LED SEQUENCE V 3.0
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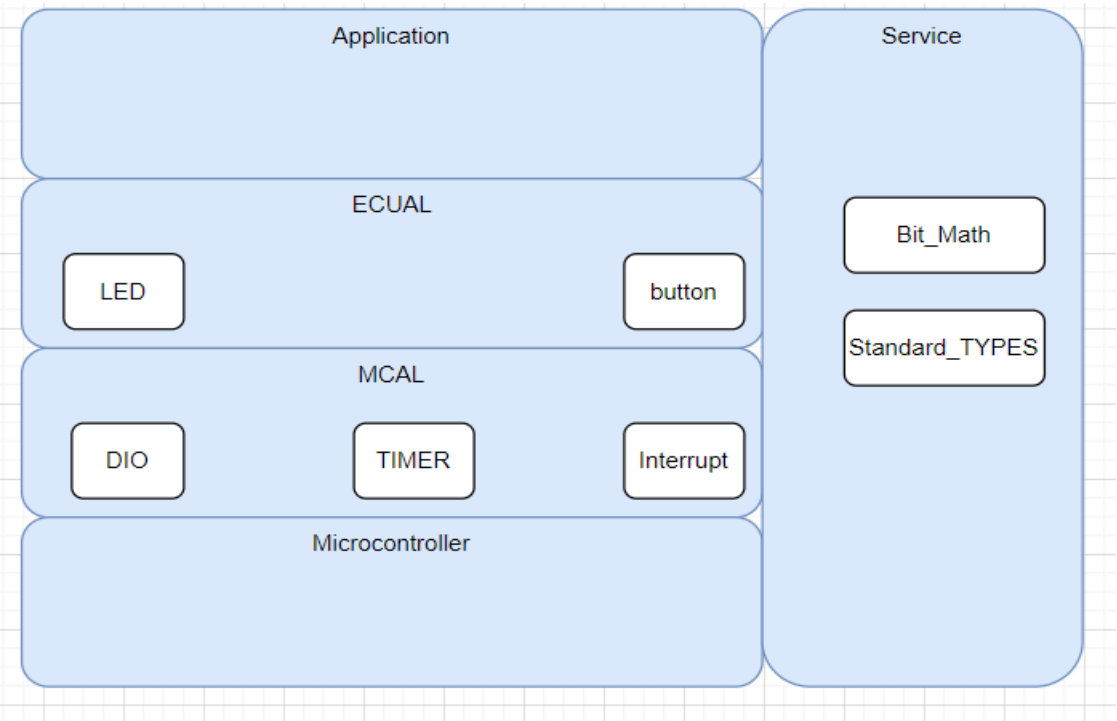
Project Description

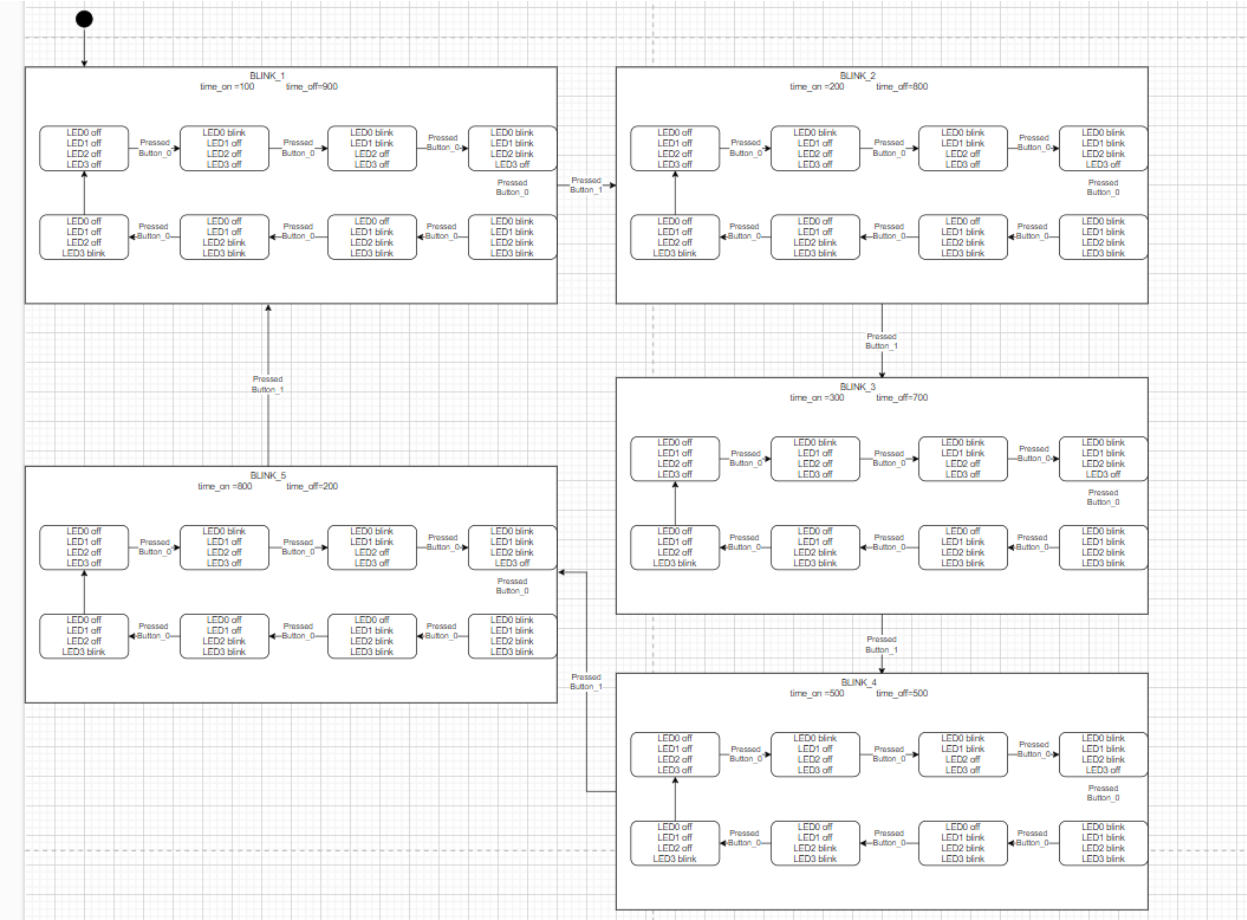
Its led sequence program that's follows the next sequence :

1. Initially (OFF, OFF, OFF, OFF)
2. Press 1 (ON, OFF, OFF, OFF)
3. Press 2 (ON, ON, OFF, OFF)
4. Press 3 (ON, ON, ON, OFF)
5. Press 4 (ON, ON, ON, ON)
6. Press 5 (OFF, ON, ON, ON)
7. Press 6 (OFF, OFF, ON, ON)
8. Press 7 (OFF, OFF, OFF, ON)
9. Press 8 (OFF, OFF, OFF, OFF)
10. Press 9 (ON, OFF, OFF, OFF)
11. When BUTTON1 has pressed the blinking on and off durations will be changed
12. No press → BLINK_1 mode (ON: 100ms, OFF: 900ms)
13. First press → BLINK_2 mode (ON: 200ms, OFF: 800ms)
14. Second press → BLINK_3 mode (ON: 300ms, OFF: 700ms)
15. Third press → BLINK_4 mode (ON: 500ms, OFF: 500ms)
16. Fourth press → BLINK_5 mode (ON: 800ms, OFF: 200ms)
17. Fifth press → BLINK_1 mode

LAYERD ARCHITECTURE

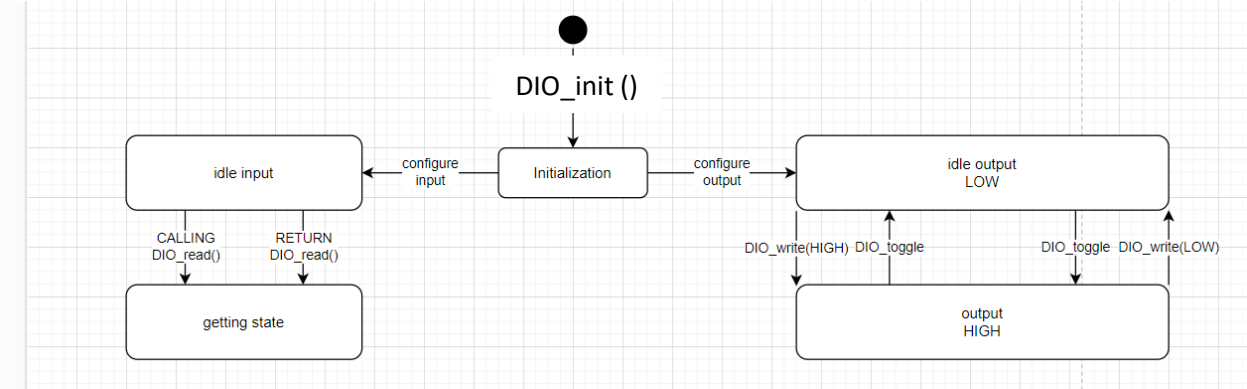


STATE MACHINE DIGRAM

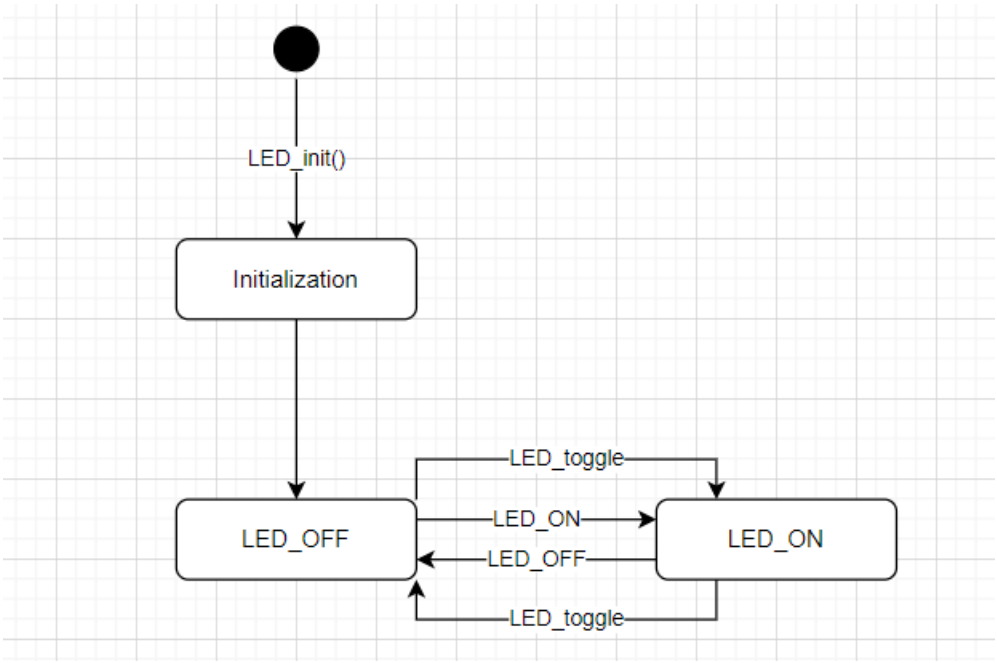


DRIVERS APIS STATE MACHINE

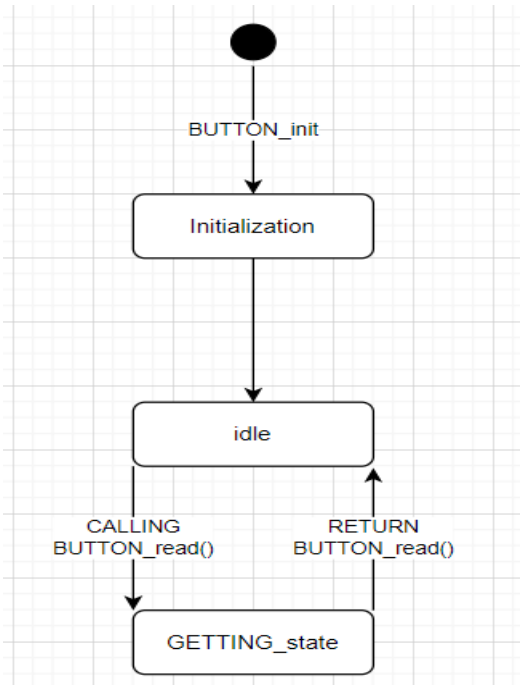
DIO



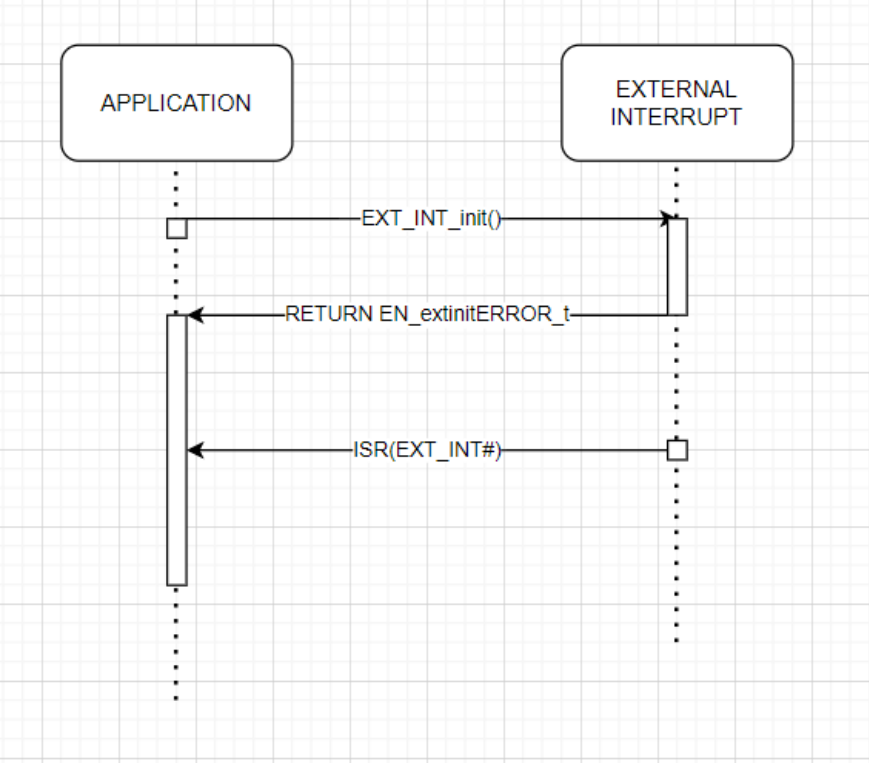
LED


LED_init()
Initialization
LED_toggle
LED_OFF
LED_ON
LED_ON
LED_OFF
LED_toggle

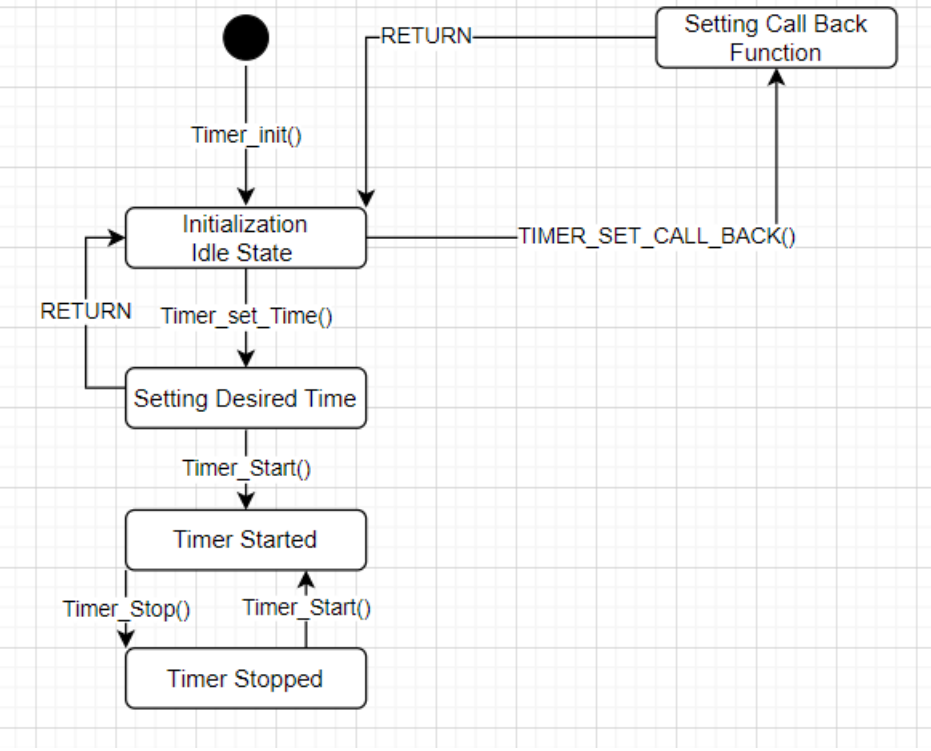
BUTTON


BUTTON_init
Initialization
idle
CALLING
BUTTON_read()
RETURN
BUTTON_read()
GETTING_state

INTURREPT



TIMER



Programs APIs

1-EN_extintError_t EXTINT_Init (uint8_t intNumber);

2-void EXTINT_setCallBackInt (uint8_t intNumber, void (*funPtr) (void));

3-EN_timerError_t TIMER_init(uint8_t timerUsed);

4-EN_timerError_t TIMER_setTime(uint8_t timerUsed, uint32_t desiredTime);

5-EN_timerError_t TIMER_start(uint8_t timerUsed);

6-EN_timerError_t TIMER_stop(uint8_t timerUsed);

7-Void TIMER_setCallBack(uint8_t timerUsed, void (*funPtr)(void));

8-EN_buttonError_t BUTTON_init(uint8_t buttonPort, uint8_t buttonPin);

9-EN_buttonError_t BUTTON_read(uint8_t buttonPort, uint8_t buttonPin, uint8_t *buttonState);

10-EN_dioError_t DIO_init(uint8_t portNumber, uint8_t pinNumber, uint8_t direction);

11-EN_dioError_t DIO_write(uint8_t portNumber, uint8_t pinNumber, uint8_t value);

12-EN_dioError_t DIO_toggle(uint8_t portNumber, uint8_t pinNumber);

13-EN_dioError_t DIO_read(uint8_t portNumber, uint8_t pinNumber, uint8_t *value);

14-EN_ledError_t LED_init(uint8_t ledPort,uint8_t ledPin);

15-EN_ledError_t LED_on(uint8_t ledPort,uint8_t ledPin);

16-EN_ledError_t LED_off(uint8_t ledPort,uint8_t ledPin);

17-EN_ledError_t LED_toggle(uint8_t ledPort,uint8_t ledPin);

18-void APP_initModules(void);

19-void APP_ledSequenceV_3 (void);

20-void APP_ledUnitTesting (void);

21-Void button_0_Task (uint8_t* counter, uint8_t state);

22-void button_1_Task(void);

23-void sysTickTask(void);

24void APP_timersUnitTesting (void);