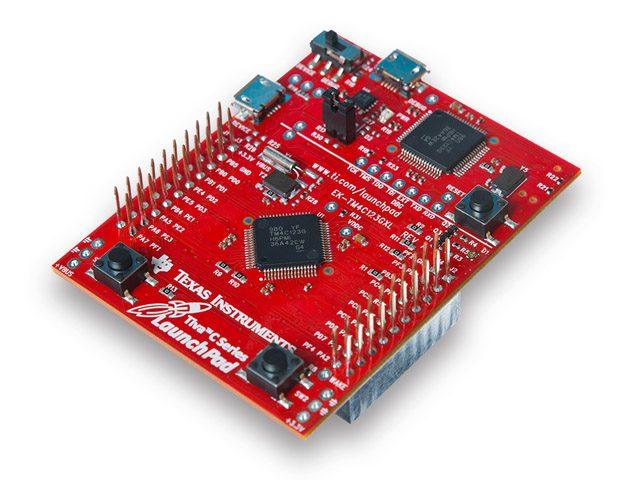
Project 2

Smart Home

Layers Report

Group 1



Layers Structure



Application

HAL

MCAL

**MCAL Drivers**

ADC Driver

Function Definitions

|  |  |  |
| --- | --- | --- |
| Name | ADC\_readChannel | |
| Input | uint8 | channel\_num |
| Return | uint16 | |
| Description |  | |

DIO Driver

Type Definitions

|  |  |
| --- | --- |
| Name | Dio\_LevelType |
| Type | Enum |
| Values | STD\_LOW |
| STD\_HIGH |

|  |  |
| --- | --- |
| Name | Dio\_PinDirectionType |
| Type | Enum |
| Values | PORT\_PIN\_IN |
| PORT\_PIN\_OUT |

|  |  |
| --- | --- |
| Name | Dio\_PortName |
| Type | Enum |
| Values | GPIOA |
| GPIOB |
| GPIOC |
| GPIOD |
| GPIOE |
| GPIOF |

Function Definitions

|  |  |  |
| --- | --- | --- |
| Name | DIO\_Init | |
| Input | Dio\_PortName | port\_name |
| uint8 | pins\_mask |
| Return | void | |
| Description | Port Initialization.  Unlock and digital enable required ports. | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_SetPinDirection | |
| Input | Dio\_PortName | port\_name |
| uint8 | pins\_mask |
| Dio\_PinDirectionType | pins\_direction |
| Return | void | |
| Description | Sets required pins as inputs or outputs. | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_SetPinPullUp | |
| Input | Dio\_PortName | port\_name |
| uint8  uint8 | pins\_mask  enable |
| Return | void | |
| Description | Sets internal register of required pins as Pull Up | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_SetPinPullDown | |
| Input | Dio\_PortName | port\_name |
| uint8  uint8 | pins\_mask  enable |
| Return | void | |
| Description | Sets internal register of required pins as Pull Down | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_ReadPort | |
| Input | Dio\_PortName | port\_name |
| uint8 | pins\_mask |
| Return | uint8 | pins\_level |
| Description |  | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_WritePort | |
| Input | Dio\_PortName | port\_name |
| uint8 | pins\_mask |
| Dio\_LevelType | pins\_level |
| Return | void | |
| Description |  | |

|  |  |  |
| --- | --- | --- |
| Name | DIO\_FlipPort | |
| Input | Dio\_PortName | port\_name |
| uint8 | pins\_mask |
| Return | void | |
| Description |  | |

PWM Driver

Type Definitions

|  |  |
| --- | --- |
| Name | PWMChannel |
| Type | Enum |
| Values | PWM0 |
| PWM1 |
| PWM2 |
| PWM3 |
| PWM4 |
| PWM5 |
| PWM6 |
| PWM7 |

|  |  |
| --- | --- |
| Name | PWMModule |
| Type | Enum |
| Values | PWMModule0 |
| PWMModule1 |

Function Definitions

|  |  |  |
| --- | --- | --- |
| Name | PWM\_Init | |
| Input | PWMModule | module |
| PWMChannel | channel |
| uint16 | period |
| uint16 | duty |
| Return | void | |
| Description |  | |

|  |  |  |
| --- | --- | --- |
| Name | PWM\_SetDuty | |
| Input | PWMModule | module |
| PWMChannel | channel |
| uint16 | duty |
| Return | void | |
| Description |  | |

UART Driver

Type Definitions

|  |  |
| --- | --- |
| Name | UARTNUM |
| Type | Enum |
| Values | uart0 |
| uart1 |
| uart2 |
| uart3 |
| uart4 |
| uart5 |
| uart6 |
| uart7 |

|  |  |
| --- | --- |
| Name | PARITY |
| Type | Enum |
| Values | Parity\_OFF |
| Parity\_ON |

|  |  |
| --- | --- |
| Name | INTERRUPT |
| Type | Enum |
| Values | Interrupt\_OFF |
| Interrupt\_ON |

Function Definitions

|  |  |  |
| --- | --- | --- |
| Name | UART\_Init | |
| Input | UARTNUM | UartNum |
| uint32 | BaudRate |
| PARITY | Parity |
| INTERRUPT | interrupt |
| Return | void | |
| Description | Initialize any UART peripheral and Setting its Interrupt priority to 1. | |

|  |  |  |
| --- | --- | --- |
| Name | UART\_Available | |
| Input | UARTNUM | UartNum |
| Return | uint8 | Available |
| Description | Checks whether the targeted UART selected by UartNum is Available to read from (Receiver FIFO is empty or not).  Return 1 if available 0 if not available | |

|  |  |  |
| --- | --- | --- |
| Name | UART\_Read | |
| Input | UARTNUM | UartNum |
| Return | uint8 | data |
| Description |  | |

|  |  |  |
| --- | --- | --- |
| Name | UART\_Write | |
| Input | UARTNUM | UartNum |
| uint8 | data |
| Return | void | |
| Description |  | |

|  |  |  |
| --- | --- | --- |
| Name | UART\_Print | |
| Input | UARTNUM | UartNum |
| uint8 | data |
| Return | void | |
| Description |  | |