robot: <http://www.rapidtables.com/web/color/RGB_Color.htm>

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