

LabVIEW Course

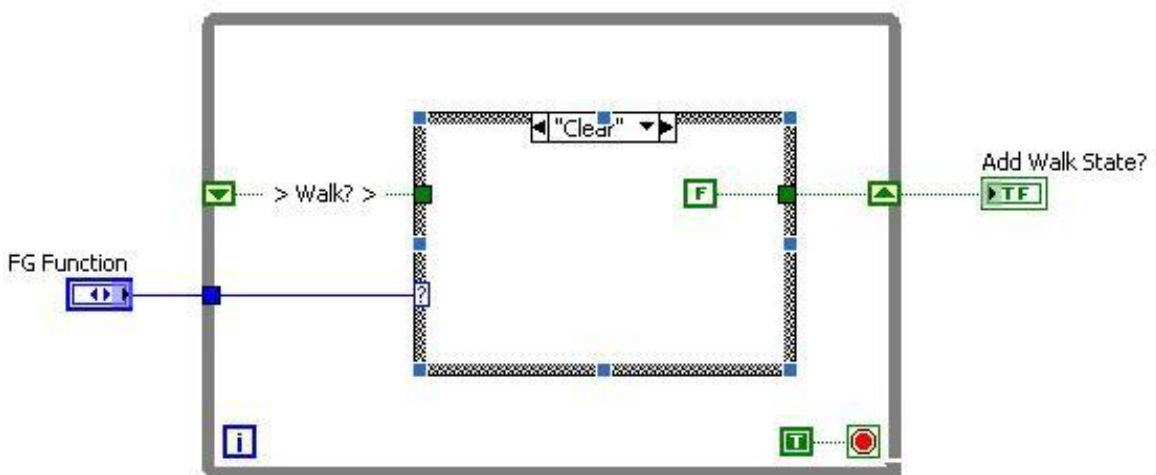
Exercise 18

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Exercise 18 – Using a Functional Global Variable

This exercise uses the *Queued Pedestrian Lights Second Loop.vi* modified at the end of Exercise 17 and employs a Functional Global variable (FG) to indicate when the 'Walk' state should be added to the sequence.

- 1) Create a Control using the following tips:
 - a) Right-click the Project>>Controls folder and do New>>Control.
 - b) Add an enum to the control, labelled 'FG Function', with three items: 'Clear', 'Set' and 'Read'.
 - c) Save the control as *FG Function.ctl*
- 2) Create *Add Walk State FG.vi* using the following tips:
 - a) Add *FG Function.ctl* and a boolean indicator named *Add Walk State?* to the front panel.
 - b) Create the diagram below:



- c) What should go in cases 'Set' and 'Read'?
 - d) The text on the shift register wire is created by right-clicking the wire and picking Visible Items>>Label.
- 3) On *Queued Pedestrian Lights Second Loop.vi* right-click the Event structure Selector Label and select *Add Event Case...* Select *Event Source* WALK and *Event Value Change*. Press OK when done.

- 4) Move the *WALK* control on the diagram to the Event case just created. Insert *Add Walk State FG.vi* to this case and wire a constant to the *FG Function* terminal. Select the constant as *Set*.
- 5) In the other loop put *Add Walk State FG.vi* into the RED case. Add a constant to the input and set it as 'Read'. Wire the output to the *Load Traffic Light Queue* input.
- 6) In the WALK case insert *Add Walk State FG.vi* and wire the constant as 'Clear'.
- 7) Save the VI as *Queued Pedestrian Lights FG.vi*, and ensure it's added to the project. Run the VI. Is the function of the VI correct?
- 8) Add a Boolean indicator to the front panel, labelled 'Waiting' and place it near the WALK button.
- 9) How can the 'Waiting' indicator show that the WALK button has been pressed? *Hint: add a Timeout case to the Event Structure.*
- 10) If the VI is stopped with the 'Waiting' indicator True, when the VI is next run the 'Waiting' indicator will be True. How can the VI be modified to reset the 'Waiting' indicator? *Hint: the Add Walk State FG.vi should be cleared.*

End of Exercise