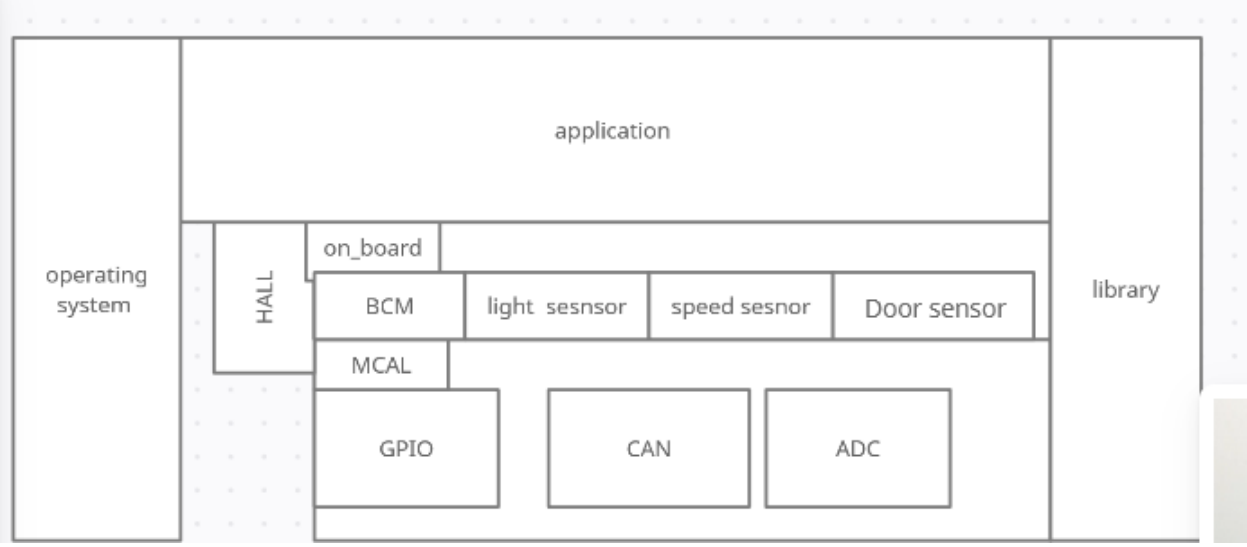


API FUNCTIONS

1ST GPIO

Function name	Gpio_init
Parameters	port_t pin_t direction_t resistor_state_t current_t ad_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Initialize the direction of a specific pin in specific port also Initialize that it is a digital or analoge pin and 8 mA or 2 Ma or 4Ma and use pull up register or pull down register

Function	GPIO_SetPinValue
Parameters	port_t pin_t state_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	to define the a specific pin in specific port is high or low

Function	GPIO_ReadPinValue
Parameters	port_t pin_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	uint8t data
Descriptions	it return if the pin high or low

Name	port_t
Type	Enum
Range	DIO_PORTA = 0, DIO_PORTB = 1, DIO_PORTC = 2, DIO_PORTD = 3, DIO_PORTE= 4, DIO_PORTF= 5
Descriptions	To define ports

Name	pin_t
Type	Enum
range	DIO_PIN0 = 0, DIO_PIN1 = 1, DIO_PIN2 = 2, DIO_PIN3 = 3, DIO_PIN4 = 4, DIO_PIN5 = 5, DIO_PIN6 = 6, DIO_PIN7 = 7
Descriptions	To define pins

Name	direction_t
Type	Enum
Range	DIO_INPUT = 0, DIO_OUTPUT = 1
Descriptions	Define the direction

Name	state_t
Type	Enum
Range	DIO_LOW = 0, DIO_HIGH = 1
Descriptions	Define the high or low

Name	resistor_state_t
Type	Enum
Range	Pull_down = 0, Pull_up= 1
Descriptions	Define the internal resistor of the pin

Name	Current_t
Type	Enum
Range	2mA = 0, 4mA= 1, 8mA=2
Descriptions	Define the current of the pin

Name	ad_t
Type	Enum
Range	Digital = 0, Analog= 1,
Descriptions	Define analog or digital

Function	ADC_init
Parameters	Seqencer_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	void
Descriptions	Inizlization for adc and sample_seqencer

Function	adc_convention
Parameters	Adc_channel
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	uint16_t ADCReading
Descriptions	Start adc convention and choose itch channel And resolution and take the reading from FiFO

enums

Name	Adc_channel
Type	Enum
Range	Channel0 = 0, Channel1= 1,
Descriptions	Define channels of adc

Name	Seqencer_t
Type	Enum
Range	Seqencer 0 = 0, Seqencer1 = 1, Seqencer 2 = 2, Seqencer3 = 3,
Descriptions	Define the Seqencer

CAN

Function	CAN_init
Parameters	Baud_rate_t Can_channel_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Inizlization FOR CAN and choose channel and high or low baud rate

Function	CAN_transmit
Parameters	Frame_type_t uint32_t Id Tx_msg_object *msg_object
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	E_OK =1 E_NOT_OK=0
Descriptions	Transmit frame and choose id bits and frame type and data length

Function	CAN_receive
Parameters	Frame_type_t uint32_t Id RX_msg_object *msg_object
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	data
Descriptions	receive frame and choose id bits and frame type and data length

ENUM

Name	CAN_channel
Type	Enum
Range	CAN0 = 0, CAN1= 1,
Descriptions	Define channels of CAN

Name	Baud_rate_t
Type	Enum
Range	low_baud_rate = 0, high_baud_rate= 1,
Descriptions	Define the baud rate

Name	Frame_type_t
Type	Enum
Range	REMOTE= 0, DATA = 1
Descriptions	Define frame type

Name	Tx_msg_object
Type	struct
Range	uint32_t MsgID; uint32_t MsgLen; uint8_t *MsgData;
Descriptions	Define TX_Msg box

Name	Rx_msg_object
Type	struct
Range	uint32_t MsgID; uint32_t MsgIDMask; uint32_t MsgLen; uint8_t * MsgData;
Descriptions	Define RX_Msg box

SPEED SENSOR

Function	Speed sensor_init
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	void
Descriptions	initialization speed sensor by put it in specific pin and port and initialize gpio

Function	Speed sensor_value
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Uint16 speed_value
Descriptions	speed sensor_value

DOOR_SENSOR

Function	Door sensor_init
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	void
Descriptions	initialization Door sensor by put it in specific pin and port and initialize gpio

Function	Door_sensor_state
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	door_state_t
Descriptions	know state of the door

Name	door_state_t
Type	Enum
Range	Door_open = 0, Door_close = 1
Descriptions	Define door state

Light swtich:

Function	Light_switch_init
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	void
Descriptions	initialization Light_switch sensor by put it in specific pin and port and initialize gpio

Function	Light_switch_value
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Swtich_satet_t
Descriptions	Light_switch sensor value

Name	Light_switch _t
Type	Enum
Range	switch_open = 0, switch_close = 1
Descriptions	Define light switch state

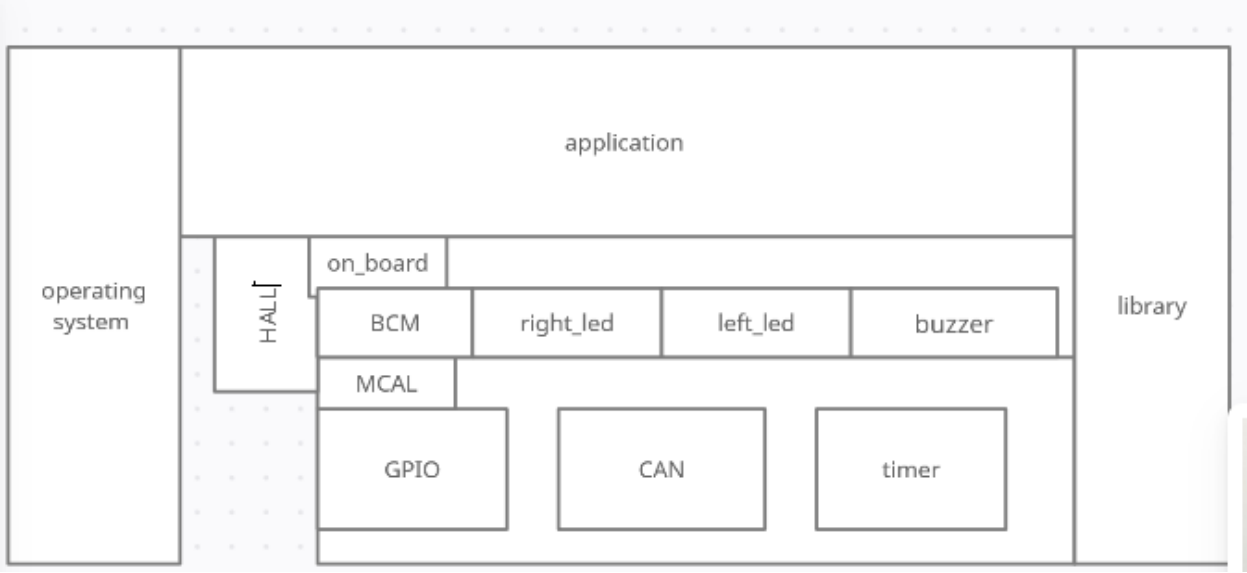
BCM_ECU1

Function	BCM_init
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	initialization BCM to make the layered architecture close loop and communicate CAN with snesnor with applications

Function	BCM_send_ Light_switch_value()
Parameters	Light_switch_value()
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Perdioc task that send light switch value to ECU2 via can bus every 20 ms

Function	BCM_send_ Door_sensor_value()
Parameters	Door_sensor_state()
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Perdioc task that send door sensor state to ECU2 via can bus every 10 ms

Function	BCM_send_ speed_sensor_value()
Parameters	Spee_sensor_value()
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Perdioc task that send speed sensor value to ECU2 via can bus every 5 ms



ECU2

Function	System_clock_init
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Initlize system tick

Function	System_clock_delay
Parameters	uint32 delay
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	E_OK=1 E_NOT_OK =0
Descriptions	Delay function by using system tick and not using intterput using polling technic

Function	BCM_init
Parameters	None
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	initialization BCM to make the layered architecture close loop and communicate CAN with snesnor with applications

Function	BCM_light sensor receive Perdioc task
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Light_switch _t
Descriptions	recieve value of the light sensor

Function	BCM_door sensor receive Perdioc task
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	door_switch _t
Descriptions	receive value of the door sensor

Function	BCM_speed sensor receive Perdioc task
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Uint16
Descriptions	receive value of the speed sensor

Function	Left_light_init
Parameters	port_t pin_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Initlize led with the gpio pin and port

Function	Left_light_on
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	On

Function	right_light_init
Parameters	port_t pin_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Initlize led with the gpio pin and port

Function	right_light_on
Parameters	
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	On

Function	lights_on

Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Control left and right lights onn state

Function	lights_off
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Control left and right lights off state

Function	lights_off_after_3_sec
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Control left and right lights off state after 3 secode by system tick

Function	buzzer _init

Parameters	port_t pin_t
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Initlize buzzer with the gpio pin and port

Function	buzzer_onn
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Control buzzer on

Function	buzzer_off
Parameters	none
Synchronization	Synchronous
Reentrancy	Non reettrant
Return type	Void
Descriptions	Control buzzer on