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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
Microcontroller	

Timer: will interact with motors to determine the time of moving and stop

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

Motors : control in wheel to determine angle and speed

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

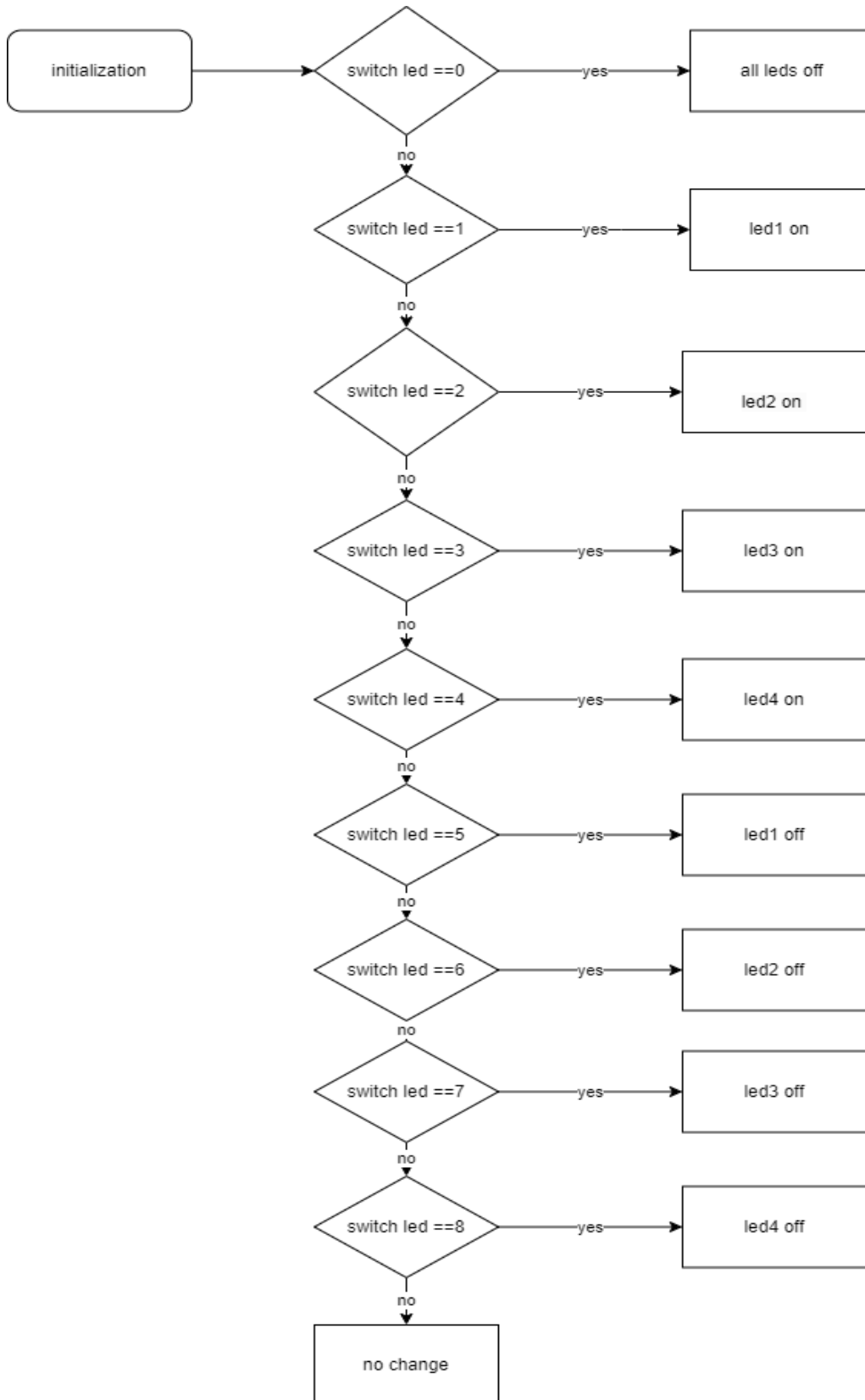
INTERRUPT_API:

Sei: this function set global interrupt through set status register

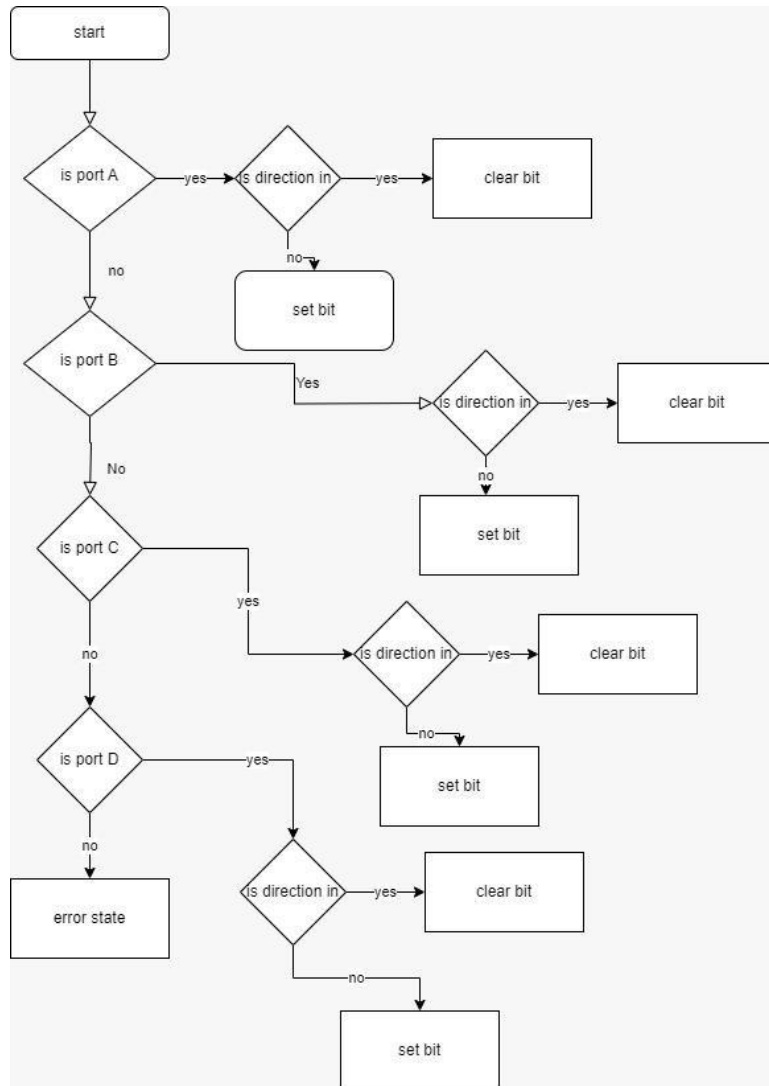
Cli: this function clear global interrupt through clear status register

Isr: this function take interrupt from button and make action

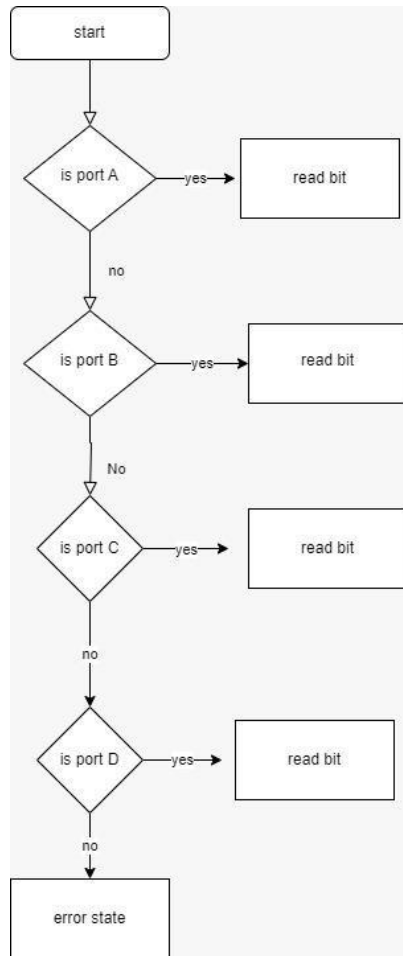
flow chart:



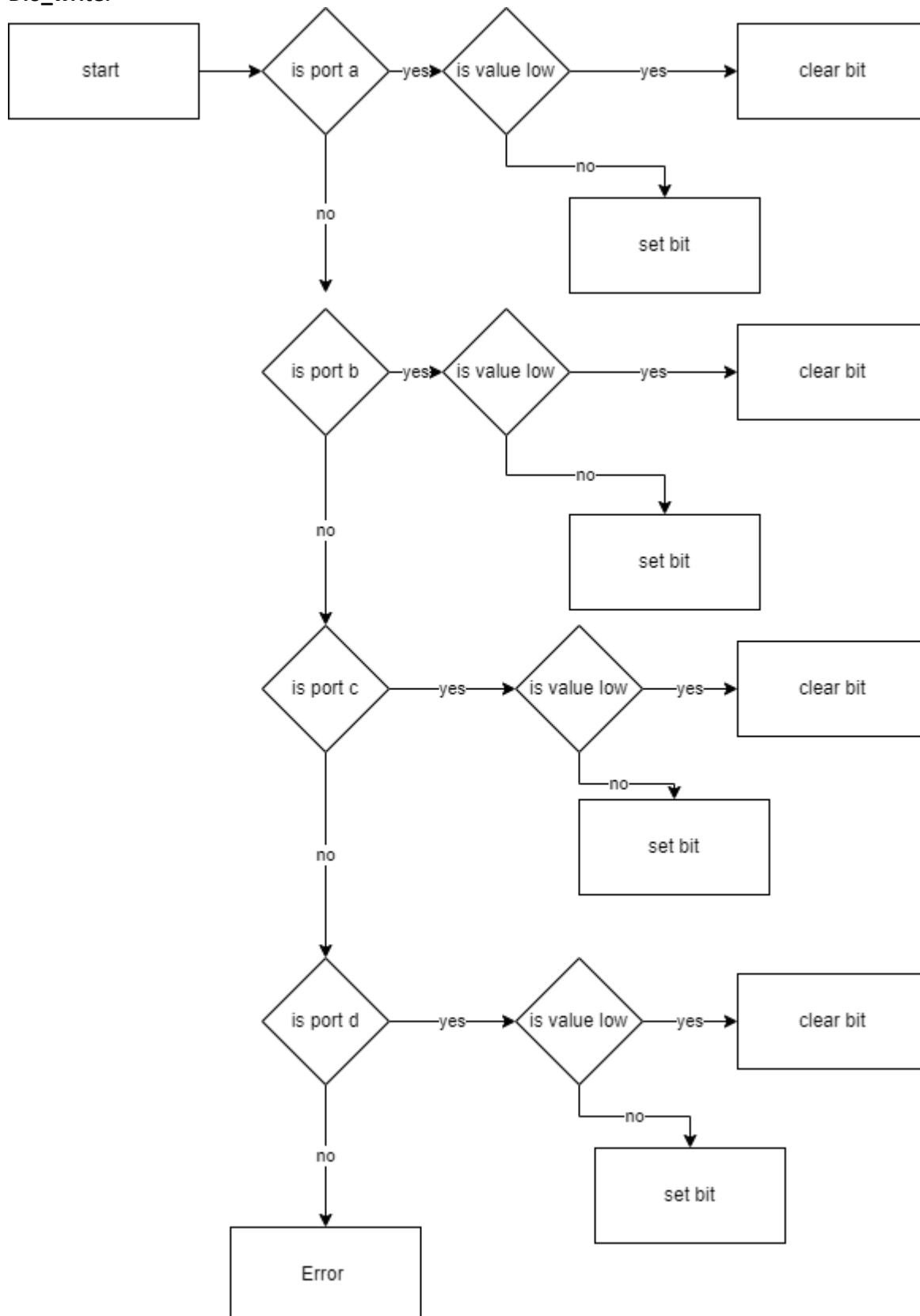
Dio init flow chart:



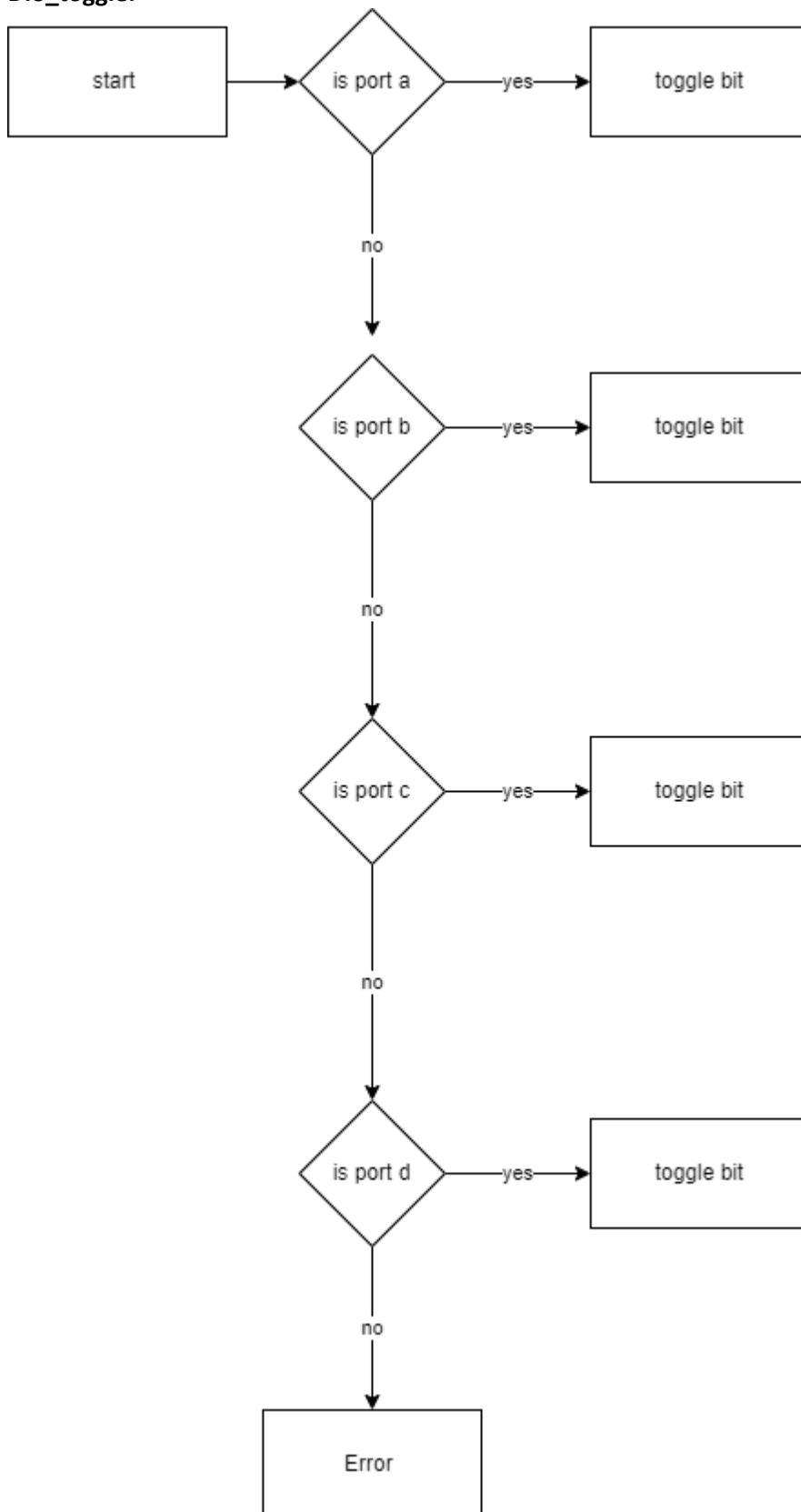
Dio_read flow chart:



Dio_write:



Dio_toggle:



Dio_write_port:

