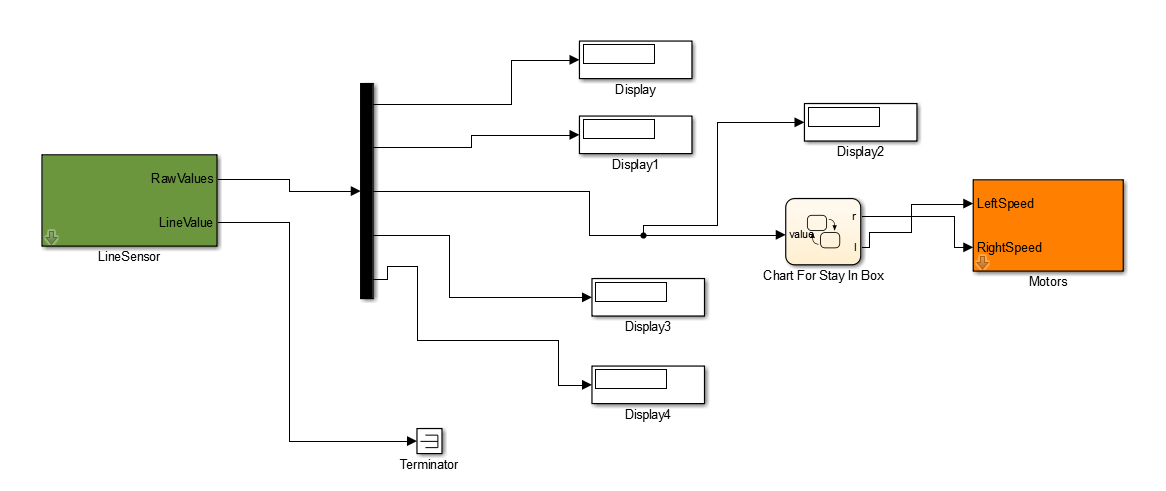
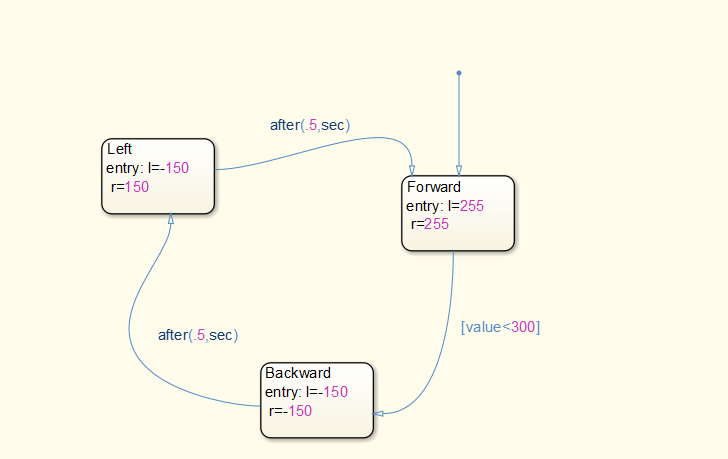
Goals: To use external mode and display blocks to get readings from the MiniQ Line Sensor.

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

Sequence:

1. Create the external mode Line Sensor model. Reference: ExternalModeRawSensorCheck. Have students run the model and then observe the values over a variety of surfaces- use black electrical tape for this exercise. *(20 min)*
2. Give students the challenge of creating a robot which can stay within a boxed in area. Show them the following model but not the inner workings of the chart. Reference: StayInBox.slx Give them time to work through the problem themselves. *(20 min)* 
3. Once a functioning chart is created students should be given the challenge of pushing a variety of objects outside of a black taped boxed area. This can be timed relative to other members of the class and then their code can be compared accordingly. *(40 min)*



1. Create a sumo ring with the black electrical tape and have 2 miniQ robots run in the ring together while running StayInBox.slx. One robot will eventually push another one out. Discuss what could be different about the programming routines to make the Sumo robots more effective “battlers.”

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/).