

FSM Test: Specification Report

Team 2 (CoDeAS 20/21)

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1. FSM_test

Test File Options

Close open figures	true
Store MATLAB figures	false
Generate report	false

1.1. DEAD

Test Details

Description	This suite contains all the test performed with DEAD as main state. It includes also the transitions from dead to other states.
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1.1.1. Dead-Dead

Test Details

Description	<p>State under test: DEAD (0)</p> <p>Transition under test: DEAD-DEAD</p> <p>INPUTS:</p> <ul style="list-style-type: none">- AccPedal: uniformly increasing request- BrakePedal: 0- SOC: 0%
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1. FSM_test

- fuelLevel: 0 lt

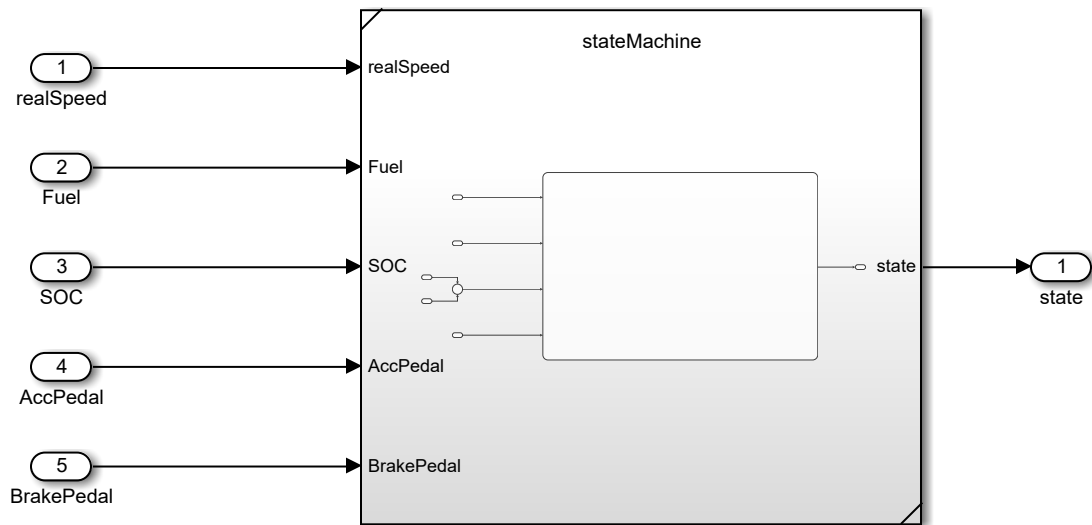
- SOC: 50%

EXPECTED OUTPUT:

The state should be DEAD for all the testing time.

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Dead1.mat (Active)	C:\Users\livane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead1.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Dead_Dead_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.1.2. Dead-Regen

Test Details

Description	<p>State under test: DEAD (0)</p> <p>Transition under test: DEAD (0) - REGENERATIVE BRAKING (4)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - BrakePedal: != 0 at t = 5s - Fuel < fuelMin - SOC < SOCMin
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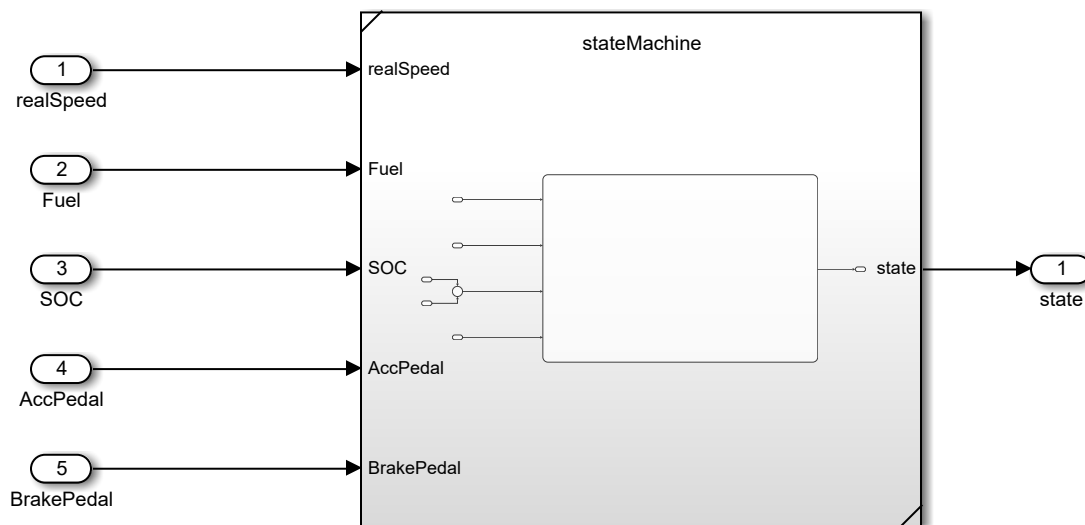
1. FSM_test

EXPECTED OUTPUT:

The state should change to REGENERATIVE_BRAKING (4).

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Dead2.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead2.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Dead_Regen_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

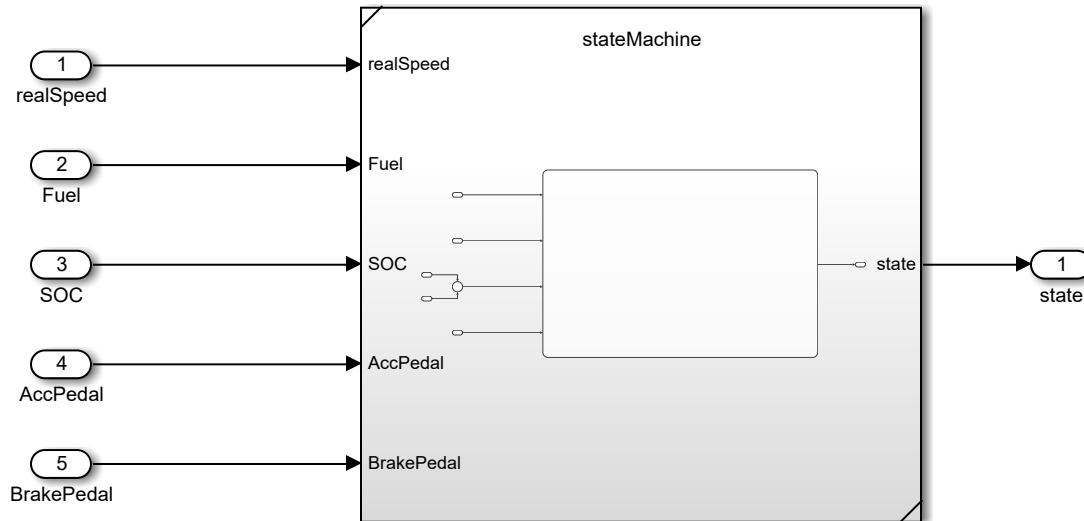
1.1.3. Dead-ED

Test Details

Description	<p>State under test: DEAD (0)</p> <p>Transition under test: DEAD (0) - ELECTRIC_DRIVE (ED, 2)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- AccPedal < maxAccMGU- SOC > SOCMin- fuelLevel: 10 lt- BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to ELECTRIC_DRIVE (ED, 2).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Dead3.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead3.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Dead_ED_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

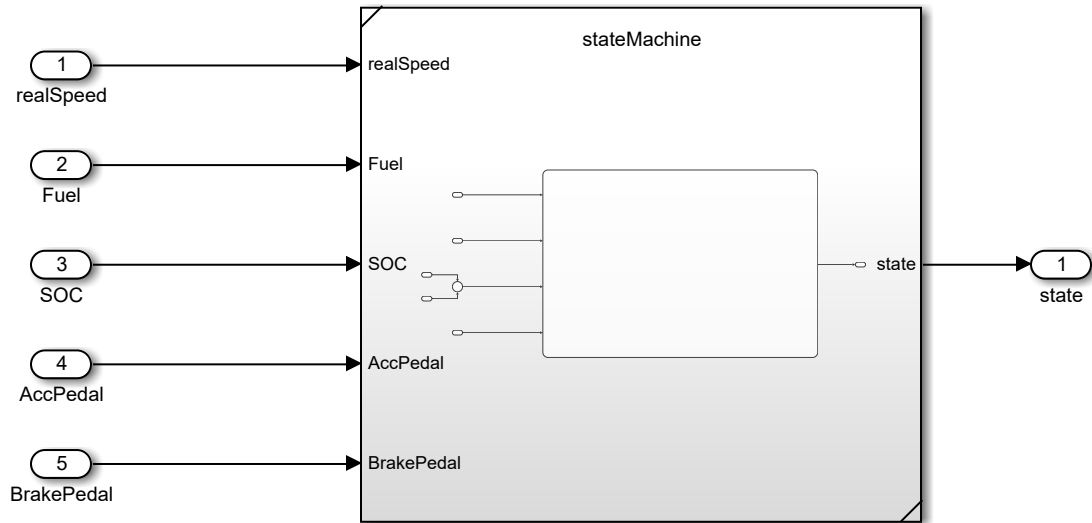
1.1.4. Dead-NoCharge

Test Details

Description	<p>State under test: DEAD (0)</p> <p>Transition under test: DEAD (0) - NO_CHARGE (1)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- AccPedal < maxAccICE- SOC < SOCMin- Fuel > fuelMin- BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to NO_CHARGE (1).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Dead4.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead4.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Dead_NoCharge_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

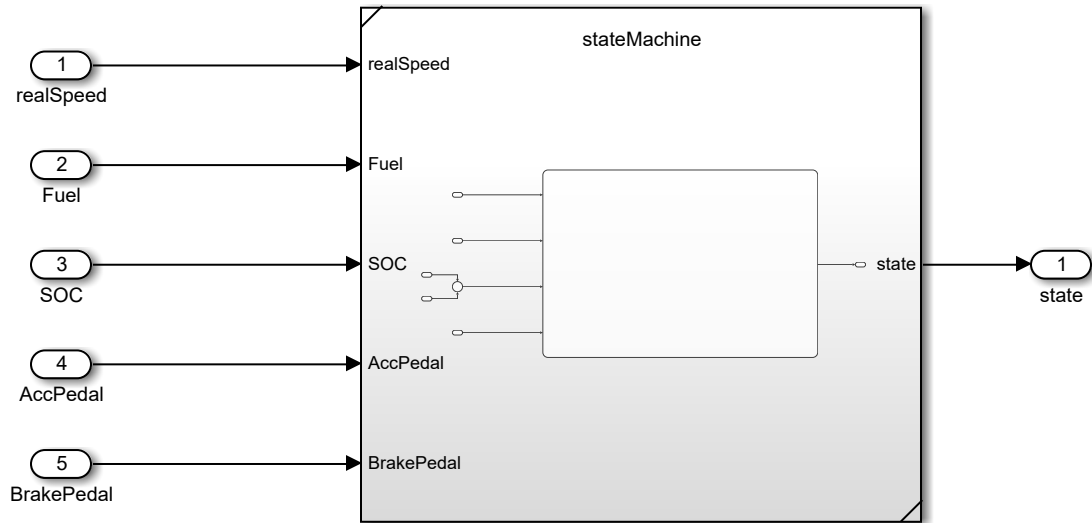
1.1.5. Dead-Combined

Test Details

Description	<p>State under test: DEAD (0)</p> <p>Transition under test: DEAD (0) - COMBINED(3)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- AccPedal>maxAccMGU- SOC > SOCMin- fuel > fuelMin- BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to COMBINED (3).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Dead5.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Dead5.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Dead_Combined_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.2. No Charge

Test Details

Description	From No Charge to all other states. Initially, the FSM starts from DEAD, but soon enters the No Charge state at the first sampling instant.
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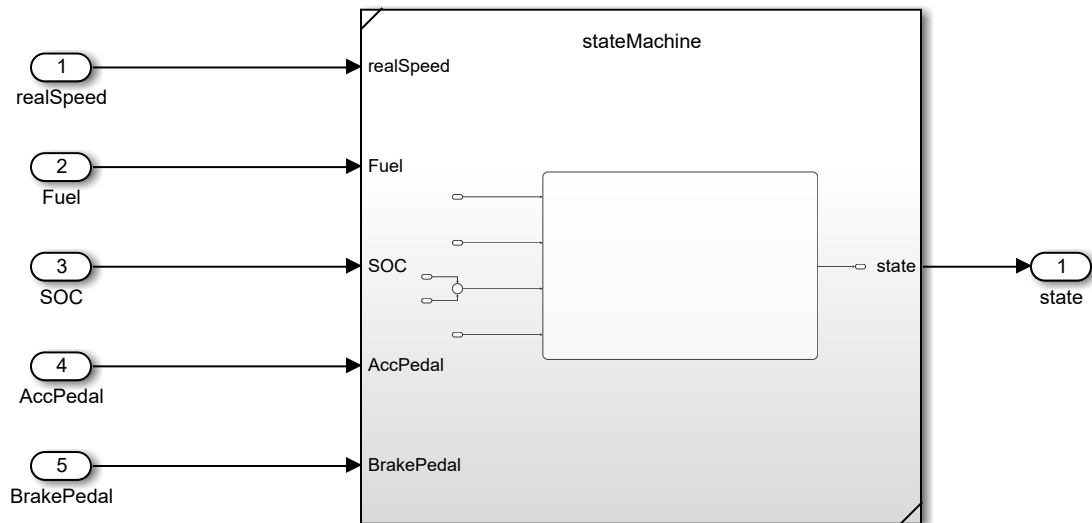
1.2.1. NoCharge-DEAD

Test Details

Description	<p>State under test: NO_CHARGE (1)</p> <p>Transition under test: NO_CHARGE (1) - DEAD (0)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - fuel > fuelMin - BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to DEAD (0).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
NoCharge1.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge1.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
NoChargeToDEAD_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

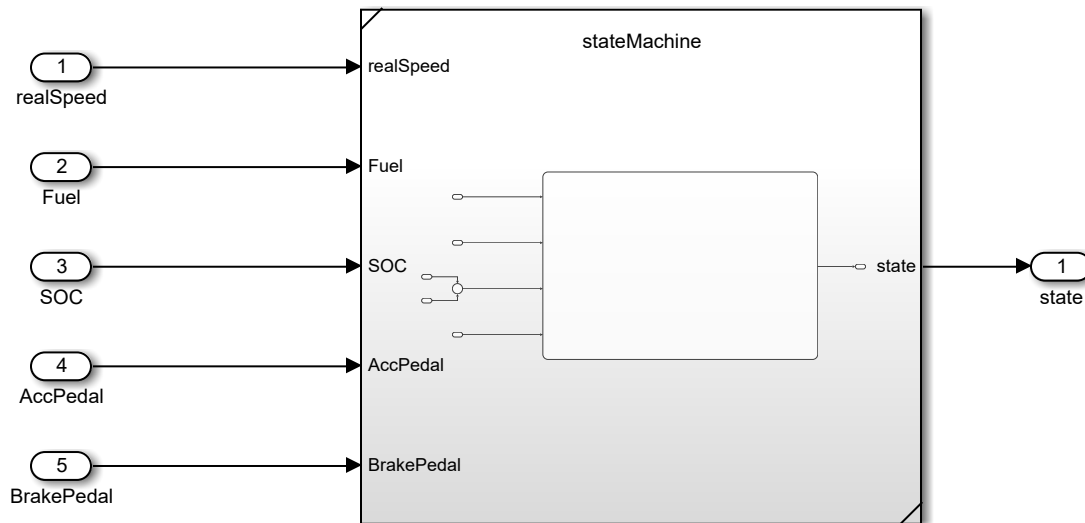
1.2.2. NoCharge-Regen

Test Details

Description	<p>State under test: NO_CHARGE (1)</p> <p>Transition under test: NO_CHARGE (1) - REGENERATIVE BRAKING (4)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- Fuel > fuelMin- BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to REGENERATIVE BRAKING (4).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
NoCharge2.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge2.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
NoChargeToRegen_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.2.3. NoCharge-ED

Test Details

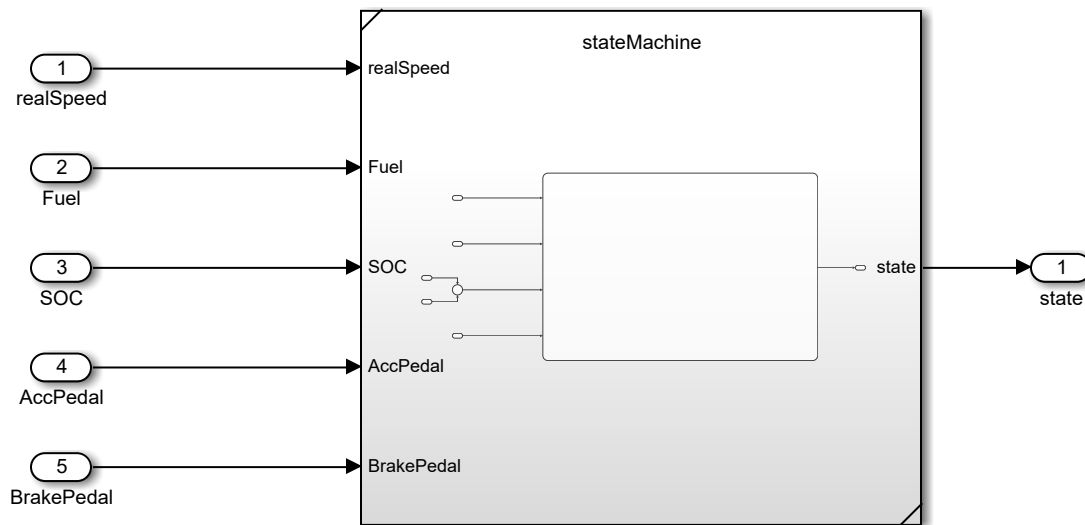
Description	<p>State under test: NO_CHARGE (1)</p> <p>Transition under test: NO_CHARGE (1) - ELECTRIC_DRIVE (ED, 2)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - Fuel > fuelMin - BrakePedal: 0 - SOC < SOCmin for a while, then SOC>SOCmin - RealSpeed<SpeedEDMax OR Fuel<fuelMin after a while <p>EXPECTED OUTPUT:</p> <p>The state should change to ELECTRIC_DRIVE (ED, 2).</p> <p>NOTE:</p>
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1. FSM_test

This test is done in two iterations due to the presence of an OR among input conditions.

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
NoCharge3.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge3.mat	Successfully mapped inputs.
NoCharge4.mat	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge4.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
NoCharge_ED_baseline_Iteration1.mat	0	0	0	0
• state:1 (Active)	0	0	0	0
NoCharge_ED_baseline_Iteration2.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

Iterations

Name	Details						
Iteration1	<table> <tr> <th>Parameter Name</th><th>Value</th></tr> <tr> <td>External Inputs</td><td>NoCharge3.mat</td></tr> <tr> <td>Baseline</td><td>NoCharge_ED_baseline_Iteration1.mat</td></tr> </table>	Parameter Name	Value	External Inputs	NoCharge3.mat	Baseline	NoCharge_ED_baseline_Iteration1.mat
Parameter Name	Value						
External Inputs	NoCharge3.mat						
Baseline	NoCharge_ED_baseline_Iteration1.mat						
Iteration2	<table> <tr> <th>Parameter Name</th><th>Value</th></tr> <tr> <td>External Inputs</td><td>NoCharge4.mat</td></tr> </table>	Parameter Name	Value	External Inputs	NoCharge4.mat		
Parameter Name	Value						
External Inputs	NoCharge4.mat						

Name	Details	
	Parameter Name	Value
	Baseline	NoCharge_ED_baseline_Iteration2.mat

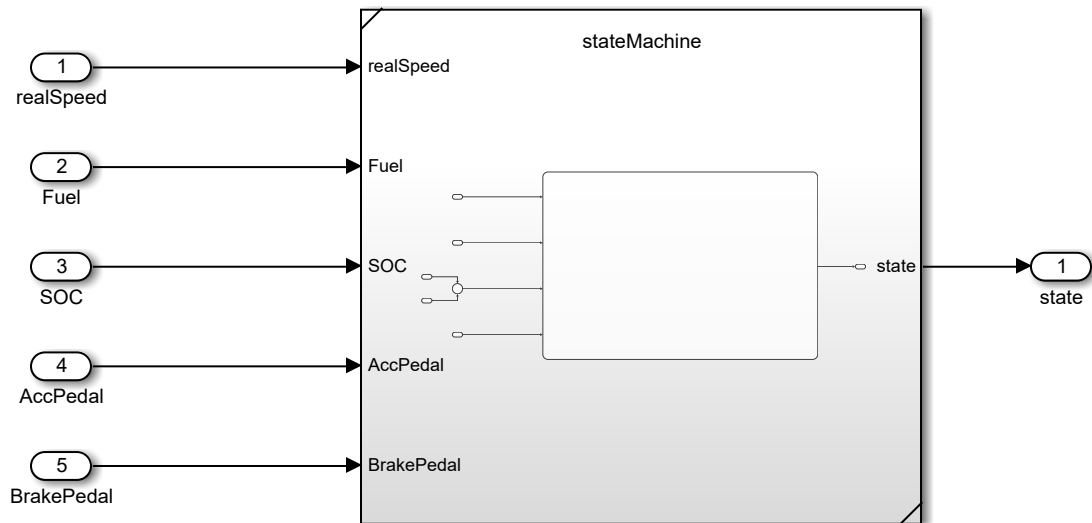
1.2.4. NoCharge-Combined

Test Details

Description	<p>State under test: NO_CHARGE (1)</p> <p>Transition under test: NO_CHARGE (1) - COMBINED (3)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- BrakePedal: 0- AccPedal > MaxAccICE- Fuel > fuelMin- SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to COMBINED (3).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
NoCharge5.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge5.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
NoChargeToCombined_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

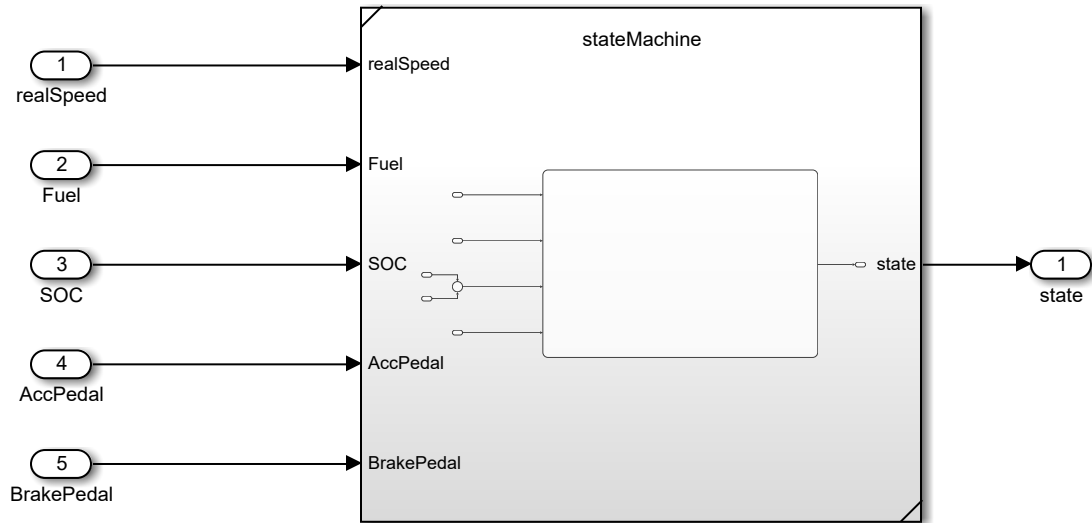
1.2.5. NoCharge-NoCharge

Test Details

Description	<p>State under test: NO_CHARGE (1)</p> <p>Transition under test: NO_CHARGE (1) - NO_CHARGE (1)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - BrakePedal: 0 - AccPedal: uniformly increasing - Fuel > fuelMin - SOC < SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should remain to NO_CHARGE (1).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
NoCharge6.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\NoCharge6.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
NoCharge_NoCharge_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.3. ED

Test Details

Description	From Electrical Drive to all other states. Initially, the FSM starts from DEAD, but soon enters the ED state at the first sampling instant.
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1.3.1. ED-ED

Test Details

Description	<p>State under test: ELECTRIC_DRIVE (ED, 2)</p> <p>Transition under test: ELECTRIC_DRIVE (ED, 2) - ELECTRIC_DRIVE (ED, 2)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed < SpeedEDMax - AccPedal < MaxAccMGU - Fuel > fuelMin - SOC > SOCmin
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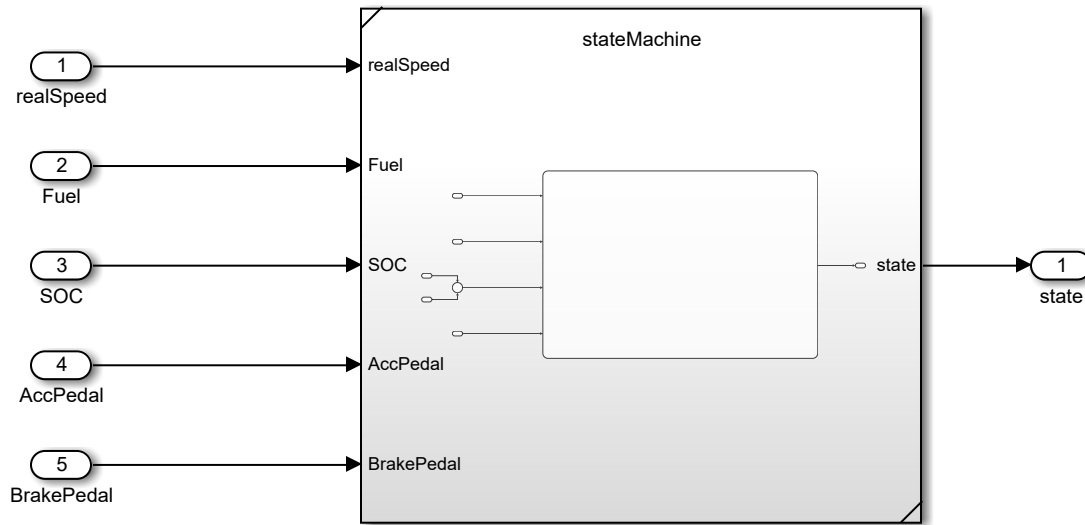
1. FSM_test

EXPECTED OUTPUT:

The state should remain to ELECTRIC_DRIVE (ED, 2).

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
ED1.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED1.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
------------------------	--------------------------------

Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
ED_ED_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.3.2. ED-Regen

Test Details

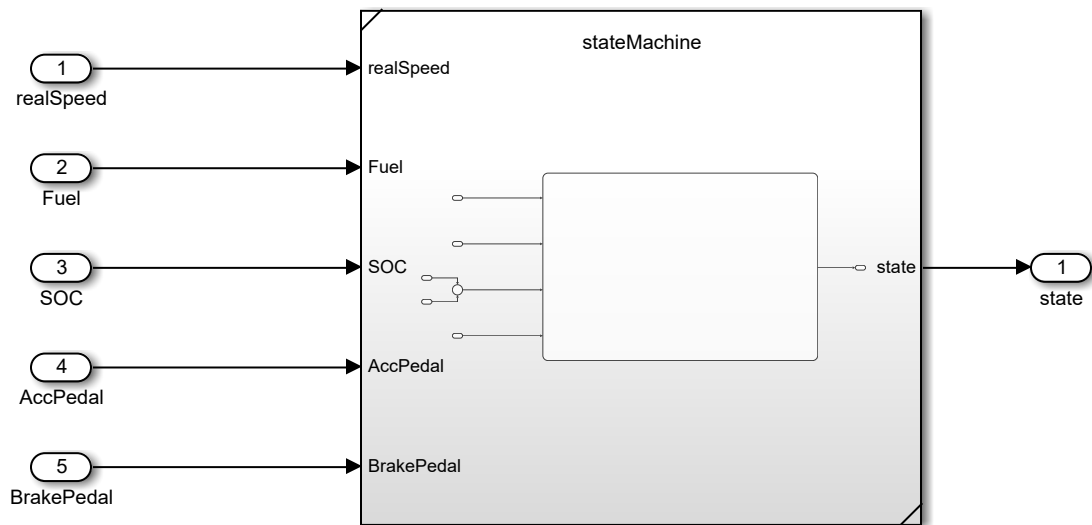
Description	<p>State under test: ELECTRIC_DRIVE (ED, 2)</p> <p>Transition under test: ELECTRIC_DRIVE (ED, 2) - RE-GENERATIVE BRAKING (4)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed < SpeedEDMax - AccPedal < MaxAccMGU - Fuel > fuelMin - SOC > SOCmin - BrakePedal: !=0 after 5s <p>EXPECTED OUTPUT:</p>
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1. FSM_test

The state should change to REGENERATIVE BRAKING (4).

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
ED2.mat (Active)	C:\Users\livane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED2.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
ED_Regen_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

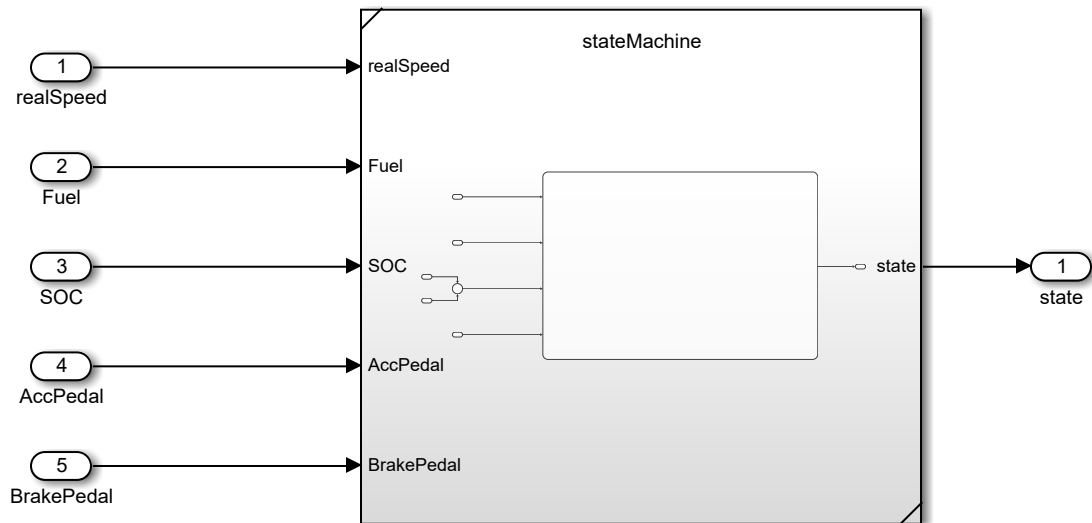
1.3.3. ED-DEAD

Test Details

Description	<p>State under test: ELECTRIC_DRIVE (ED, 2)</p> <p>Transition under test: ELECTRIC_DRIVE (ED, 2) - DEAD (0)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - AccPedal: uniformly increasing request - Fuel < fuelMin - SOC < SOCmin - BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to DEAD (0).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
ED3.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED3.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
ED_Dead_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

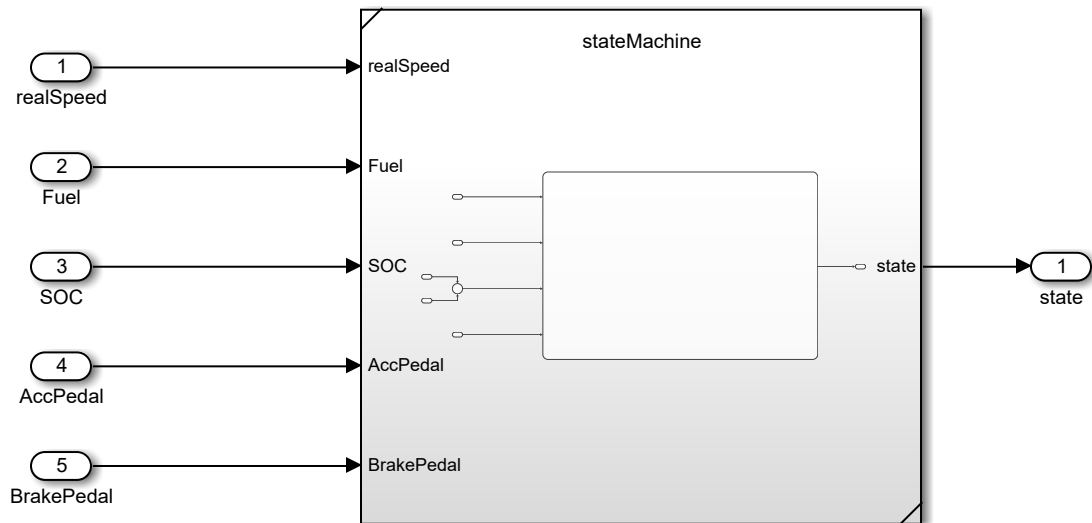
1.3.4. ED-NoCharge

Test Details

Description	<p>State under test: ELECTRIC_DRIVE (ED, 2)</p> <p>Transition under test: ELECTRIC_DRIVE (ED, 2) - NO_CHARGE (4)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- AccPedal < maxAccICE- Fuel > fuelMin- SOC < SOCmin- BrakePedal: 0 <p>EXPECTED OUTPUT:</p> <p>The state should change to NO_CHARGE (1).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
ED4.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED4.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
------------------------	--------------------------------

Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
ED_NoCharge_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.3.5. ED-Combined

Test Details

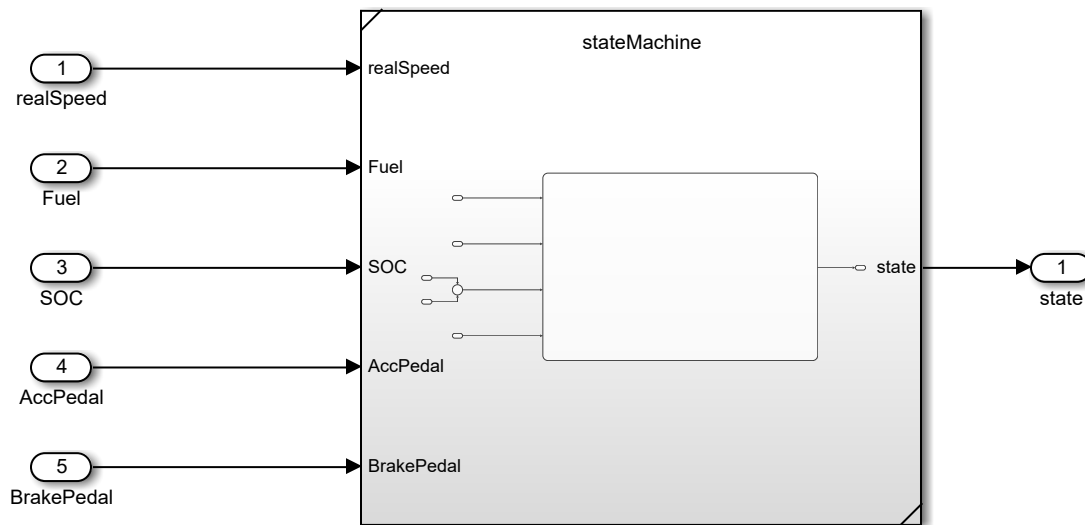
Description	<p>State under test: ELECTRIC_DRIVE (ED, 2)</p> <p>Transition under test: ELECTRIC_DRIVE (ED, 2) - COMBINED (3)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - AccPedal > MaxAccMGU OR RealSpeed > Max-SpeedMGU - Fuel > fuelMin - BrakePedal: 0 - SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to COMBINED (3).</p> <p>NOTE:</p>
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1. FSM_test

This test is done in two iterations due to the presence of an OR among input conditions.

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
ED5.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED5.mat	Successfully mapped inputs.
ED6.mat	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\ED6.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
------------------------	--------------------------------

Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
ED_Comb_baseline1.mat	0	0	0	0
• state:1 (Active)	0	0	0	0
ED_Comb_baseline2.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

Iterations

Name	Details						
Iteration1	<table> <tr> <th>Parameter Name</th><th>Value</th></tr> <tr> <td>External Inputs</td><td>ED5.mat</td></tr> <tr> <td>Baseline</td><td>ED_Comb_baseline1.mat</td></tr> </table>	Parameter Name	Value	External Inputs	ED5.mat	Baseline	ED_Comb_baseline1.mat
Parameter Name	Value						
External Inputs	ED5.mat						
Baseline	ED_Comb_baseline1.mat						
Iteration2	<table> <tr> <th>Parameter Name</th><th>Value</th></tr> <tr> <td>External Inputs</td><td>ED6.mat</td></tr> <tr> <td>Baseline</td><td>ED_Comb_baseline2.mat</td></tr> </table>	Parameter Name	Value	External Inputs	ED6.mat	Baseline	ED_Comb_baseline2.mat
Parameter Name	Value						
External Inputs	ED6.mat						
Baseline	ED_Comb_baseline2.mat						

1.4. Combined

Test Details

Description	From Combined to all other states. Initially, the FSM starts from DEAD, but soon enters the Combined state at the first sampling instant.
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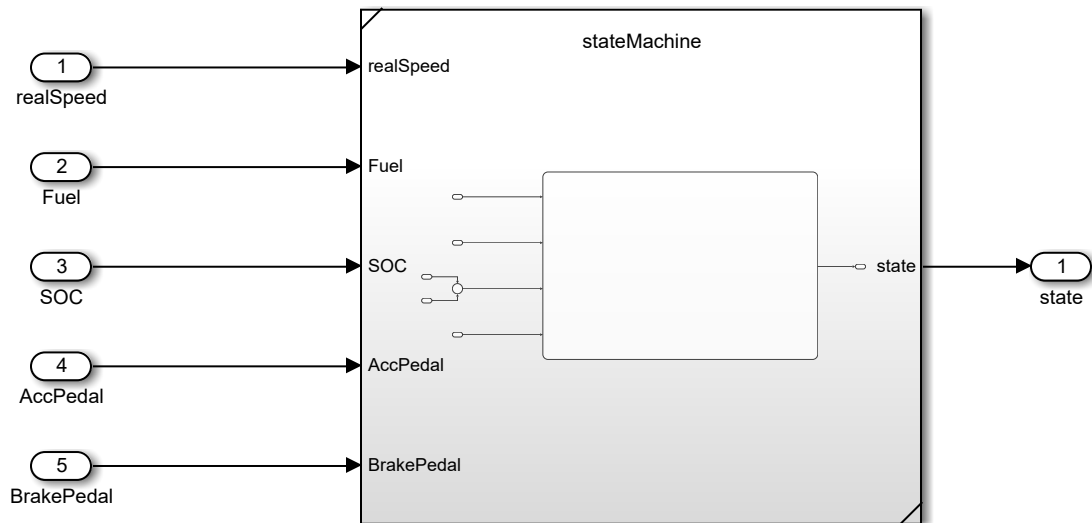
1.4.1. Combined-Combined

Test Details

Description	<p>State under test: COMBINED (3)</p> <p>Transition under test: COMBINED (3) - COMBINED (3)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- RealSpeed>SpeedEDMax- Fuel > fuelMin- BrakePedal: 0- SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should remain to COMBINED (3).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Comb1.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb1.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Comb_Comb_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

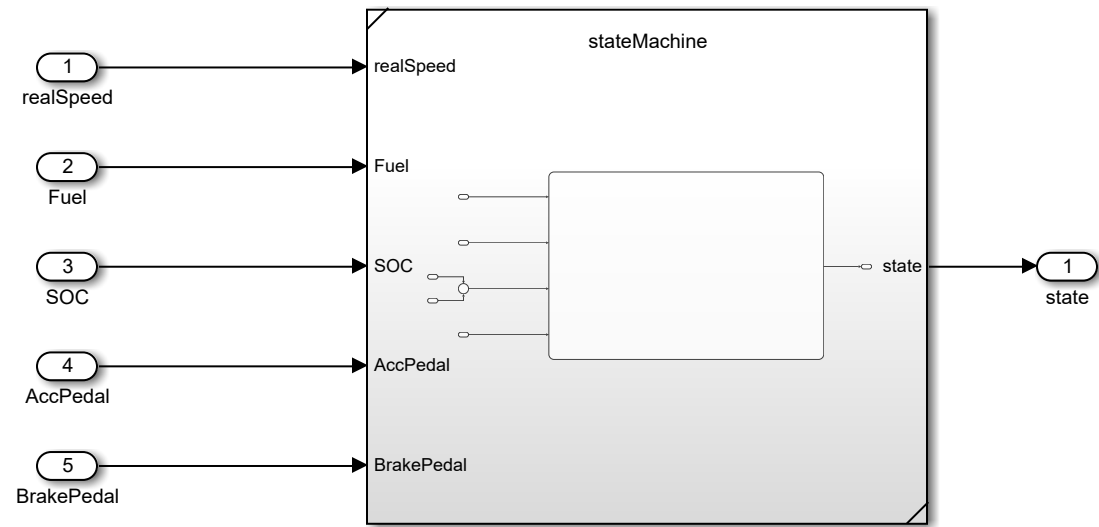
1.4.2. Combined-Regen

Test Details

Description	<p>State under test: COMBINED (3)</p> <p>Transition under test: COMBINED (3) - REGENERATIVE BRAKING(4)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed > SpeedMaxED - Fuel > fuelMin - BrakePedal: != 0 after t = 5s - SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to REGENERATIVE BRAKING (4).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Comb2.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb2.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Comb_Regen_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

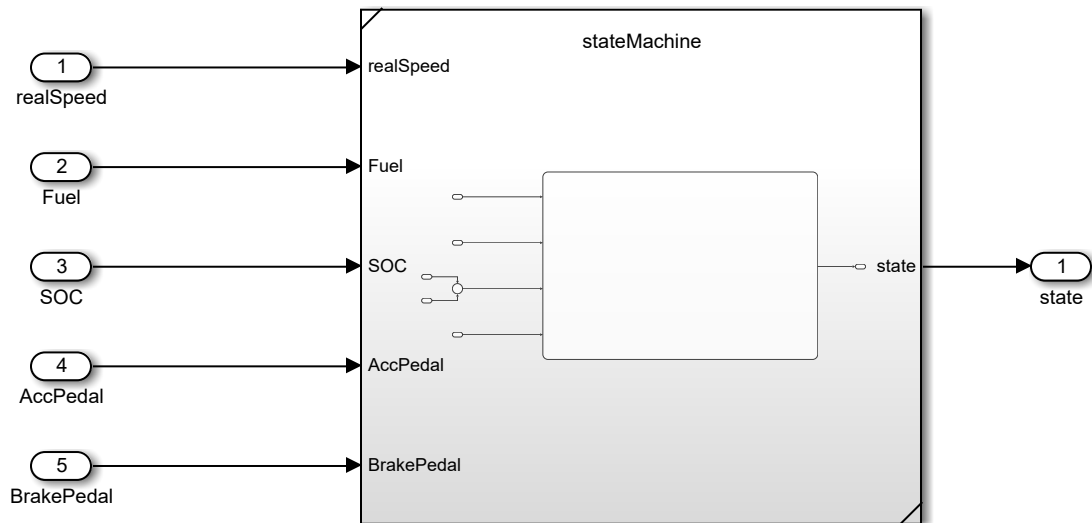
1.4.3. Combined-DEAD

Test Details

Description	<p>State under test: COMBINED (3)</p> <p>Transition under test: COMBINED (3) - DEAD (0)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- Fuel < fuelMin- SOC < SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to DEAD (0).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Comb3.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb3.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Comb_Dead_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

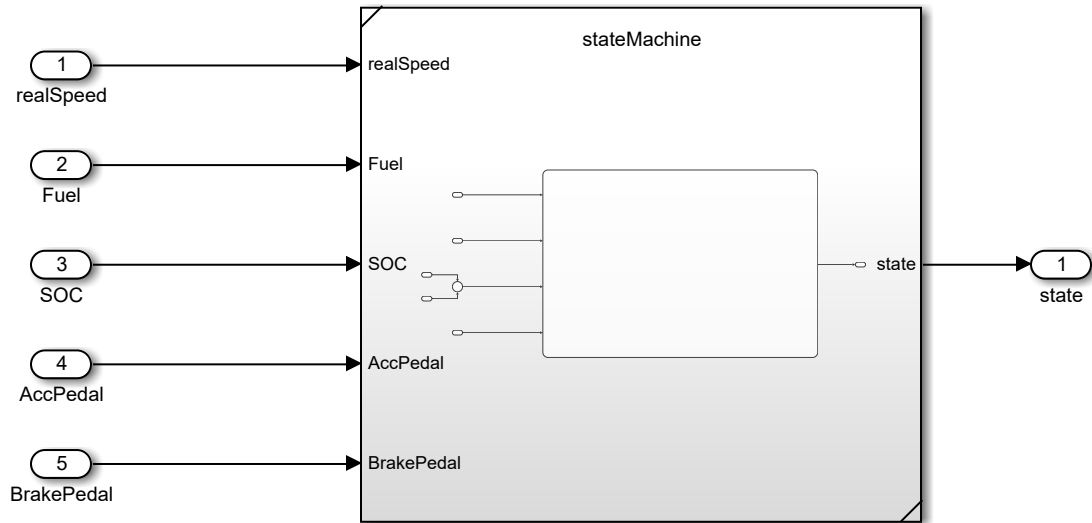
1.4.4. Combined-ED

Test Details

Description	<p>State under test: COMBINED (3)</p> <p>Transition under test: COMBINED (3) - ELECTRIC_DRIVE (ED, 2)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed < SpeedEDMax at t = 5s - AccPedal < MaxAccMGU after t = 5s - BrakePedal: 0 - SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to ELECTRIC_DRIVE (ED, 2).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Comb4.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb4.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Comb_ED_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.4.5. Combined-NoCharge

Test Details

Description	<p>Combined to No Charge state transition check:</p> <ul style="list-style-type: none"> -SOC < SOCMin -fuel > fuelMin -AccPedal < maxAccICE <p>The state should pass from Combined to No Charge</p> <p>State under test: COMBINED (3)</p> <p>Transition under test: COMBINED (3) - NO_CHARGE (1)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - AccPedal < maxAccICE - BrakePedal: 0 - Fuel > fuelMin - SOC < SOCmin
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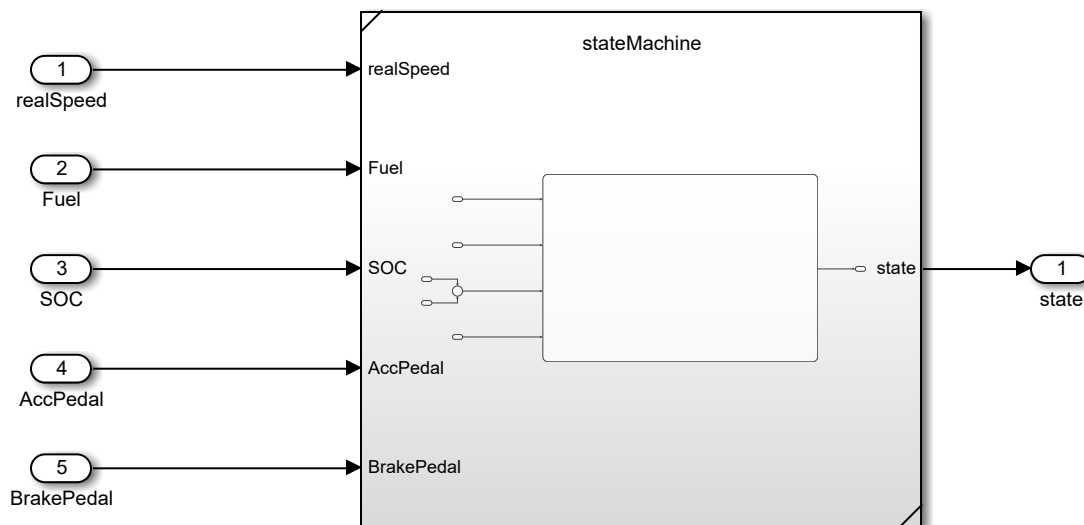
1. FSM_test

EXPECTED OUTPUT:

The state should change to NO_CHARGE (1).

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Comb5.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Comb5.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Comb_NoCharge_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

1.5. Regen

Test Details

Description	From Regenerative Braking to all other states. Initially, the FSM starts from DEAD, but soon enters the Regen state at the first sampling instant.
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1.5.1. Regen-Regen

Test Details

Description	<p>State under test: REGENERATIVE BRAKING (4)</p> <p>Transition under test: REGENERATIVE BRAKING (4) - REGENERATIVE BRAKING (4)</p> <p>INPUT conditions:</p> <p>- BrakePedal > 0</p>
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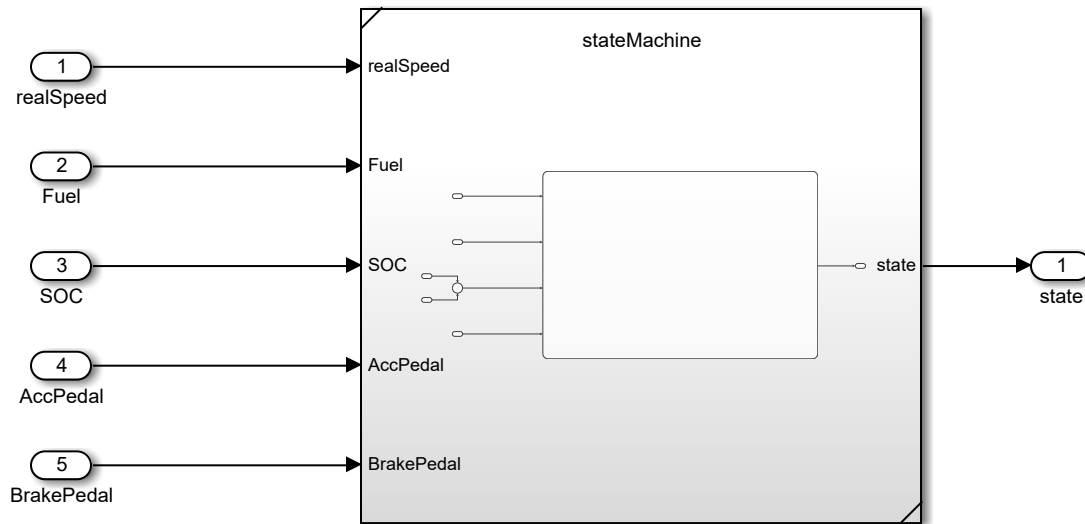
1. FSM_test

EXPECTED OUTPUT:

The state should remain to REGENERATIVE_BRAKING (4).

System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Regen1.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen1.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Regen_Regen_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

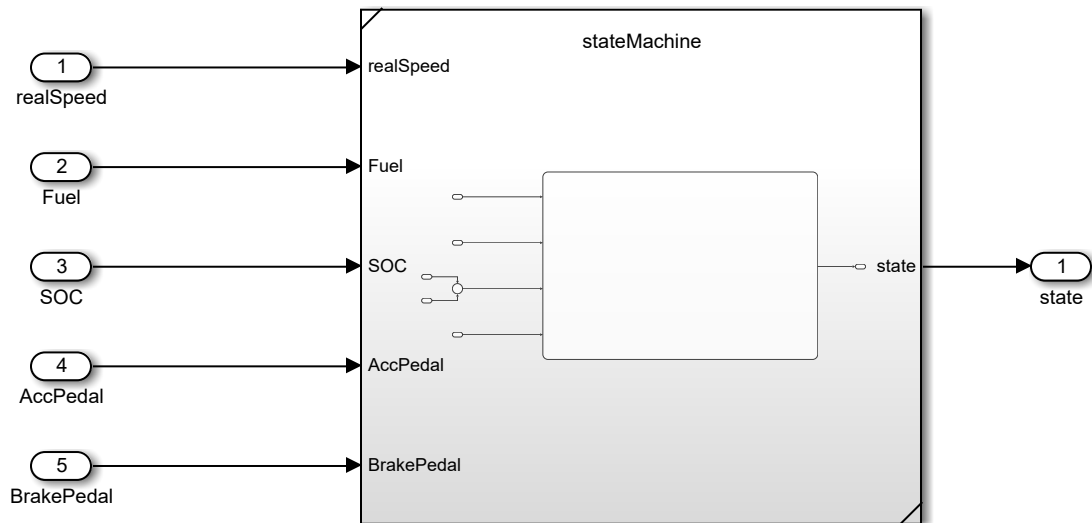
1.5.2. Regen-DEAD

Test Details

Description	<p>State under test: REGENERATIVE_BRAKING (4)</p> <p>Transition under test: REGENERATIVE_BRAKING (4) - DEAD (0)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - AccPedal > 0 at t = 5 s - BrakePedal: 0 at t = 5 s - Fuel < fuelMin - SOC < SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to DEAD (0).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Regen2.mat (Active)	C:\Users\livane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen2.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Regen_Dead_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

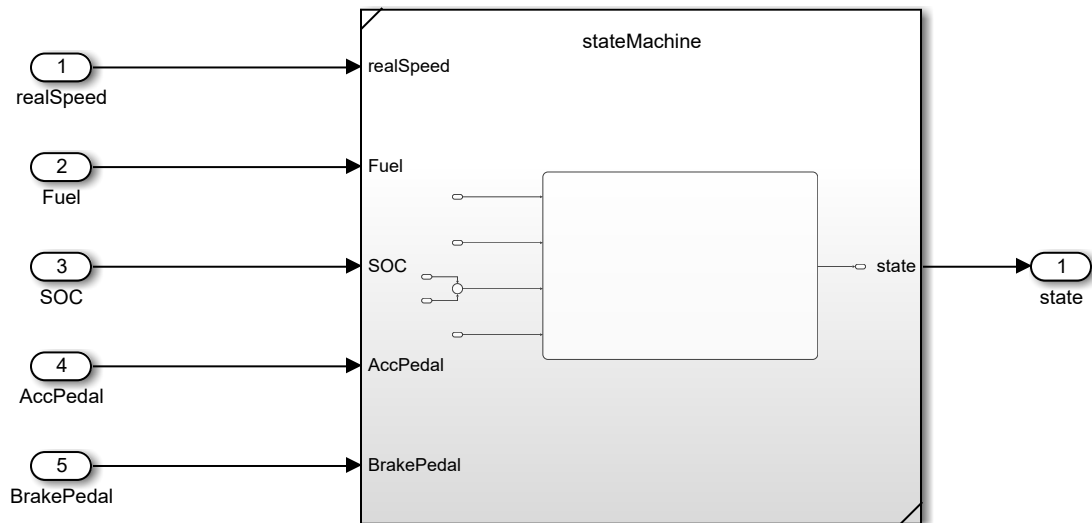
1.5.3. Regen-ED

Test Details

Description	<p>State under test: REGENERATIVE BRAKING (4)</p> <p>Transition under test: REGENERATIVE BRAKING (4) - ELECTRIC_DRIVE (ED, 2)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed < SpeedEDMax - AccPedal: !=0 at t = 5 s - BrakePedal: 0 at t = 5 s - SOC < SOCmin for a while, then SOC>SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to ELECTRIC_DRIVE (ED, 2).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Regen3.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen3.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Regen_ED_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

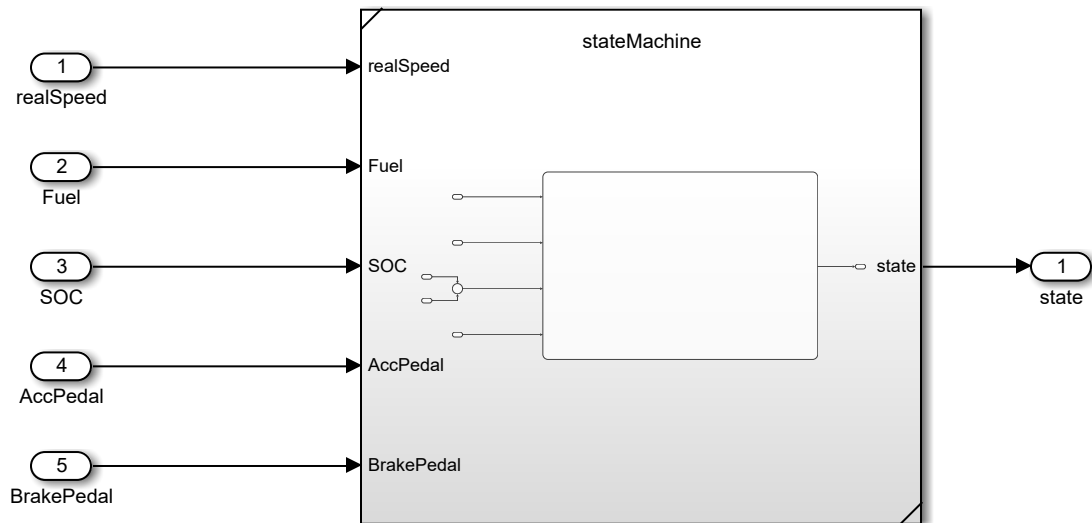
1.5.4. Regen-NoCharge

Test Details

Description	<p>State under test: REGENERATIVE BRAKING (4)</p> <p>Transition under test: REGENERATIVE BRAKING (4) - NO_CHARGE (1)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none">- AccPedal: !=0 at t = 5 s- BrakePedal: 0 at t = 5 s- Fuel > fuelMin- SOC < SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to NO_CHARGE (1).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Regen4.mat (Active)	C:\Users\ivane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen4.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Regen_NoCharge_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0

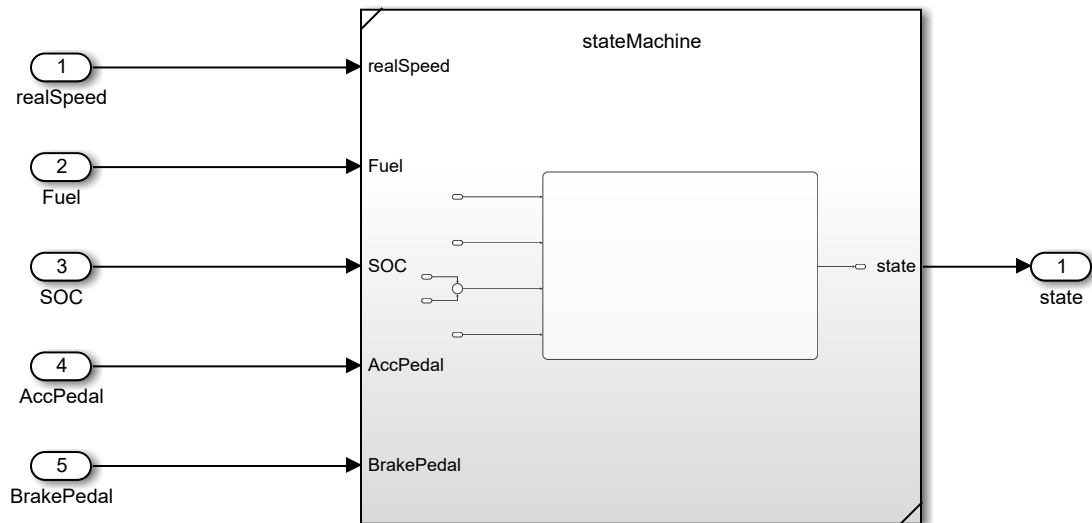
1.5.5. Regen-Combined

Test Details

Description	<p>State under test: REGENERATIVE BRAKING (4)</p> <p>Transition under test: REGENERATIVE BRAKING (4) - COMBINED (3)</p> <p>INPUT conditions:</p> <ul style="list-style-type: none"> - RealSpeed > SpeedMaxMGU - AccPedal: !=0 at t = 5 s - BrakePedal: 0 at t = 5 s - Fuel > fuelMin - SOC > SOCmin <p>EXPECTED OUTPUT:</p> <p>The state should change to COMBINED (3).</p>
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System Under Test

Model Name: FSM_Model



Simulation Settings Overrides

Simulation Mode	Model Settings
Releases	Current

External Inputs

Name	File Path	Status
Regen5.mat (Active)	C:\Users\livane\Documents\GitHub\hybrid-controller\Hybrid-controller\Test\FSM Test\Inputs\Regen5.mat	Successfully mapped inputs.

Configuration Settings Overrides

Configuration settings	Do not override model settings
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Baseline Criteria

Signal Name	Abs Tol	Rel Tol	Leading Tol	Lagging Tol
Regen_Combined_baseline.mat (Active)	0	0	0	0
• state:1 (Active)	0	0	0	0