

```

1
2  /*
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4
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21 LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
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22 OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
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23 SOFTWARE. */
24
25 open util/boolean
26
27 conc state HeatingSystem {
28     env event Reset {}
29     env event TurnOn {}
30
31     state Error {
32         on Reset
33         goto Off
34     }
35     state Off {
36         on TurnOn
37         goto On
38     }

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39
40     state On {
41         conc state Room [myid: RoomID] {
42
43             condition tooCold[...] {}
44             condition tooHot[...] {}
45             condition waitedForCool[...] {}
46             condition waitedForWarm[...] {}
47             action adjValve[...] {}
48             env event TurnOn {}
49
50             default state Off {
51                 on TurnOn
52                 goto No_Heat_Requested
53             }
54
55             state No_Heat_Requested {
56                 default state Idle_No_Heat {
57                     trans T8 {
58                         on tooCold
59                         do adjValve
60                         goto Wait_For_Heat
61                     }
62                 }
63
64                 state Wait_For_Heat {
65                     trans T9 {
66                         on !tooCold
67                         goto Idle_No_Heat
68                     }
69
70                     trans T10 {
71                         on waitedForWarm
72                         do adjValve
73                     }
74                 }
75             }
76         }
77
78         state Heat_Requested {
79             default state Idle_Heating {
80                 trans T15 {
81                     on tooHot
82                     do adjValce
83                     goto Wait_For_Cool
84                 }
85             }
86
87             state Wait_For_Cool {
88                 trans T14 {

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89         on !tooHot
90         goto Idle_Heating
91     }
92
93     trans T13 {
94         on waitedForCool
95         do adjValve
96     }
97
98     trans T11 {
99         on {
100             waitedForCool
101             vClosed
102             cancelrH
103         }
104         goto HeatingSystem/No_Heat_Requested
105     }
106
107     trans T12 {
108         on {
109             waitedForWarm
110             vOpen
111             rH
112         }
113         goto HeatingSystem/Heat_Requested
114     }
115 }
116
117 }
118
119 }
120
121 conc state Controller {
122
123     event furnaceReset {}
124     event deactive {}
125     env event heatSwitch {}
126     env event userReset {}
127     env event roomNeedsHeat {}
128     env event heatSwitchOff {}
129     env event furnaceFault {}
130     env event noRoomNeedsHeat {}
131     env event furnaceRunning {}
132     env event Fail {}
133
134     default state Off{
135         trans T17 {
136             on heatSwitch
137             goto Controller_On
138         }

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139     }
140
141     state Controller_On{
142         default state Idle{
143             trans T20 {
144                 on roomNeedsHeat
145                 goto
146             }
147         }
148
149         trans T18 {
150             on heatSwitchOff
151             goto Controller/Off
152             send deactivate
153         }
154
155         trans T19 {
156             on furnaceFault
157             goto HeatingSystem/Error
158         }
159
160         state Heater_Active{
161             trans T22 {
162                 on noRoomNeedsHeat
163                 goto Idle
164             }
165
166             state Activating_Heater{
167                 trans T21 {
168                     on furnaceRunning
169                     goto Heater_Running
170                 }
171             }
172             state Heater_Running{}
173         }
174     }
175 }
176
177 }
178
179 }

```