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CS350

Module 5 – 3

Synchronous State Machine

What is the purpose of the timerCallback() function?

The timerCallback() function is the heart of the state machine. It gets called every 500ms by the timer and is responsible for moving the state machine forward. It keeps track of how long each state like DOT, DASH should last and it makes sure the LEDs blink in the correct pattern for Morse code.

What does period mean in this context?

In this case, the period is just the amount of time between each call to the timerCallback() function. Here, the period is set to 500ms, meaning the timer "ticks" every 500ms, controlling how often the state machine checks to move to the next state.

How does the Timer\_CONTINUOUS\_CALLBACK parameter impact the driver?

The Timer\_CONTINUOUS\_CALLBACK setting means that the timer will keep calling the timerCallback() function over and over at the set interval every 500ms. If this parameter wasn’t used, the timer might only trigger once, but with it, the callback happens continuously, driving the state machine in sync.

What is gpioButtonFxn0() used for?

gpioButtonFxn0() is the function that gets called when Button 0 is pressed. Its job is to set a flag that tells the state machine to switch between the "SOS" and "OK" Morse code messages. The actual state change doesn’t happen right away; the flag is just a signal that gets checked later in the state machine.

What is the purpose of GPIO\_CFG\_IN\_INT\_FALLING?

GPIO\_CFG\_IN\_INT\_FALLING is how the button’s input pin is configured to detect a falling edge, which means when the button is pressed, and the signal goes from high to low. This makes sure the program catches when the button is pressed, triggering the gpioButtonFxn0() function to handle the input.

Video: <https://youtu.be/anVhiuNVFE8>