Assignment 6 - Generating Test Cases with FSM's

Team 16

States and Transitions for the System:

FD & O decides to add an elevator right next to the existing one in the College of Engineering building. They are asking you to help them test the new elevator which will operate alongside the existing one.

Define states and transitions for the system. Draw an FSM depicting states and state transitions.

Make sure to handle exceptions (emergency stop?).

Create at least one Transition Tour from the FSM. Create at least 5 test sequences to test the elevator bank.



So our elevator start from the idle mode and then a button is pressed. This will cause the elevator doors to open. Then when a timer expires the doors will attempt to close unless someone holds the door. Then once the door is finally closed, the elevator will move up or down depending on the button that was pressed. After moving the elevator will move to stop state which then will start a timer to the open door state. Then after a period of inactivity the elevator will return to an idle state.

Transition tour:

Idle, UP Button, Open Door, Timer, Close Door, UP, Stop, Open Door, Timer, Close Door Idle, Down button, Open Door, Timer, Close Door, DOWN, Stop, Open Door, Timer, Close Door

Test sequences:

Input and output table

Input	Output
PCB: Push call button	
PUB: Push up button	GH: Elevator goes to higher level
PDB: Push down button	GL: Elevator goes lower level
PEB: Push emergency button	ES: Elevator stops
DOB: Door open button	OD: open door
DCB: Door close button	CD: close door

Test cases:

- 1. Elevator ! PCB
 - a. Elevator? GH: Fail
 - b. Elevator ? GL: Fail
 - c. Elevator ? ES: Fail
 - d. Elevator ? OD: Pass
 - e. Elevator ? CD: Fail
- 2. Elevator ! PUB:
 - a. Elevator ? GH: Pass
 - b. Elevator ? GL: Fail
 - c. Elevator ? ES: Fail
 - d. Elevator? OD: fail
 - e. Elevator ? CD: Fail
- 3. Elevator ! PDB

- a. Elevator ? GH: Fail
- b. Elevator ? GL: Pass
- c. Elevator ? ES: Fail
- d. Elevator ? OD: fail
- e. Elevator ? CD: Fail
- 4. Elevator ! PEB
 - a. Elevator ? GH: Fail
 - b. Elevator ? GL: Fail
 - c. Elevator ? ES: Pass
 - d. Elevator ? OD: fail
 - e. Elevator ? CD: Fail
- 5. Elevator ? DCB
 - a. Elevator ? GH: Fail
 - b. Elevator ? GL: Fail
 - c. Elevator ? ES: Fail
 - d. Elevator ? OD: fail
 - e. Elevator ? CD: Pass