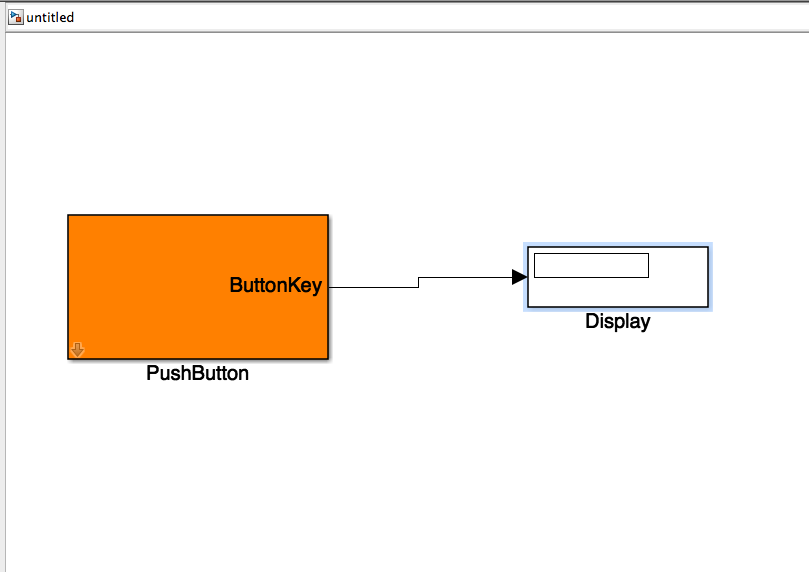
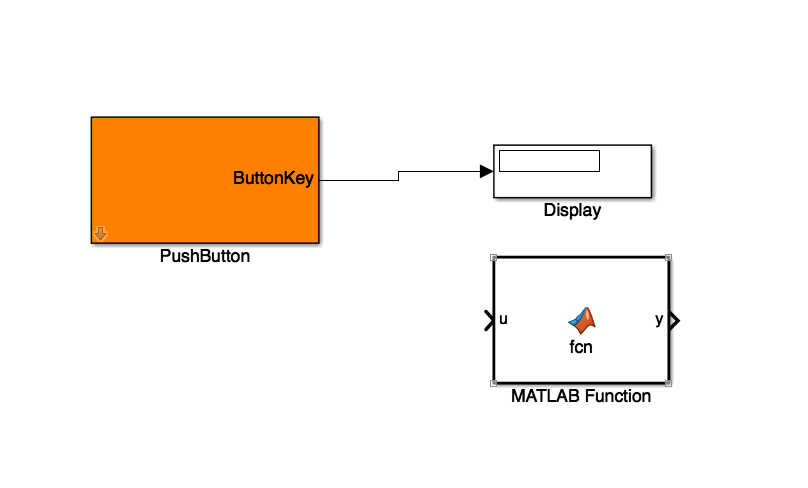
Goals:

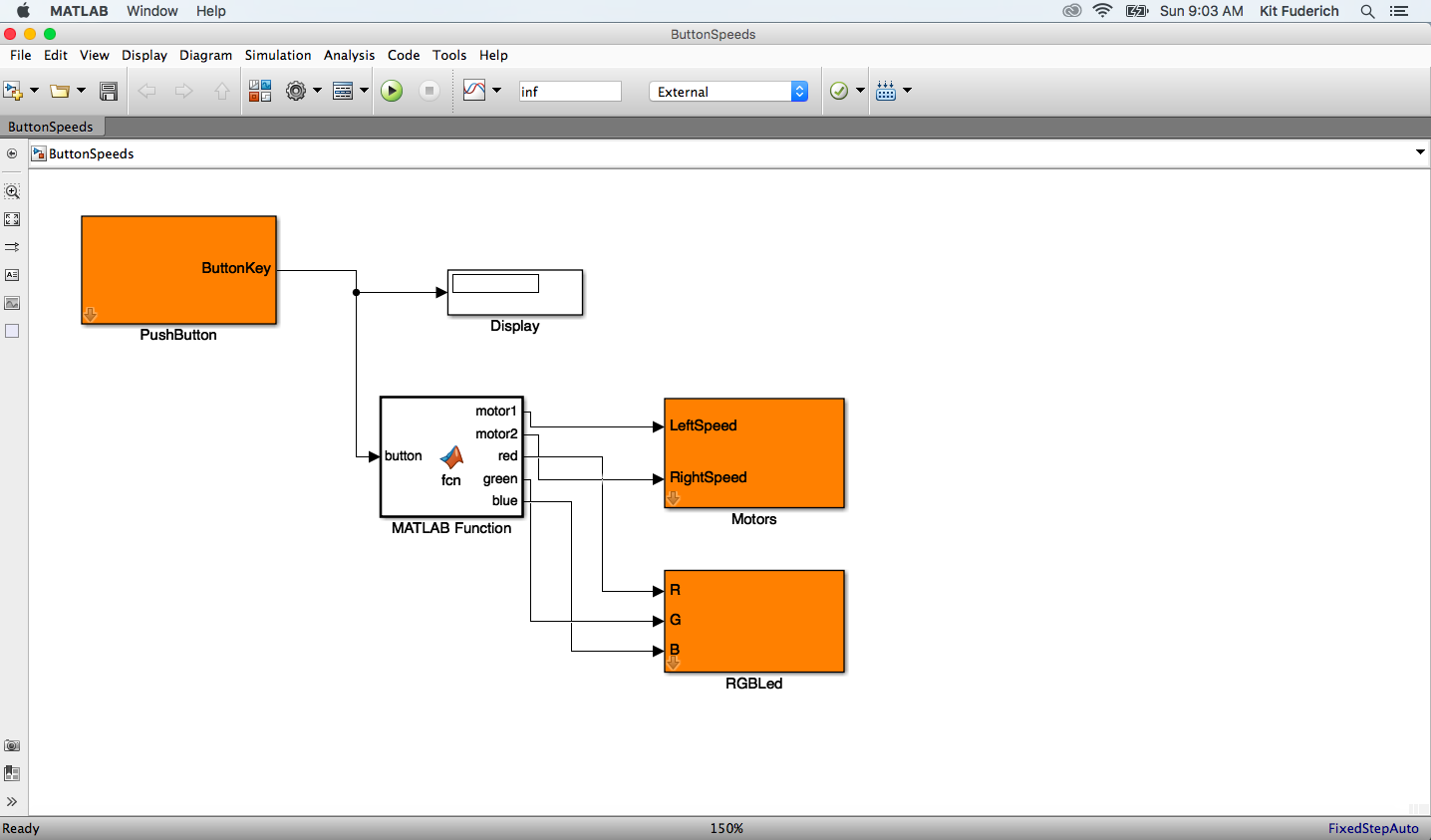
1. To explore the idea of programming each of the miniQ buttons with a separate function.
2. Examine branching from “if”, “else if” and “else” as well as the placement of “end” to close out blocks of code.

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

Sequence:

*Note: This is a guided example where students will create a function together as well as the motor blocks for it. An alternative approach to this lesson is to have students open up the file ButtonSpeedsButtonLights.slx and then experiment with the variables for colors and speeds.*

1. Begin by connecting a display block to the miniQ button block in Simulink:
2. You’ll need to run this model in external mode under an “inf” time frame if students are to experiment with visualizing the different button pushes into the “Display” block *(10 min)*.
3. Doubleclick into the MATLAB function block and begin constructing the following code with students, explaining each line along the way *(20 min):*



1. After saving this function, so the inputs and outputs appear in Simulink, drag in a MiniQ motor and RGB color block and connect them to the function. Have students continue to experiment with the variables for motors (motor1, motor2) and colors (red,green,blue).

Evaluation:

1. All students have created the ButtonSpeedsButtonLights.slx example.
2. All of the student’s models have been adapted to include their own colored outputs from button presses as well as the reversal of direction for speeds *(30 min).*

Creative Commons License

This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](http://creativecommons.org/licenses/by-sa/4.0/).