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|  |
| SOVY |
| Digital Calculator PO1\_DGC\_GDD |

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# Document Status

|  |  |
| --- | --- |
| Name | SOVY |
| Version | 1.0 |
| Status | Proposed |
| Author | Nour Elgammal |
| Date | 16/4/2021 |

# Document History

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Author | Date | Change |
| 1.0 | Nour Elgammal | 16/4/2021 | Initial Creation. |

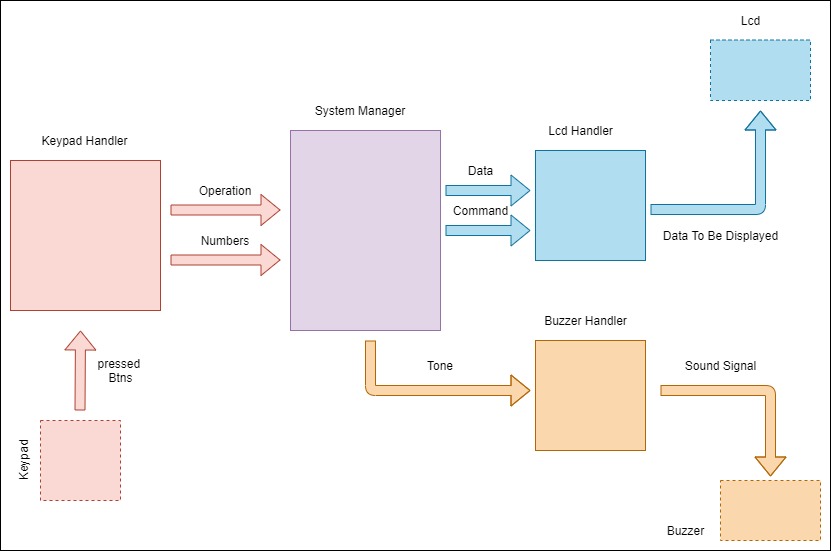
# Reference Documents

|  |  |  |  |
| --- | --- | --- | --- |
| Ref. No. | Doc. Name | Version | Status |
| 1 | PO1\_DGC\_SRS\_DigitalCalculator | 1.4 | proposed |
| 2 | PO1\_DGC\_GDD\_DigitalCalculator | 1.3 | Proposed |

# Project Description

“Sovy” is a simple digital calculator that performs basic mathematical operations and displays the operation on an LCD-screen, with an ON/OFF button and keypad for user input.

# Software Context Diagram



# 6. Component’s Application Programming Interfaces (API’s)

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| --- | --- | --- | --- | --- | --- | --- |
| **Req\_ID** | | Req\_PO1\_\_DGC\_CDD\_overall\_001-V1.0 | | | | |
| **Covers** | | Req\_PO1\_DGC\_GDD\_017-V1.0  Req\_1ST123\_SRS\_overall\_013-V1.1 | | | | |
| **Author** | Nour Elgammal | **Date** | 15/4/2021 | | | |
| **API\_Name** | ReturnStatus\_e Lcd\_Init(void) | **Scope** | Public | | | |
| **Description** | | This function is used to initialize LCD according to datasheet | | | | |
| **Parameters** | | **Type** | | **Name** | **Description** | **Range** |
| void | | NA | NA | NA |
| **Return** | | ReturnStatus\_e | | NA | STD\_ERORR  E\_OK -> If the function initialized the LCD successfully  E\_NOK -> If any problem occurred while initializing the LCD | NA |
| **Algorithm** | |  | | | | |

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| **Req\_ID** | | Req\_PO1\_\_DGC\_CDD\_overall\_002-V1.0 | | | | |
| **Covers** | | Req\_PO1\_DGC\_GDD\_018-V1.0  Req\_1ST123\_SRS\_overall\_025-V1.1 | | | | |
| **Author** | Nour Elgammal | **Date** | 15/4/2021 | | | |
| **API\_Name** | ReturnStatus\_e Lcd\_Clear(void) | **Scope** | Public | | | |
| **Description** | | This function is clear the LCD | | | | |
| **Parameters** | | **Type** | | **Name** | **Description** | **Range** |
| void | | NA | NA | NA |
| **Return** | | ReturnStatus\_e | | NA | STD\_ERORR  E\_OK -> If the function cleared the LCD successfully  E\_NOK -> If any problem occurred while clearing the LCD | NA |
| **Algorithm** | |  | | | | |

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| **Req\_ID** | | Req\_PO1\_\_DGC\_CDD\_overall\_003-V1.0 | | | | |
| **Covers** | | Req\_PO1\_DGC\_GDD\_019-V1.0  Req\_1ST123\_SRS\_overall\_014-V1.1  Req\_1ST123\_SRS\_overall\_015-V1.1  Req\_1ST123\_SRS\_overall\_016-V1.1  Req\_1ST123\_SRS\_overall\_017-V1.1  Req\_1ST123\_SRS\_overall\_018-V1.1  Req\_1ST123\_SRS\_overall\_019-V1.1  Req\_1ST123\_SRS\_overall\_020-V1.1  Req\_1ST123\_SRS\_overall\_021-V1.1  Req\_1ST123\_SRS\_overall\_022-V1.1  Req\_1ST123\_SRS\_overall\_024-V1.1 | | | | |
| **Author** | Nour Elgammal | **Date** | 16/4/2021 | | | |
| **API\_Name** | ReturnStatus\_e Lcd\_WriteString(pu8 Copy\_ptrString); | **Scope** | Public | | | |
| **Description** | | This function is used to display a string on the LCD | | | | |
| **Parameters** | | **Type** | | **Name** | **Description** | **Range** |
| Pu8 | | Copy\_ptrString | Pointer to arr of char | NA |
| **Return** | | ReturnStatus\_e | | NA | STD\_ERORR  E\_OK -> If the function cleared the LCD successfully  E\_NOK -> If any problem occurred while clearing the LCD | NA |
| **Algorithm** | |  | | | | |

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| **Req\_ID** | | Req\_PO1\_\_DGC\_CDD\_overall\_004-V1.0 | | | | | |
| **Covers** | | Req\_PO1\_DGC\_GDD\_020-V1.0  Req\_1ST123\_SRS\_overall\_014-V1.1  Req\_1ST123\_SRS\_overall\_015-V1.1  Req\_1ST123\_SRS\_overall\_016-V1.1  Req\_1ST123\_SRS\_overall\_017-V1.1  Req\_1ST123\_SRS\_overall\_018-V1.1  Req\_1ST123\_SRS\_overall\_019-V1.1  Req\_1ST123\_SRS\_overall\_020-V1.1  Req\_1ST123\_SRS\_overall\_021-V1.1  Req\_1ST123\_SRS\_overall\_022-V1.1  Req\_1ST123\_SRS\_overall\_025-V1.1 | | | | | |
| **Author** | Nour Elgammal | **Date** | | 16/4/2021 | | | |
| **API\_Name** | ReturnStatus\_e Lcd\_GotoXY(u8 Copy\_u8XPos, u8 Copy\_u8YPos) | **Scope** | | Public | | | |
| **Description** | | This function is clear the LCD | | | | | |
| **Parameters** | | **Type** | **Name** | | **Description** | | **Range** |
| u8  u8 | Copy\_u8XPos  Copy\_u8YPos | | | XPos -> which column  YPos -> which row | NA |
| **Return** | | ReturnStatus\_e | NA | | STD\_ERORR  E\_OK -> If the function cleared the LCD successfully  E\_NOK -> If any problem occurred while clearing the LCD | | NA |
| **Algorithm** | |  | | | | | |

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| **Req\_ID** | | Req\_PO1\_\_DGC\_CDD\_overall\_005-V1.0 | | | | |
| **Covers** | | Req\_PO1\_DGC\_GDD\_021-V1.0  Req\_1ST123\_SRS\_overall\_008-V1.1  Req\_1ST123\_SRS\_overall\_014-V1.1  Req\_1ST123\_SRS\_overall\_020-V1.1 | | | | |
| **Author** | Nour Elgammal | **Date** | | 16/4/2021 | | |
| **API\_Name** | ReturnStatus\_e Lcd\_WriteNum (u16 Copy\_u16Num); | **Scope** | | Public | | |
| **Description** | | This function is to display numbers on the LCD | | | | |
| **Parameters** | | **Type** | **Name** | | **Description** | **Range** |
| u16 | Copy\_u16Num | | Number to be written onto the LCD | NA |
| **Return** | | ReturnStatus\_e | NA | | STD\_ERORR  E\_OK -> If the function cleared the LCD successfully  E\_NOK -> If any problem occurred while clearing the LCD | NA |
| **Algorithm** | |  | | | | |