Lab 2: Finite State Machine

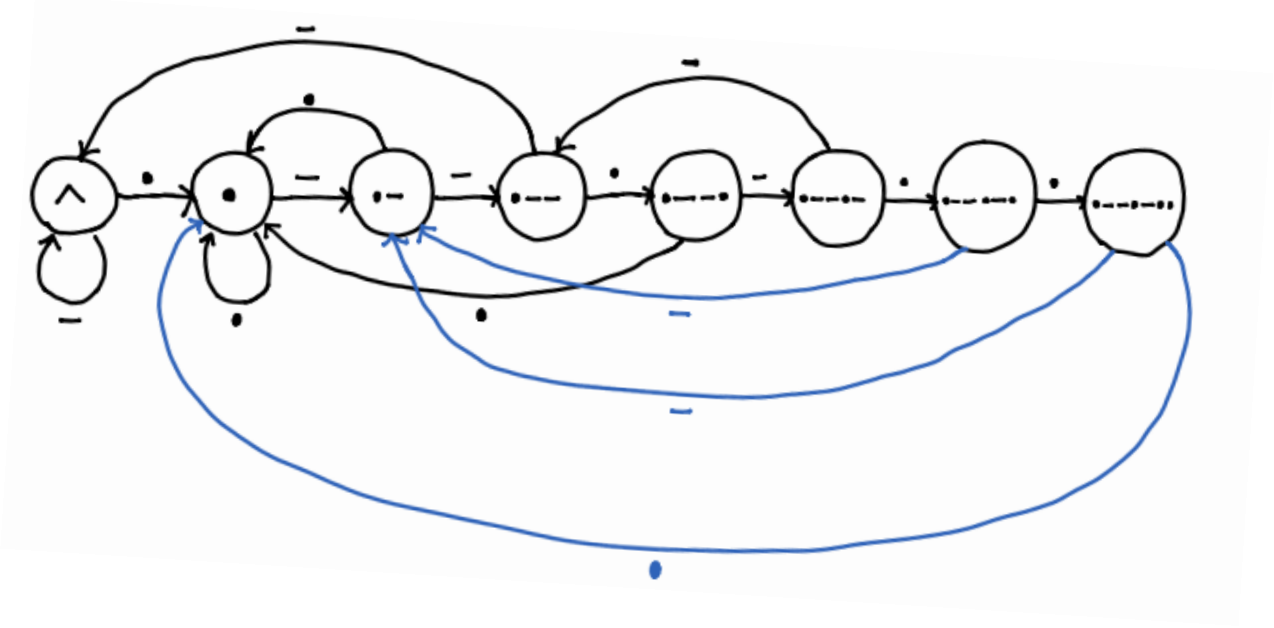

Figure 1: State Diagram for Detecting 'dot-dash-dash-dot-dash-dot-dot'

In lab 2, I have implemented a finite state machine that determines if the user enters the sequence 'dot-dash-dash-dot-dash-dot-dot'. The finite state diagram is outlined above in Figure 1. At first I have tried to use a falling-edge GPIO interrupts to update the state machine but the button bounces when I release it. To solve that problem, I have implemented a timer to count how long the button has been pressed. Timer0 starts every 20 milliseconds and counts up whenever the button is pressed. When the button is not pressed, the state machine updates and resets the counter to 0. This is one method to implement button debouncing.