Timer 2 handles two of the advanced features, namely the Finish Sounds and Key Sounds. When the microwave is finished, it will beep 3 times, of length 1 second each. It will also beep for 250ms when a key press is registered.

## Finish Sounds

The implementation of finish sounds requires the use of four variables. playFinishSound specifies whether the finish sound should actually be playing or not. It will be playing if the program entered finished mode from running mode, and it will stop playing if the program entered entry mode when the open door button was pushed or when the hash key was pressed. The variable finishSoundCounter records the number of counts that has passed, and counts up to a second. When a second has passed, the nFinishSounds variable will increase by 1 and the finishSoundIsOn variable will toggle. The variable nFinishSounds records the number of times that a second has passed. When this variable reaches 6, playFinishSound is turned off. The variable finishSoundIsOn will specify if the sound is to be currently outputted or not.

playFinishSound: .byte 1

finishSoundCounter: .byte 1

nFinishSounds: .byte 1

finishSoundIsOn: .byte 1

Pseudocode:

; if playFinishSound == 1

; if number of seconds passed == 6

; playFinishSound = 0

; out 0 to PORTB

; if on

; delay

; out 0xFF to PORTB

; if 1 sec has passed

; clear counter

; inc number of seconds passed

; toggle on/off

## Key Sounds

The key sounds are triggered by a key press on the keypad. When this occurs, the variable keyPressed is set to 1 and the beepCounter will be reset to 0. The timer will detect this as an indication to start playing sound, and the beepCounter will start counting up for 250ms. When 250ms has passed, keyPressed will be set to 0, and therefore the sound will stop playing.

Pseudocode:

; if keyPressed == 1

; play sound

; when 250ms is up

; keyPressed = 0