Week 5: Simple Automata Assignment

COGS100 – Summer 2022
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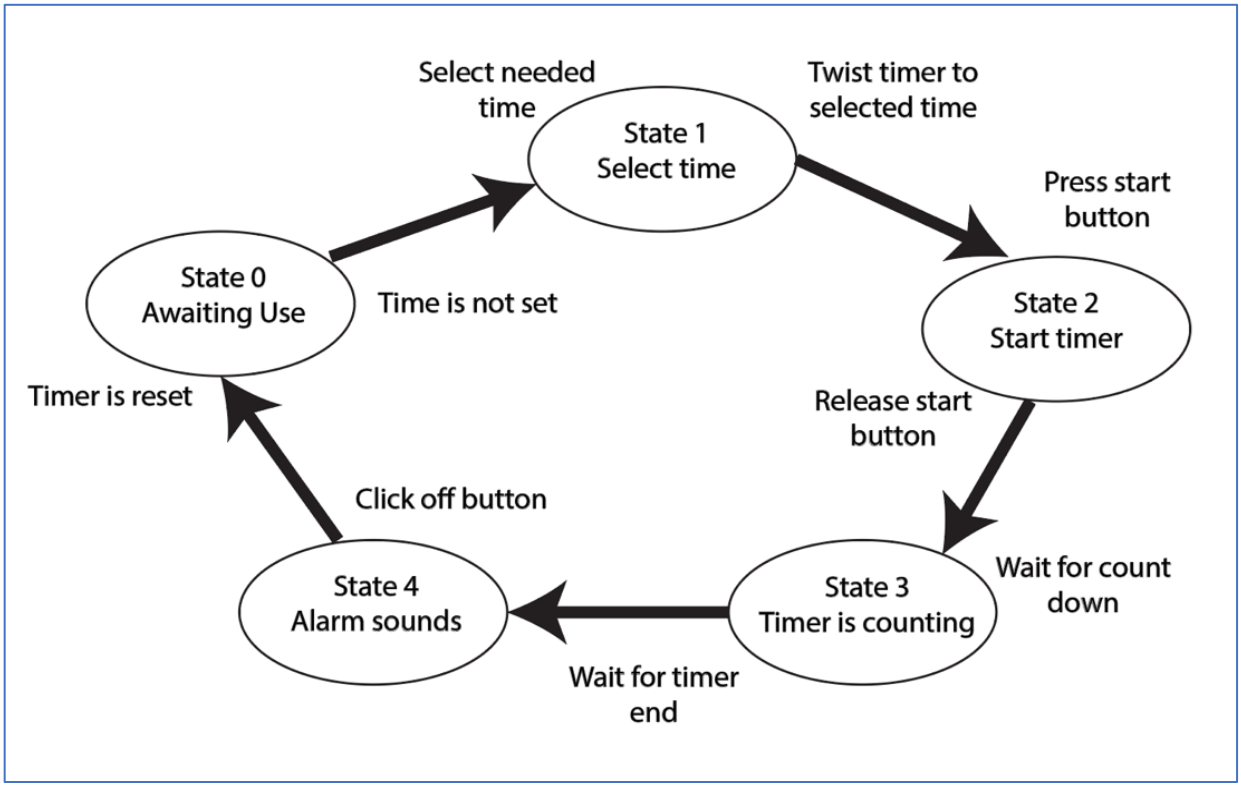
For this assignment, I chose to examine a small and simple cooking timer. This machine is simple enough in the fact that it exists in a finite amount of states. The machine can be broken into four active states, and one resting state; five states in total. The object is a twist timer, where time is selected through the twist of a knob and a pressing of the *Start* button, and then a timer counts down, until an alarm sounds. Once the alarm sounds, a *Stop/*Reset button is pressed and the timer is resent.

This simple automation takes user input in the form of knob turning and button pushing. The commands given from these inputs are those that determine time, start a countdown and reset a timer. Breaking down the states of this finite machine into if-then rules allows for easy production of a *Table of States* and *Diagram* displaying this information.

Table of States

State	Condition	Command	Action	Next State
State 0	Awaiting use (reset)	Time is not set	Select needed time	S1
State 1	Select time	Twist timer to selected time	Press start button	S2
State 2	Start timer count down	Press start button	Release start button	S3
State 3	Timer is started	Wait for countdown	Wait till timer end	S4
State 4	Alarm is sounded	Click off button	Reset timer	S0

Diagram


Select needed time
State 1
Select time
Twist timer to selected time
Press start button
State 2
Start timer
Release start button
Wait for count down
State 3
Timer is counting
Wait for timer end
State 4
Alarm sounds
Click off button
Timer is reset
State 0
Awaiting Use
Time is not set