

Elevator Controller in SpecC

Ishvarjit Singh Garewal
Department of Electrical Engineering
and Computer Science
University of California, Irvine

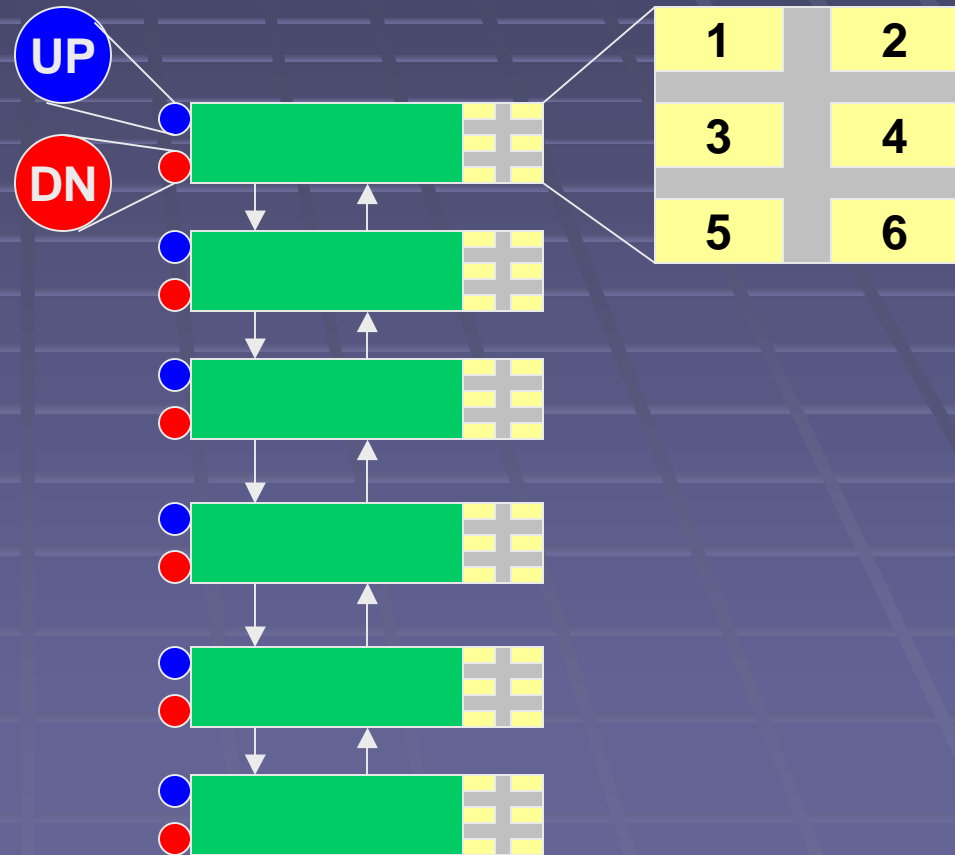
Why Elevator ?

- Simple
- Real Time
- Easy to demonstrate

What is an Elevator.

Types of Requests

- From inside
- From outside in direction of elevator
- From outside in direction opposite to elevator



Finer Details

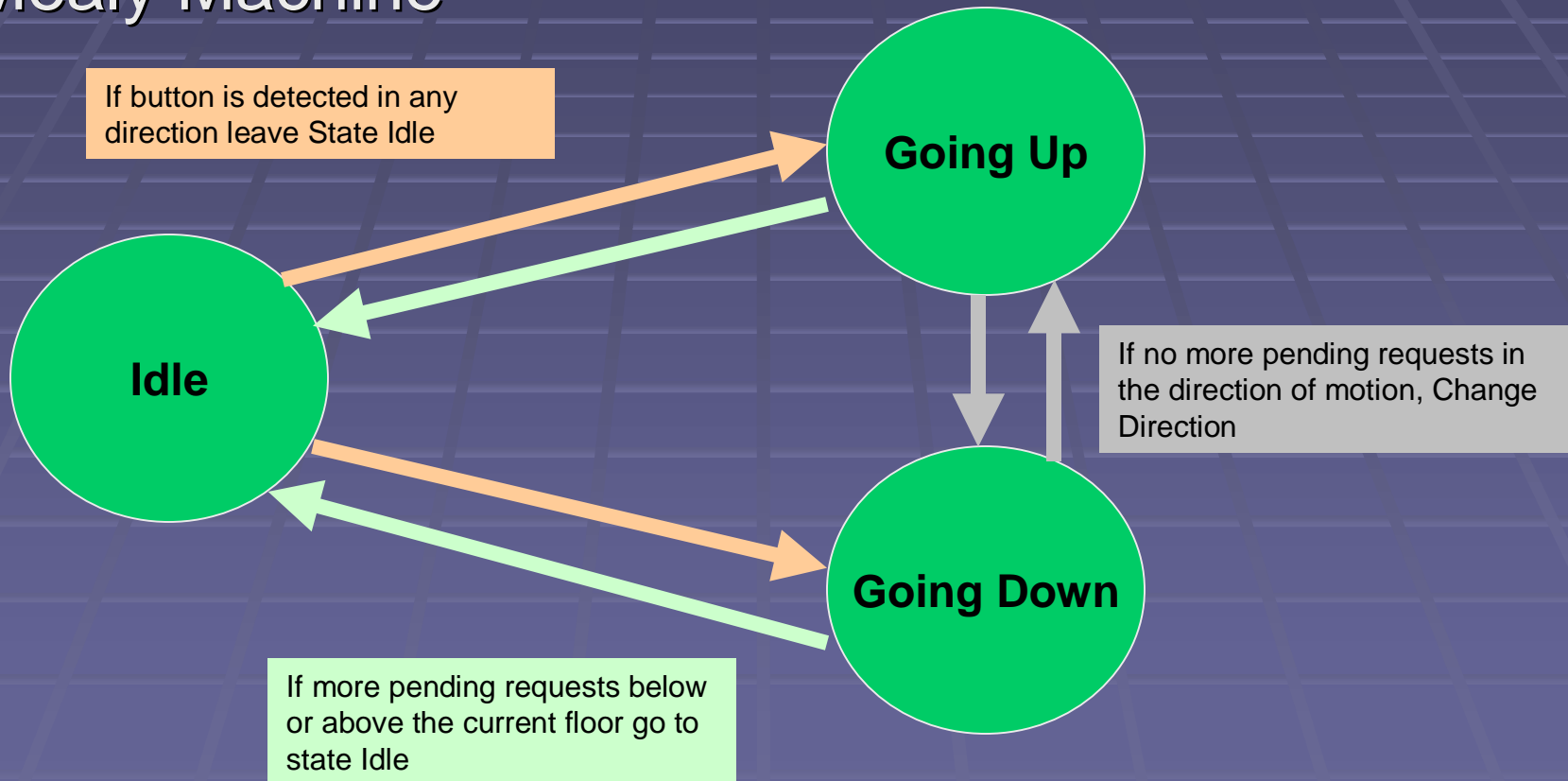
- How to resolve conflicts?

Answer : Inertia

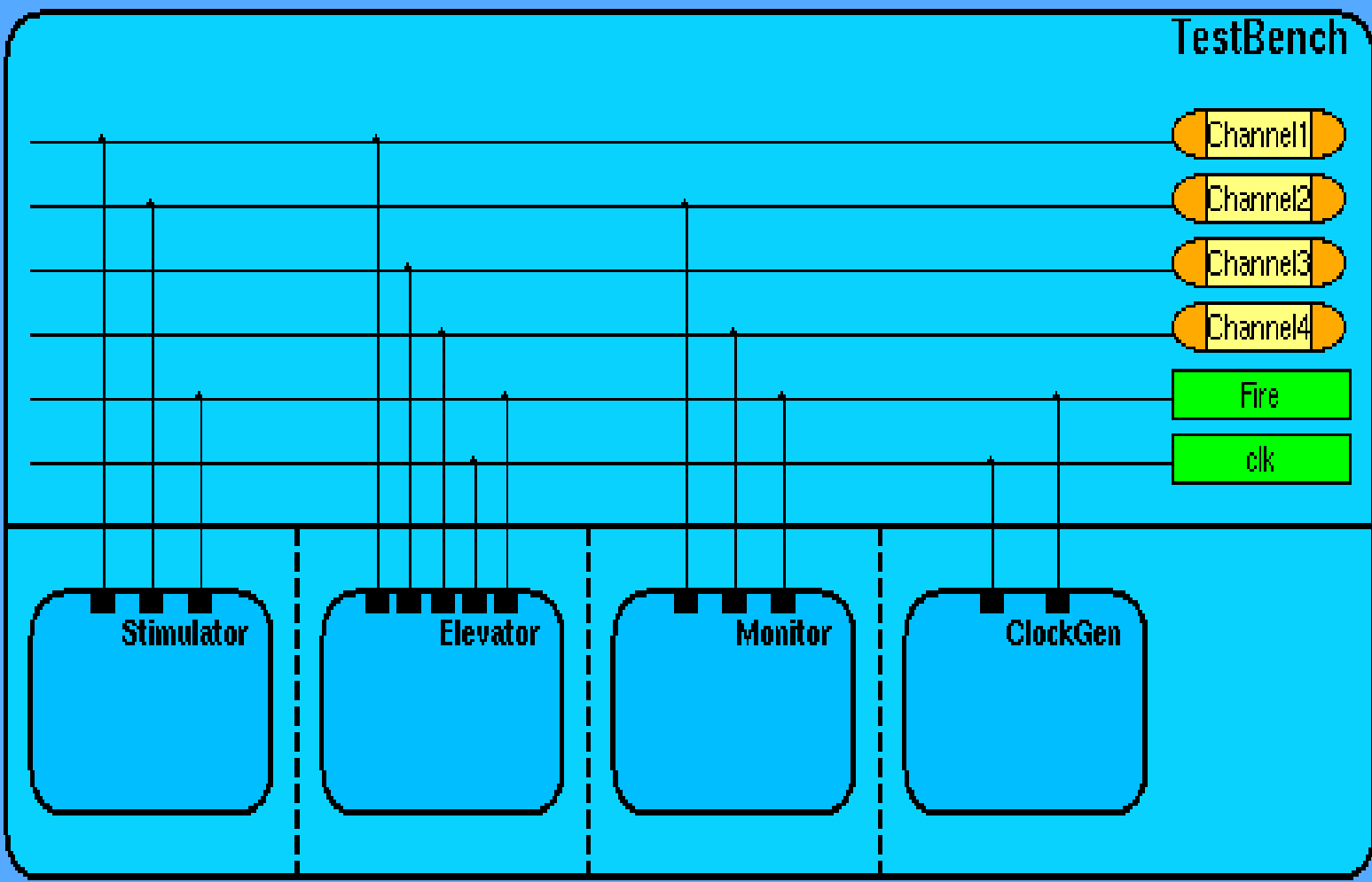
- Do not open door if person wants to go in opposite direction
- If Fire then Open Door and Reset.

FSM model

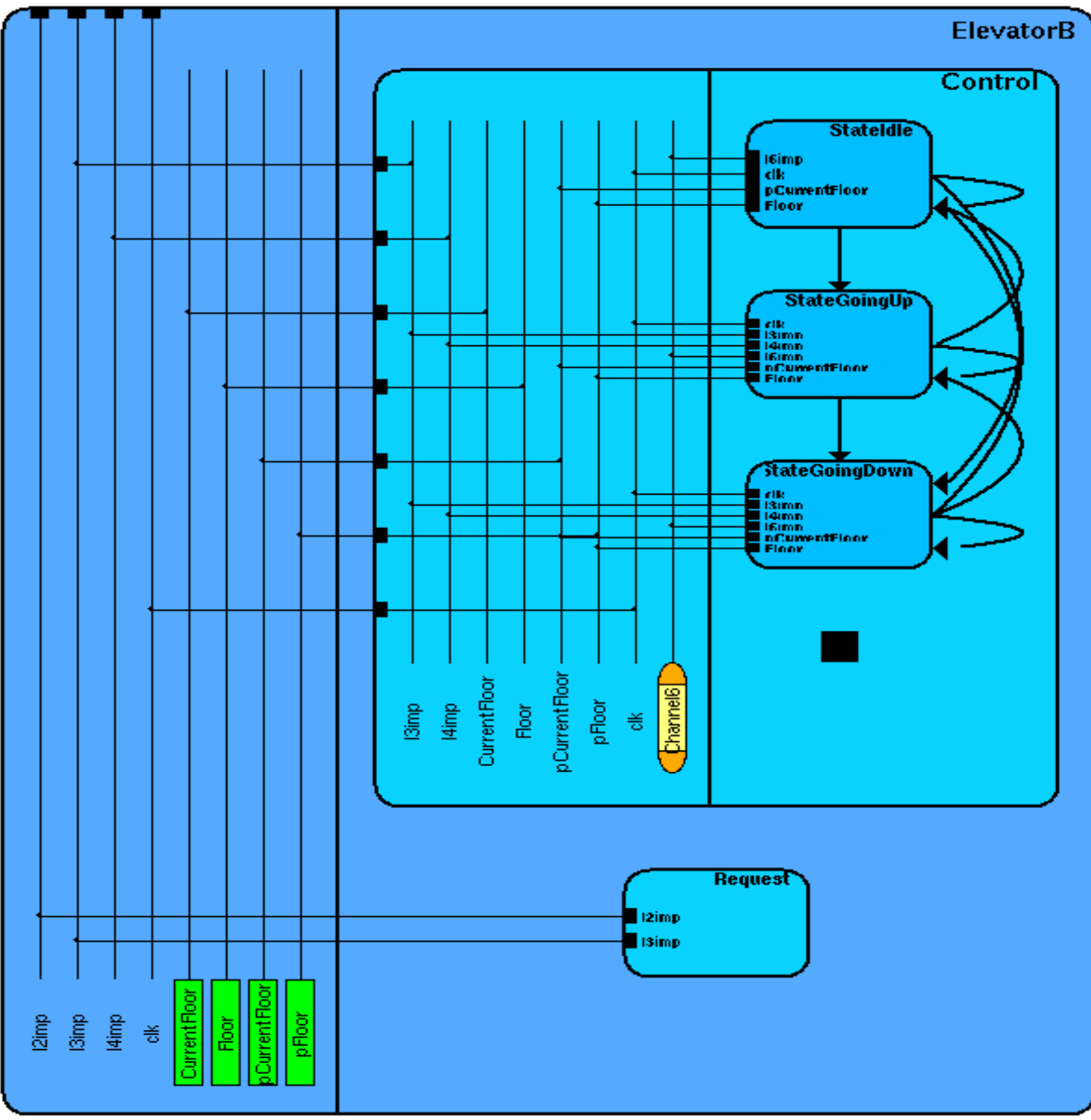
Mealy Machine



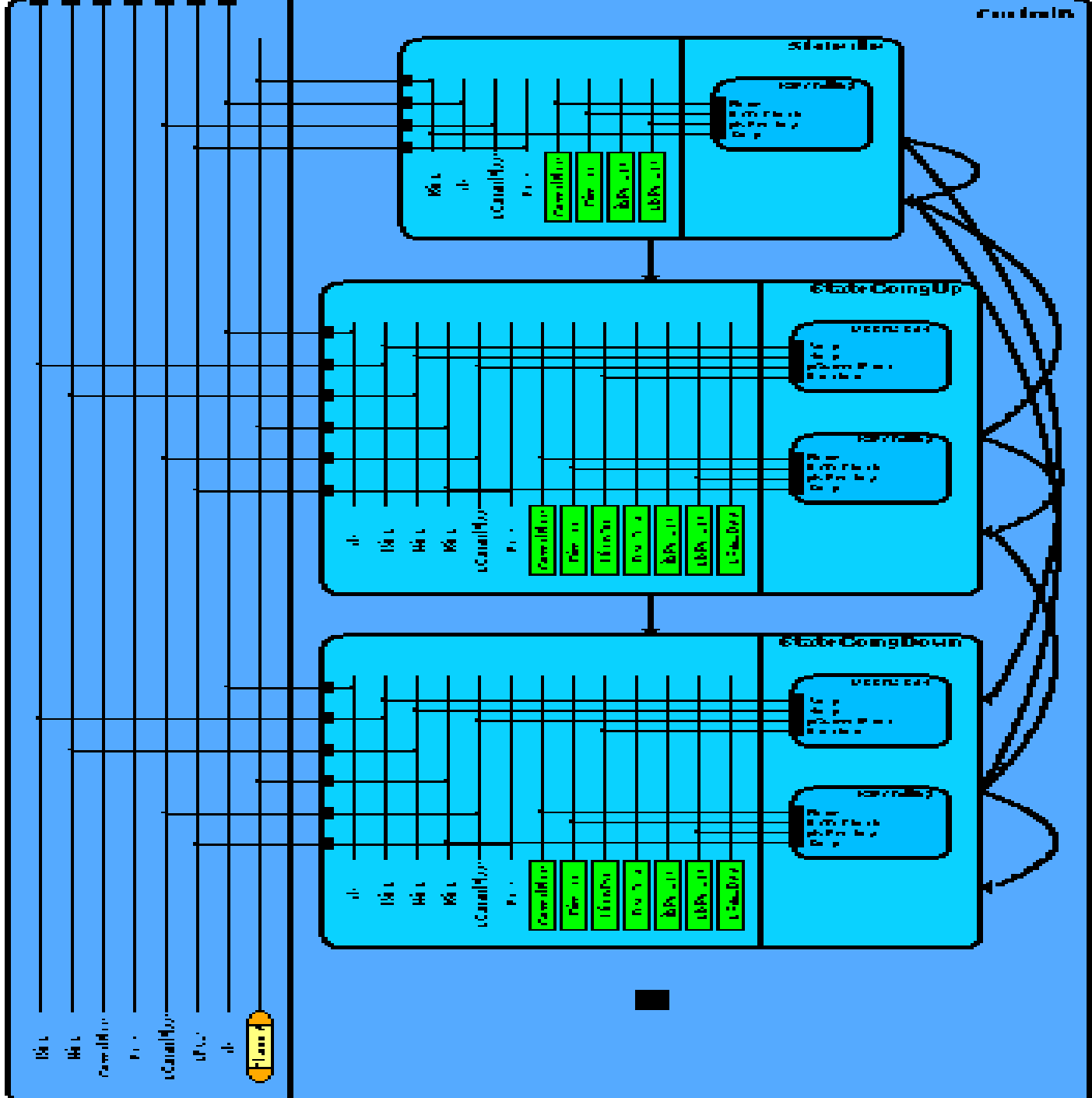
TestBench



Elevator



Controller



Demo

- ^ Outside button for going up
- v Outside button for going down
- # Inside Button
- | Floor visited by elevator
- X Floor stopped at by elevator
- - Null

Learning's, Bug's Enhancements

- Start with SpecC, rather than make C code and port. Could be personal preference.
- Globalize signals to avoid bug while architectural refinement
- SCE doesn't seem to like Exceptions while displaying hierarchy. More customizable zooming
- Possible enhancement. Automatic passing of variables to States in an FSM
- Syntax of SpecC easy if you know C

References/Acknowledgements

- Examples from class.
- Class slides
- http://www.specc.gr.jp/news/SpecC_LRM_20.pdf