APIs Design for a moving Robot modules

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DIO APIs

Function Name	DIO_eSetPinDirection(const u8 u8PortIdCpy, const u8 u8PinIdCpy, const u8 u8PinDirCpy)		
Arguments	inputs	u8PortIdCpy	const u8
		description: the PORT contain the PIN to set direction	
		u8PinIdCpy	u8
		description: the pin to set direction	
		u8PinDirCpy	const u8
		the direction you want whether input or output	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to set the pin direction input or output		

Function Name	DIO_eSetPinValue(const u8 u8PortIdCpy, const u8 u8PinIdCpy, const u8 u8PinValueCpy)		
Arguments	inputs	u8PortIdCpy	const u8
		description: the PORT contain the PIN to set direction	
		u8PinIdCpy	const u8
		description: the pin to set direction	
		u8PinValueCpy	const u8
		the direction you want wether input or output	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to set the pin value HIGH or LOW		

Function Name	DIO_eGetPinValue(const u8 u8PortIdCpy,const u8 u8PinIdCpy, u8 * pu8PinValue)		
Arguments	inputs	u8PortIdCpy	const u8
		description: the PORT contain the PIN to set direction	
		u8PinIdCpy	const u8
		description: the pin to set direction	
	outputs	pu8PinValue	u8 *
		description: the pin current value HIGH or LOW	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to get the pin value whether HIGH or LOW		

MOTOR APIs

Function Name	MOTOR_eInit(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to initialize the motors		

Function Name	MOTOR_eStop(void)		
Arguments	inputs	N/A	
		Description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	Call this api to stop the motor.		

Function Name	MOTOR_eStart(const Dir_t u8DirectionCpy)		
Arguments	inputs	u8DirectionCpy	Const Dir_t
		description: enumulation contain the side to be affected by the fn.	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to start the motor wether the (RIGHT, LEFT, or BOTH)		

Name	u8DirectionCpy		
Type	enumeration		
Range	FORWARD	0	Move forward
	BACKWARD	1	Move backward
	RIGHT	2	Move right
	LEFT	3	Move left
Description	These values are controlling the direction of robot.		

ROBOT Control APIs

Function Name	ROBOT_eInit(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to initialize the Robot Control module and the needed other modules		

Function Name	Robot_bUpdateMoving(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api periodically to update the moving direction and speed		

Timer APIs

Function Name	Timer_eInit(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	Call this api to initialize the timer as specified in the configuration file. Timer module must use Timer0 in hardware.		

Function Name	Timer_eStart(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to make the timer start counting from zero		

Function Name	Timer_bGetCurrentTiming_mS(u32* u32Current_mS)		
Arguments	inputs	N/A	
		description:	
	outputs	u32Current_mS	u32
		Description: used to return the elapsed time (in mS) since the timer was started from zero using Timer_eStart API.	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api get the current second elapsed from calling Timer_eStart();		

Name	u32Current_mS	
Type	U32	
Range	0	The least value
	3 600 000 000	The max value you can get, Equal 1000 hours
Description	These is the elapsed time since starting count from zero.	

Function Name	Timer_eStop(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to stop the timer		

PWM APIs

Function Name	PWM_eInit(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to initialize the pwm module to the Timer1 hardware module		

Function Name	PWM_eSetCompareValue(const u16 u16CompareValueCpy)		
Arguments	inputs	u16CompareValueCpy	const u16
		description: compare value	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to set the pwm compare value		

Function Name	PWM_eStart(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to start the pwm		

Function Name	PWM_eStop(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to stop the stop		

LCD APIs

Function Name	LCD_eInit(void)		
Arguments	inputs	N/A	
		description:	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to initialize the lcd as specified in the lcd configuration file but limited to PORTC (from pin0 : pin10)		

Function Name	LCD_eSendCommand(const u8 u8CmdCpy)		
Arguments	inputs	u8CmdCpy	const u8
		description: a copy of the command to send to the lcd	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to set the pin direction input or output		

Name	u8CmdCpy		
Type	enumeration		
Range	lcd_Clear	0	Clear the screen
	lcd_Home	1	Move to the first position in first row
	lcd_DisplayOff	2	Disable the display
	lcd_DisplayOn	3	enable the display
Description	These values are the commands to be sent to the lcd.		

Function Name	LCD_bGotoxy(const u8 XPosCpy,const u8 YPosCpy)		
Arguments	inputs	XPosCpy	const u8
		description: the horizontal position starting from 0:15 for 2x16 lcd	
		YPosCpy	const u8
		description: the vertical position (0:1) for 2x16 lcd	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to go to specific position on the lcd		

Name	XPosCpy	
Type	U8	
Range	0	The first position in the screen starting from left
	15	The last position in the screen starting from left
Description	These values are the horizontal positions in a 2x16 LCD	

Name	YPosCpy	
Type	U8	
Range	0	The first row in the screen starting from upper row
	1	The second row in the screen starting from upper row
Description	These values are the horizontal positions in a 2x16 LCD	

Function Name	LCD_bWriteChar(const u8 u8DataCpy)		
Arguments	inputs	u8DataCpy	const u8
		description: the charcter to be writen in ascii representation	
	outputs	N/A	
		description:	
	input/output	N/A	
		description:	
Return	E_OK	0	
	E_NOK	1	
Description	call this api to write a specific character in the current cursor position		

Name	u8DataCpy	
Type	U8	
Range	0	The least decimal value
	127	The last decimal value
Description	These values are the decimal representation of ascii code.	