**Model Name: sldemo_autotrans**

**Date: November 27, 2020**
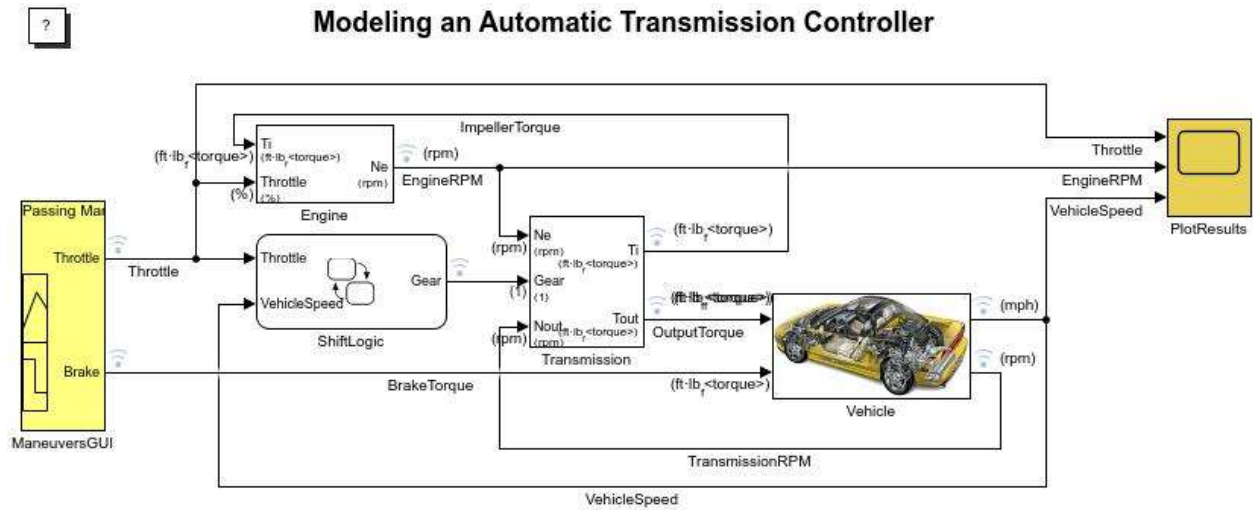
# Contents

## Block Name: sldemo_autotrans

## Block Path: sldemo_autotrans

### Modeling an Automatic Transmission Controller



Double-click on ManeuversGUI and select a maneuver

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**Block Name: Engine**
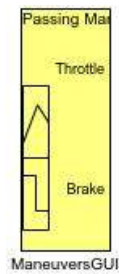
**Block Path: sldemo_autotrans/Engine**



Engine

**Block Name: ManeuversGUI**
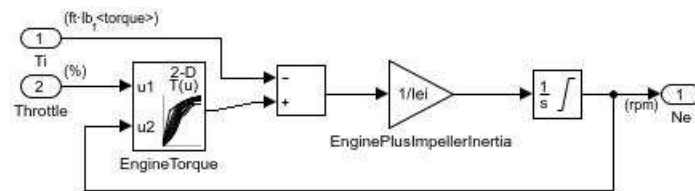
**Block Path: sldemo_autotrans/ManeuversGUI**

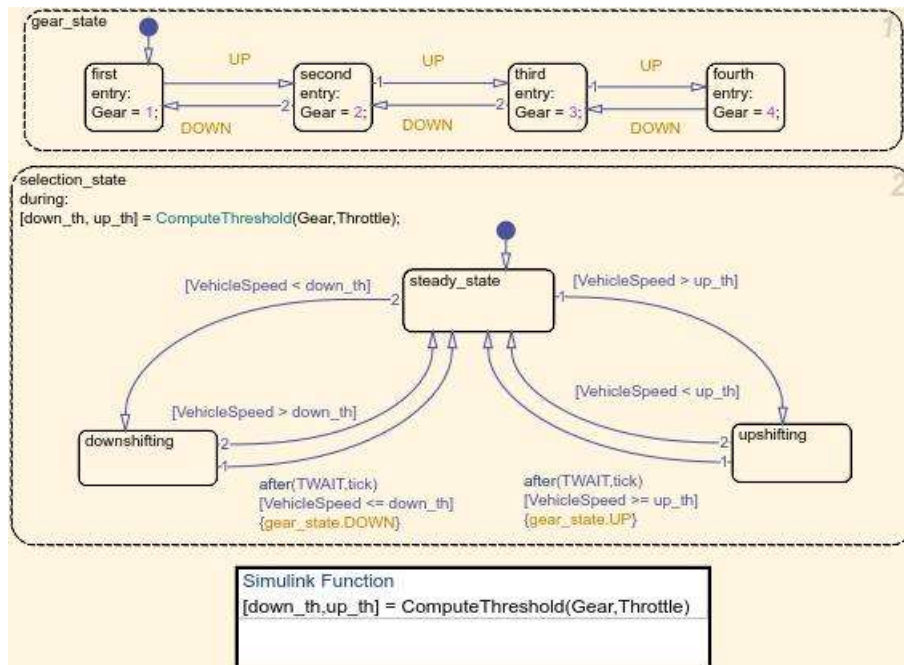**Block Name: More Info**

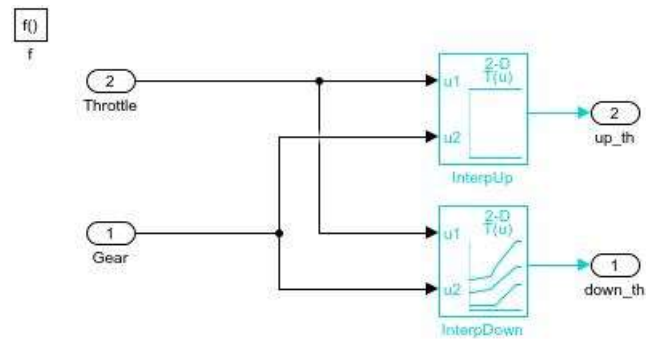**Block Path: sldemo_autotrans/More Info**

# Block Name: ShiftLogic

# Block Path: sldemo_autotrans/ShiftLogic



gear_state

| first entry: Gear = 1; | UP → ← 2 DOWN | second entry: Gear = 2; | UP → ← 2 DOWN | third entry: Gear = 3; | UP → ← 2 DOWN | fourth entry: Gear = 4; |

selection_state
during:
[down_th, up_th] = ComputeThreshold(Gear,Throttle);

[VehicleSpeed < down_th]   steady_state   [VehicleSpeed > up_th]

[VehicleSpeed > down_th]   [VehicleSpeed < up_th]

downshifting   upshifting

after(TWAIT,tick)
[VehicleSpeed <= down_th]
{gear_state.DOWN}

after(TWAIT,tick)
[VehicleSpeed >= up_th]
{gear_state.UP}

Simulink Function
[down_th,up_th] = ComputeThreshold(Gear,Throttle)

## ComputeThreshold

### Block Name: ComputeThreshold

### Block Path: sldemo_autotrans/ShiftLogic/ComputeThreshold



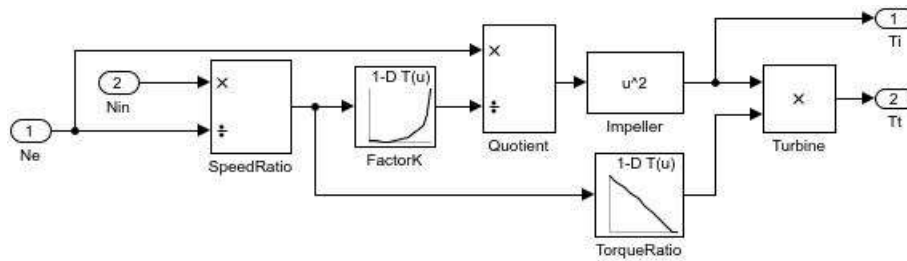**Threshold Calculation**

**Block Name: Transmission**

**Block Path: sldemo_autotrans/Transmission**
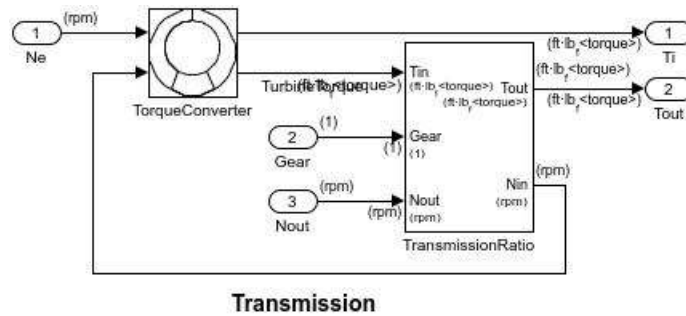


Transmission

# Block Name: TorqueConverter

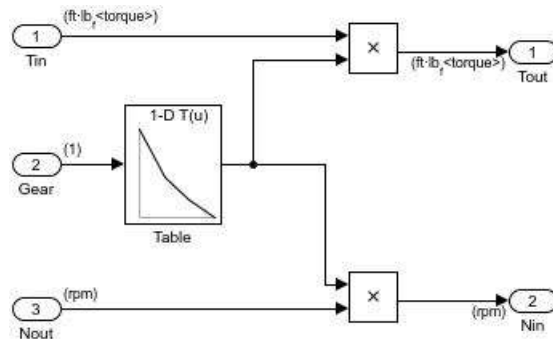# Block Path: sldemo_autotrans/Transmission/TorqueConverter



**Torque Converter**

## Block Name: TransmissionRatio

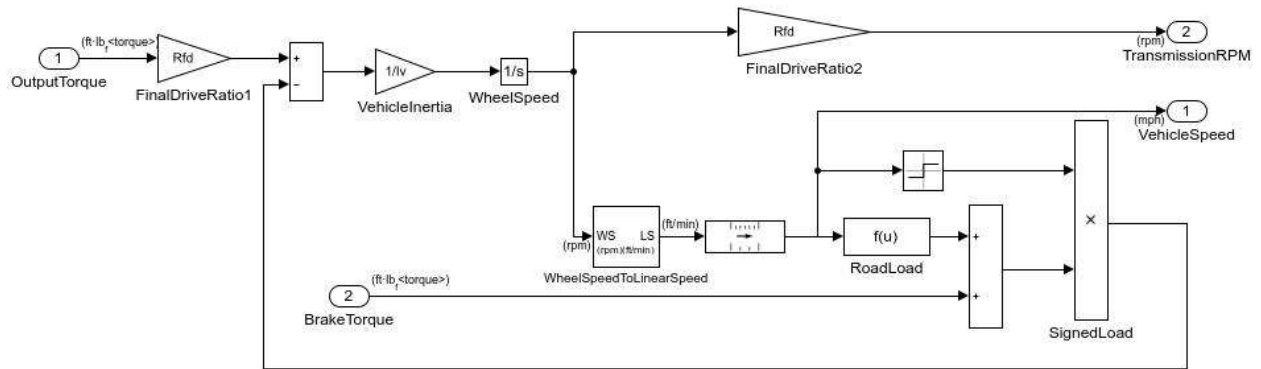## Block Path: sldemo_autotrans/Transmission/TransmissionRatio



**Transmission Gear Ratio**

# Vehicle

## Block Name: Vehicle

## Block Path: sldemo_autotrans/Vehicle



Vehicle

## Block Name: WheelSpeedToLinearSpeed

## Block Path: sldemo_autotrans/Vehicle/WheelSpeedToLinearSpeed