SOEN331: Introduction to Formal Methods for Software Engineering
Assignment 1 on extended finite state machines

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1 Heater specification

The EFSM of heater is the tuple $S = (Q, \Sigma_1, \Sigma_2, q_0, V, \Lambda)$, where

$Q = \{idle, warming, configuration, monitoring, on, empty, entering, finish\}$
$\Sigma_1 = \{set-buttonpressed, shut-offbuttonpressed, after(2min), after(3min), ok-buttonpressed, finish$
$buttonpressed, triplethasn'tchanged, complete - buttonpressed\}$
$\Sigma_2 = \{beep, switchledlighton, switchofffurnaceandfan, activatetime, deactivatetimer, switchledlightof$
$0, addthistripletintotripletset, warmstart = false, warmok = false, warminterupt = false, dt =$
$desiredtemperature, cet = currentenvironmenttemperature, setwarm_interupt = true, setwarm_ok =$
$true\}$
$q_0 : idle$
$V : warmstart = \{true, false\}, warmok = \{true, false\}, warminterrupt = \{true, false\}, timer, cft =$
$currentfurnacetemperature, dt = desiredtemperature, ct = currenttime, cet = currentenvironmenttemp$
Λ: Transition specifications
check the picture

The UML state diagram is shown in Figure 1.

2 UML state diagrams

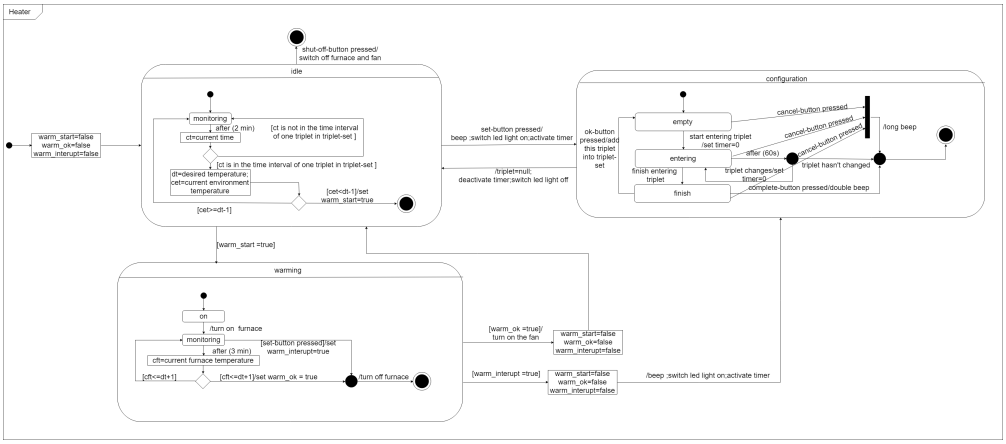

Figure 1: Heater.

3 appendix

set button:to configure

close button:close the whole system

complete button:the user can indicate that he has input all the data successfully

triplet:to record the entering triplet

triplet set:after entering triplet successfully,the triplet will be added into triplet set,because it is set, so identical data will be covered