



Group 16 Document

SMART HOME PROJECT



MCAL

Function name	Port_Init
Input	uint8_t port_index, uint8_t pins_mask, uint32_t GPIO_PCTL_mask
Return value	Void
description	Initialize and unlock the pins in a specific PORT

Function name	Port_SetPinDirection
Input	uint8_t port_index, uint8_t pins_mask, enum Port_PinDirectionType pins_direction
Return value	void
description	Set the direction of pins in specific PORT either input or output



MCAL

Function name	DIO_WritePort
Input	uint8_t port_index , uint8_t pins_mask , enum Dio_LevelType pins_level
Return value	Void
description	Set values of the pins selected by pins_mask in the port selected

Function name	DIO_ReadPort
Input	uint8_t port_index , uint8_t pins_mask
Return value	uint8_t
description	Return the value of the PINS selected by pins_mask in the port selected by port_index



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Function name	Port_SetPinPullUp
Input	uint8_t port_index, uint8_t pins_mask, uint8_t enable
Return value	Void
description	Enable the pull up resistor on pins of a port selected by pins_mask

Function name	Port_SetPinDirection
Input	uint8_t port_index, uint8_t pins_mask, enum Port_PinDirectionType pins_direction
Return value	void
description	Set the direction of pins in specific PORT either input or output



MCAL

Function name	DIO_WritePortWord
Input	unsigned char word,uint32_t port, uint8_t mask
Return value	Void
description	Write a specific word to PORT

Function name	Systick_Init
Input	Void
Return value	Void
description	Initialize the systick for delays



MCAL

Function name	Systick_Wait
Input	uint32_t delay
Return value	Void
description	Make delay depending on the clock

Function name	_delay_ms
Input	uint32_t delay
Return value	Void
description	Make delay multiples of milliseconds



MCAL

Function name	<code>_delay_us</code>
Input	<code>uint32_t</code> delay
Return value	Void
description	Make delay multiples of microseconds



MCU1

Function name	LCD_Init
Input	NULL
Return value	Void
description	Initialize the LCD

Function name	LCD_GoToRowCol
Input	uint8_t row, uint8_t col
Return value	Void
description	Move cursor to the given row and column



MCU1

Function name	LCD_Clear
Input	NULL
Return value	Void
description	Clear the LCD

Function name	LCD_Command
Input	uint8_t cmd
Return value	Void
description	Update the data port with the given LCD command



MCU1

Function name	LCD_puts
Input	const char* str
Return value	Void
description	Prints string on LCD

Function name	LCD_PutsInt
Input	int32_t num
Return value	Void
description	Change integer to string



MCU1

Function name	LCD_PrintChar
Input	Char c
Return value	Void
description	Print char on screen

Function name	Potentiometer_read
Input	Void
Return value	uint16_t
description	Read the value of potentiometer and change it to digital reading



MCU1

Function name	Potentiometer_init
Input	Void
Return value	Void
description	Initialize ADC0 for potentiometer

Function name	Is_Pressed
Input	uint8_t port_index, uint8_t mask
Return value	uint8_t
description	Check if the push button is pressed



UART

Function name	UART_init
Input	Void
Return value	Void
description	Initialize UART

Function name	UART_Read
Input	Void
Return value	unsigned char
description	Read the value from FIFO



UART

Function name	UART_Write
Input	unsigned char data
Return value	Void
description	Write value in FIFO



MCU2

Function name	ADC0_init_temp
Input	Void
Return value	Void
description	Initialize and enable ADC0 for temperature sensor

Function name	timer_init
Input	void
Return value	void
description	Initialize and enable timer0



MCU2

Function name	read_temp
Input	Void
Return value	uint16_t
description	Read and return the temperature value from ADC0

Function name	timer_init
Input	void
Return value	void
description	Initialize and enable timer0



MCU2

Function name	LED_init
Input	Void
Return value	Void
description	Initialize PWM1 and port for LED reading

Function name	LED_SetDutyCycle
Input	uint16_t duty_cycle
Return value	void
description	Set the dutycycle required for the LED



MCU2

Function name	StepMotorInit
Input	Void
Return value	Void
description	Initialize stepper motor PORT and pins

Function name	stepperMotor
Input	Void
Return value	Void
description	Control rotation of motor (30 degrees)