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Led sequene v1

Project description:

- **Initially, all LEDs are OFF**
- **Once the first pressed for BUTTON, first LED will be ON**
- **Each press further will make another LED is ON**
- **At the fifth press, LED0 will be changed to be OFF**
- **Each press further will make only one LED is OFF**
- **This will be repeated forever**

Layered architecture:

Application
ECUAL
MCAL
Microcontroller

ECUAL: sensors and actuators independent on target
contain(Leds and Buttons)

MCAL : this contains all drivers and APIS (Dio, interrupt)

System modules:

Application		
Leds	Buttons	
Dio	INTERRUPT	Timer
Microcontroller		

Timer: will interact with leds to determine the time of on
and off

Dio: will interact with leds and buttons to determine state of
both

APIs:

Dio_API:

dio_init: this function take pin number and port name and direction to determine state of pin

dio_write: this function take pin number to write data on pin

dio_read: this function take pin number to read data on pin

dio_toggle: this function to toggle state of pin

Dio_writeport: this function to write value in all port and determine which pin will be high

Button_API:

Button_init : function to initialize state of button

Button_read: function to take value of button is pressed or not

Leds_API:

led_init: this function take pin number and state of this pin will be output

ledon : this function take pin number and let led to be on

ledof: this function take pin number and let led to be off

Led_toggle: this function to toggle value in pin

INTERRUPT_API:

Sei: this function set global interrupt through set status register

Cli: this function clear global interrupt through clear status register

Isr: this function take interrupt from button and make action

TIMER_API:

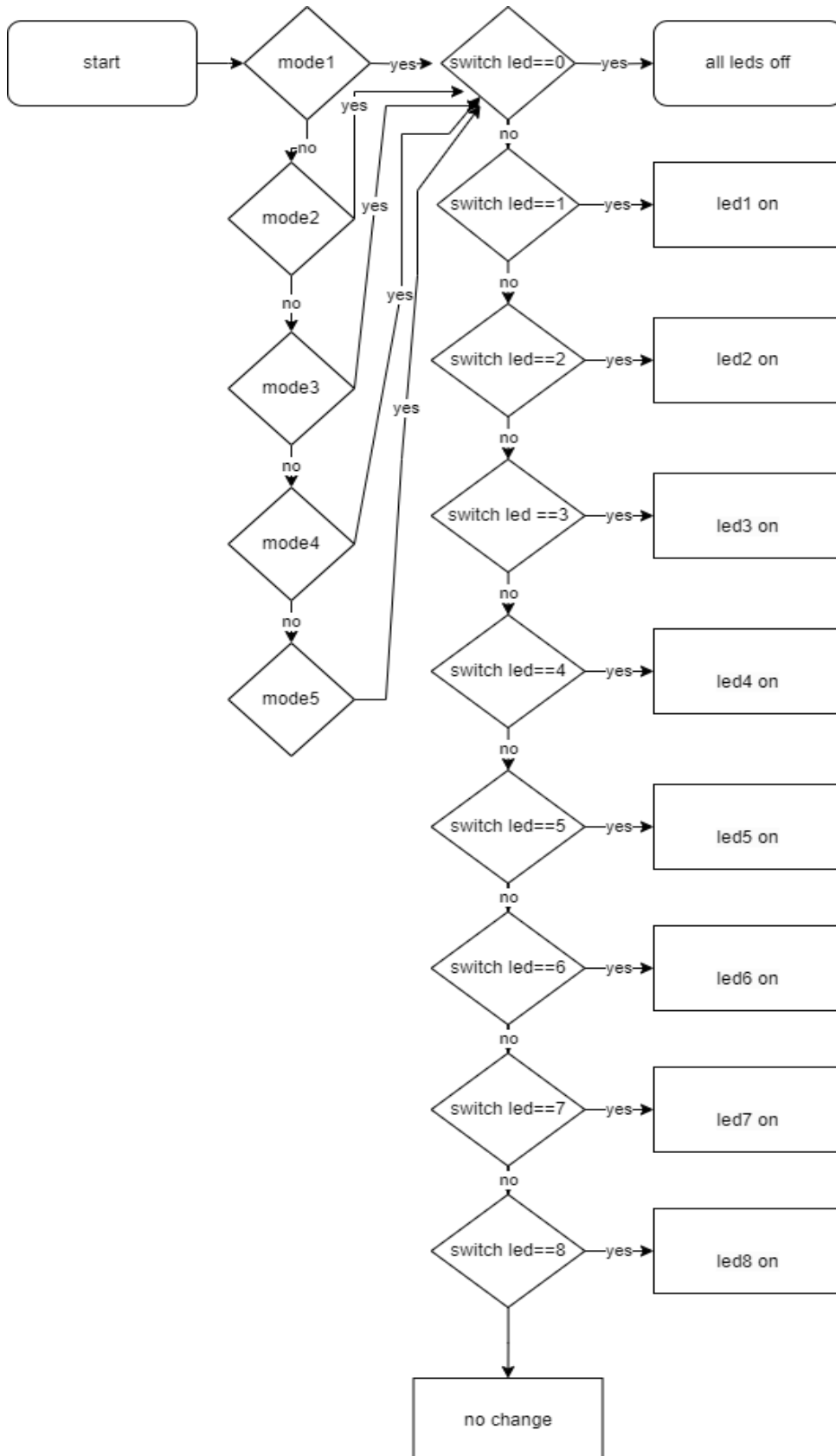
init_timer: this function to choose mode of timer and initial value of timer.

set_prescaler: this function to let timer start and if there are prescaler or not.

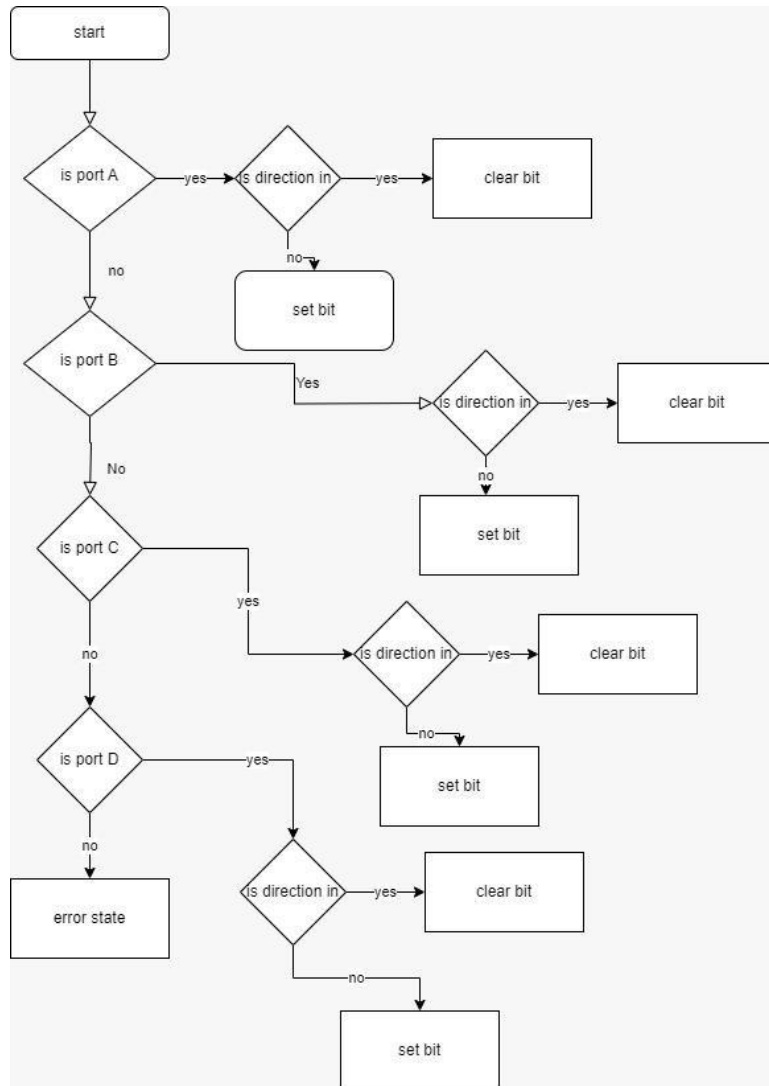
stop_timer: this function to stop timer to stop of counting.

Delay: this function take seconds which want to delay

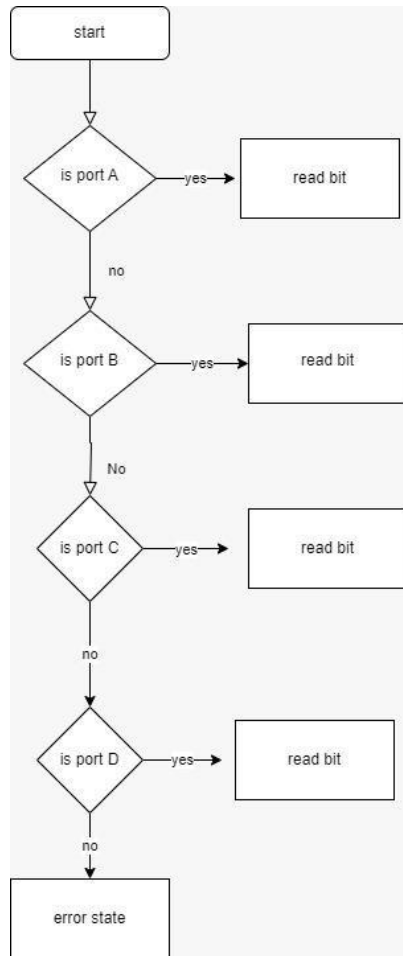
flow chart:



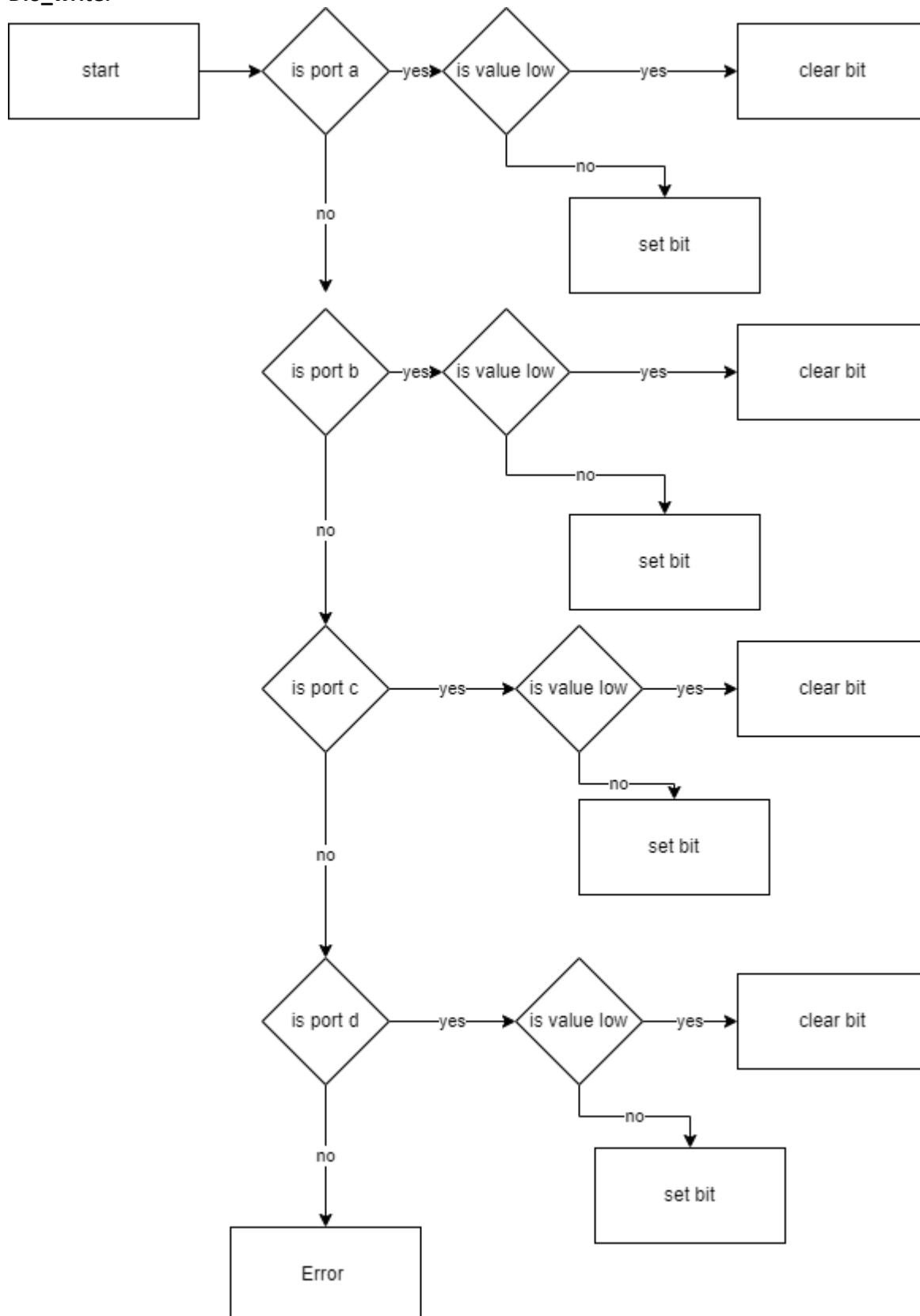
Dio init flow chart:



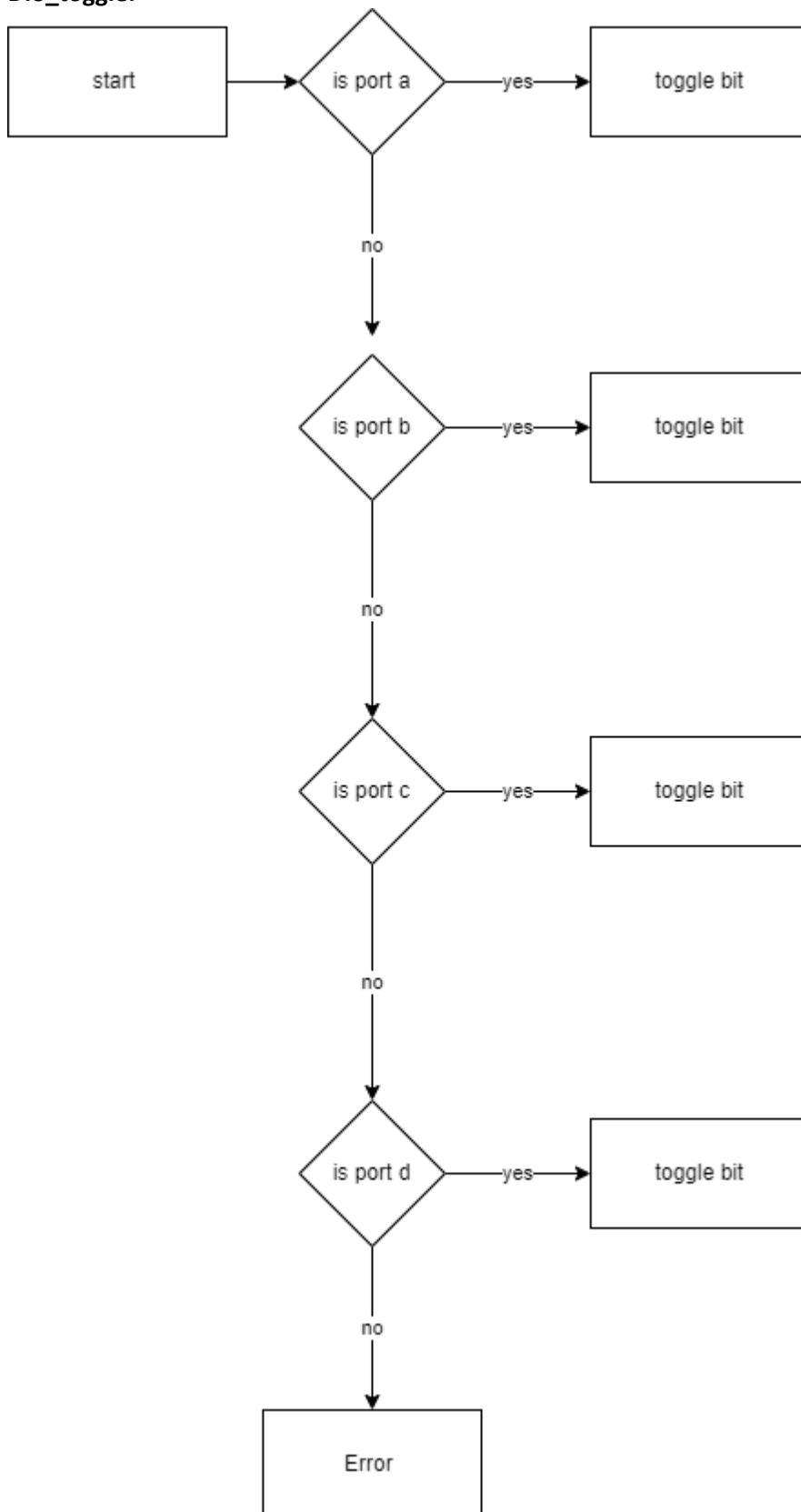
Dio_read flow chart:



Dio_write:



Dio_toggle:



Dio_write_port:

