Generated report in English for the AutoFocus3 model SimpleTrafficLightsExample.af3_23

Data Dictionary

IndicatorSignal is a data type. It has 2 elements that are Off, and On.
Signal is a data type. It has 1 element that is Present.
PedestrianColor is a data type. It has 2 elements that are Stop, and Walk.
TrafficColor is a data type. It has 4 elements that are Green, Red, RedYellow, and Yellow.
TGreen is a constant. It is equal to 2.
TRed is a constant. It is equal to 5.
TYellow is a constant. It is equal to 1.

Component Architecture

The system TL-Architecture consists of 3 components that are Merge, Controller, and Panel.
The channels in TL-Architecture are described by the following list:
The channel ButtonA is an external input that goes to the component Merge.
The channel ButtonB is an output of the component Panel. It goes to the component Merge.
The channel TrafficSignal, PedestrianSignal, IndicatorSignalA, and IndicatorSignalB are outputs of the component Controller. They go to the component Panel.
The channel Request is an output of the component Merge. It goes to the component Controller.
The channel TrafficSignal, PedestrianSignal, IndicatorSignalA, and IndicatorSignalB are outputs of the component Controller and also serve as external outputs.

The component Panel has 2 subcomponents that are Display, and HAL.
The channels in Panel are described by the following list:
The channel TrafficSignal, PedestrianSignal, IndicatorSignalA, and IndicatorSignalB are outputs of the component HAL. They go to the component Display.
The channel ButtonB is an output of the component Display and also serves as an external output.
The channel TrafficSignal, PedestrianSignal, IndicatorSignalA, and IndicatorSignalB are external inputs that go to the component HAL.

The component Controller has 1 subcomponent that is Behavior.
The channels in Controller are described by the following list:
The channel TrafficSignal, PedestrianSignal, IndicatorSignalA, and IndicatorSignalB are outputs of the component Behavior and also serve as external outputs.
The channel Request is an external input that goes to the component Behavior.

State Transition Diagram

The component Merge has 1 state that is Merge.
The initial state of the component Merge is Merge.
ForwardA is a transition from the state Merge to the state Merge.
The Guard for ForwardA is described by the following preconditions:
- The value of MergeInButtonA is equal to Present.
- The value of MergeInButtonB is not equal to Present.

The Action for ForwardA is described by the following postconditions:
- The value of MergeOutRequest is set to Present.

ForwardB is a transition from the state Merge to the state Merge.
The Guard for ForwardB is described by the following preconditions:
- The value of MergeInButtonB is equal to Present.
- The value of MergeInButtonA is not equal to Present.

The Action for ForwardB is described by the following postconditions:
- The value of MergeOutRequest is set to Present.

ForwardBoth is a transition from the state Merge to the state Merge.
The Guard for ForwardBoth is described by the following preconditions:
- The value of MergeInButtonB is equal to Present.
- The value of MergeInButtonA is equal to Present.

The Action for ForwardBoth is described by the following postconditions:
- The value of MergeOutRequest is set to Present.

The component Behavior has 5 states that are Init, Green, RedYellow, Red, and Yellow.
The initial state of the component Behavior is Init.
InitializeWithNoVal is a transition from the state Init to the state Green.
The Guard for InitializeWithNoVal is described by the following preconditions:
- The value of Time is equal to -1.
- The value of BehaviorInRequest is equal to NoVal.

The Action for InitializeWithNoVal is described by the following postconditions:
- The value of BehaviorOutTrafficSignal is set to Green.
- The value of BehaviorOutPedestrianSignal is set to Stop.
- The value of BehaviorOutIndicatorSignal is set to Off.
- The value of Time is set to -1.

InitializeWithPresent is a transition from the state Init to the state Green.
The Guard for InitializeWithPresent is described by the following preconditions:
- The value of Time is equal to -1.
- The value of BehaviorInRequest is equal to Present.

The Action for InitializeWithPresent is described by the following postconditions:
- The value of BehaviorOutTrafficSignal is set to Green.
- The value of BehaviorOutPedestrianSignal is set to Stop.
- The value of BehaviorOutIndicatorSignal is set to On.
- The value of Time is set to TGreen.

GreenToYellow is a transition from the state Green to the state Yellow.
The Guard for GreenToYellow is described by the following preconditions:
- The value of Time is equal to 0.

The Action for GreenToYellow is described by the following postconditions:
The value of BehaviorOutTrafficSignal is set to Yellow.
The value of BehaviorOutPedestrianSignal is set to Stop.
The value of BehaviorOutIndicatorSignal is set to On.
The value of Time is set to TYellow.

YellowToRed is a transition from the state Yellow to the state Red.
The Guard for YellowToRed is described by the following preconditions:
The value of Time is equal to 0.
The Action for YellowToRed is described by the following postconditions:
The value of BehaviorOutTrafficSignal is set to Red.
The value of BehaviorOutPedestrianSignal is set to Walk.
The value of BehaviorOutIndicatorSignal is set to Off.
The value of Time is set to TRed.

RedToRedyellow is a transition from the state Red to the state RedYellow.
The Guard for RedToRedyellow is described by the following preconditions:
The value of Time is equal to 0.
The Action for RedToRedyellow is described by the following postconditions:
The value of BehaviorOutTrafficSignal is set to RedYellow.
The value of BehaviorOutPedestrianSignal is set to Stop.
The value of BehaviorOutIndicatorSignal is set to Off.
The value of Time is set to TYellow.

RedyellowToGreen is a transition from the state RedYellow to the state Green.
The Guard for RedyellowToGreen is described by the following preconditions:
The value of Time is equal to 0.
The Action for RedyellowToGreen is described by the following postconditions:
The value of BehaviorOutTrafficSignal is set to Green.
The value of BehaviorOutPedestrianSignal is set to Stop.
The value of BehaviorOutIndicatorSignal is set to Off.
The value of Time is set to -1.

Receive is a transition from the state Green to the state Green.
The Guard for Receive is described by the following preconditions:
The value of Time is equal to -1.
The value of BehaviorInRequest is equal to Present.
The Action for Receive is described by the following postconditions:
The value of BehaviorOutTrafficSignal is set to Green.
The value of BehaviorOutPedestrianSignal is set to Stop.
The value of BehaviorOutIndicatorSignal is set to On.
The value of Time is set to TGreen.

Countdown is a transition from the state Green to the state Green.
The Guard for Countdown is described by the following preconditions:
The value of Time is greater than 0.
The Action for Countdown is described by the following postconditions:
The value of Time is set to (Time - 1).

Countdown is a transition from the state Yellow to the state Yellow.
The Guard for Countdown is described by the following preconditions:
The value of Time is greater than 0.
The Action for Countdown is described by the following postconditions:

The value of Time is set to (Time - 1).

Countdown is a transition from the state Red to the state Red.
The Guard for Countdown is described by the following preconditions:
The value of Time is greater than 0.
The Action for Countdown is described by the following postconditions:
The value of Time is set to (Time - 1).

Countdown is a transition from the state RedYellow to the state RedYellow.
The Guard for Countdown is described by the following preconditions:
The value of Time is greater than 0.
The Action for Countdown is described by the following postconditions:
The value of Time is set to (Time - 1).

The component HAL has 1 state that is HAL.
The initial state of the component HAL is HAL.
SetAndOutputVariables is a transition from the state HAL to the state HAL.
The Guard for SetAndOutputVariables is described by the following preconditions:
The value of HALInTrafficSignal is not equal to NoVal.
The value of HALInPedestrianSignal is not equal to NoVal.
The value of HALInIndicatorSignalA is not equal to NoVal.
The value of HALInIndicatorSignalB is not equal to NoVal.
The Action for SetAndOutputVariables is described by the following postconditions:
The value of TrafficSignal is set to HALInTrafficSignal.
The value of PedestrianSignal is set to HALInPedestrianSignal.
The value of IndicatorSignalA is set to HALInIndicatorSignalA.
The value of IndicatorSignalB is set to HALInIndicatorSignalB.
The value of HALOutTrafficSignal is set to TrafficSignal.
The value of HALOutPedestrianSignal is set to PedestrianSignal.
The value of HALOutIndicatorSignalA is set to IndicatorSignalA.
The value of HALOutIndicatorSignalB is set to IndicatorSignalB.

OutputVariables is a transition from the state HAL to the state HAL.
The Guard for OutputVariables is described by the following preconditions:
The value of HALInTrafficSignal is equal to NoVal.
The value of HALInPedestrianSignal is equal to NoVal.
The value of HALInIndicatorSignalA is equal to NoVal.
The value of HALInIndicatorSignalB is equal to NoVal.
The Action for OutputVariables is described by the following postconditions:
The value of HALOutTrafficSignal is set to TrafficSignal.
The value of HALOutPedestrianSignal is set to PedestrianSignal.
The value of HALOutIndicatorSignalA is set to IndicatorSignalA.
The value of HALOutIndicatorSignalB is set to IndicatorSignalB.

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