**GDD**

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| Version | Author | Changes | Status |
| 1.1 | Osman | Initial version | Reviewed |
| 1.2 | Osman | updating the GDD based on the meeting’s requirments.  (Add Layered Arch. – Blockdiagram – SRS Req. Cover) | Released |

**Description**

This document describe the static design of the security system project.

**Introduction**

The system require software components for Keypad, DIO and LCD.

**Architecture Layered**

* **MCAL**

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| **Component** | **ID** | **Functions** | **Description** | **Covers** |
| **DIO** | **GDDID\_0** | **u8 DIO\_init(void);** | **Init DIO** |  |
| **GDDID\_1** | **u8 DIO\_SetPortDir(u8 Copy\_u8PortId, u8 Copy\_u8PortDirection);** | **Set Port Direction** |  |
| **GDDID\_2** | **u8 DIO\_SetPortValue(8uCopy\_ u8PortId ,u8 Copy\_u8PortValue);** | **Set Port Value** |  |
| **GDDID\_3** | **u8 DIO\_GetPortValue(u8 Copy\_u8PortId,u8 \*Copy\_u8PortValue);** | **Return Port Direction** |  |
| **GDDID\_4** | **u8 DIO\_GetPinValue(u8 Copy\_u8PinId,u8 \*Copy\_u8PinValue);** | **Set Pin Value** | **SRSID\_1.1,**  **SRSID\_2.1, SRSID\_2.2, SRSID\_4.1** |

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| **Component** | **ID** | **Functions** | **Description** | **Covers** |
| **Delay** | **GDDID\_13** | **u8 Delay\_ms(u16 Copy\_u16Value);** | **Delay msec** | **SRSID\_1.2,**  **SRSID\_4.3,**  **SRSID\_4.4** |
| **GDDID\_14** | **u8 Delay\_us(u16 Copy\_u16Value);** | **Delay microsec** | **SRSID\_3.2,**  **SRSID\_5.2** |

* **HAL**

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| **Component** | **ID** | **Functions** | **Description** | **Covers** |
| **LCD** | **GDDID\_5** | **u8 LCD\_init(void);** | **Init LCD** |  |
| **GDDID\_6** | **u8 LCD\_ClearLCD (void);** | **Clear LCD** | **SRSID\_1.3** |
| **GDDID\_7** | **u8 LCD\_LcdWrite(8uCopy\_ u8value ,u8 Copy\_u8Position);** | **Write on LCD** | **SRSID\_2.3,**  **SRSID\_3.1,**  **SRSID\_3.2,**  **SRSID\_4.2** |
| **Keypad** | **GDDID\_8** | **u8 Keypad\_init(void);** | **Init Keypad** |  |
| **GDDID\_9** | **u8 Keypad \_SetKeypadPort (u8 Copy\_u8PortId);** | **Set keypad port** |  |
| **GDDID\_10** | **u8 Keypad \_KeypadRead(u8 \*Copy\_u8Value);** | **Read keypad value** | **SRSID\_1.2,**  **SRSID\_4.3** |
| **LED** | **GDDID\_11** | **u8 LEDDRIVER\_SetHigh(u8 Copy\_u8 PinId);** | **Set led HIGH** | **SRSID\_5.1,**  **SRSID\_5.2** |
| **GDDID\_12** | **u8 LEDDRIVER\_SetLow (u8 Copy\_u8 PinId);** | **Set led LOW** | **SRSID\_5.3** |

* **Layered Architecture:**

LIBs

STD\_types

Delay

Bit\_calc

Application

HAL

LCD Driver – Keypad Driver – LED Driver

MCAL

DIO Driver

* **Block diagram:**

Read/Write LCD

Buzzer Signal

GREEN LED Signal

RED LED Signal

Read from Keypad

Write to Keypad

LCD

RED LED

GREEN LED

Controller

Keypad