

**PO3\_DGW\_Digital watch**

**(LCD)**

Table 1 Status Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Document Name** | **Author** | **Version** | **Date** | **Status** |
| LCD\_CDD | Basma Abdelhakim | 1.0 | 4/3/2020 | Draft |

**DOCUMENT HISTORY**

Table 2 Document History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Description of Change** | **Author** | **Date** | **Document Status** |
| 1 | Initial creation of LCD\_CDD Document | Basma Abdelhakim | 4/3/2020 | Draft |

Table 3 Reference Table

|  |  |  |
| --- | --- | --- |
| Reference Input Documents | Version | Status |
| SRS | 1.7 | Proposed |
| GDD | 1.1 | Proposed |

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# **1.LCD software context diagram**

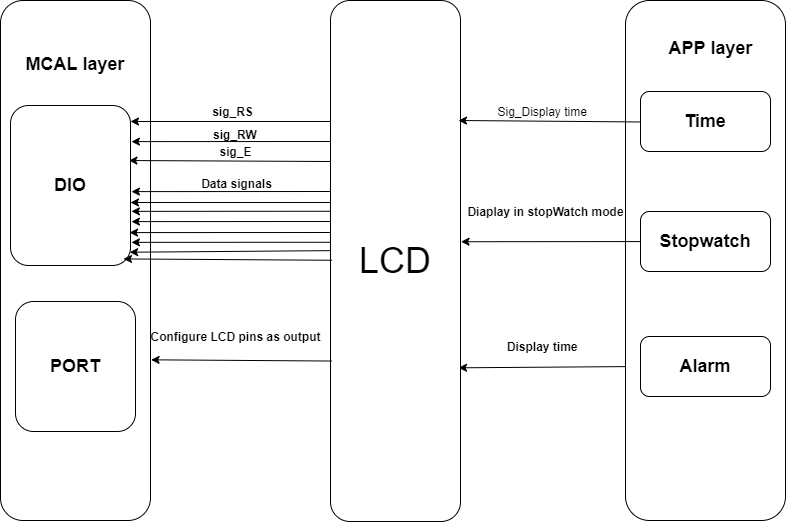


Figure 1. LCD context diagram.

# 2.Component ʹs application programming interfaces (APIs)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_01\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_10\_V01.0.  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidInitialize | **Scope** | | | public | | |
| **Description** | | | This function is used to initialize LCD according to datasheet | | | | | |
| **Inputs** | | | **Type** | **Name** | | | **Description** | **Range** |
| void | NA | | | NA | NA |
| **Outputs** | | | void | NA | | | NA | NA |
| **Algorithm** | | |  | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_02\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_11\_V01.0  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidWriteCmd | **Scope** | | | public | | |
| **Description** | | | This function is used to write command on LCD | | | | | |
| **Inputs** | | | **Type** | **Name** | | | **Description** | **Range** |
| U8 | Copy\_u8Data | | | Data | 0 to 255 |
| **Outputs** | | | void | NA | | | NA | NA |
| **Configuration parameters** | | | CLCD\_u8\_RS\_PORT, CLCD\_u8\_RS\_PIN  CLCD\_u8\_RW\_PORT, CLCD\_u8\_RW\_PIN  CLCD\_u8\_E\_PORT, CLCD\_u8\_E\_PIN | | | | | |
| **Algorithm** | | |  | | | | | |

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| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_03\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_12\_V01.0  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidWriteData | **Scope** | | | public | | |
| **Description** | | | This function is used to write data on LCD | | | | | |
| **Inputs** | | | **Type** | **Name** | | | **Description** | **Range** |
| U8 | Copy\_u8Data | | | Data | 0 to 255 |
| **Outputs** | | | void | NA | | | NA | NA |
| **Configuration parameters** | | | CLCD\_u8\_RS\_PORT, CLCD\_u8\_RS\_PIN  CLCD\_u8\_RW\_PORT, CLCD\_u8\_RW\_PIN  CLCD\_u8\_E\_PORT, CLCD\_u8\_E\_PIN | | | | | |
| **Algorithm** | | |  | | | | | |

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| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_04\_V01. | | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_12\_V01.0  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidSetDataPort | | | **Scope** | | | Private | |
| **Description** | | | This function is used to set data port | | | | | | |
| **Inputs** | | | **Type** | **Name** | | | **Description** | | **Range** |
| U8 | Copy\_u8Data | | | Data | | 0 to 255 |
| **Outputs** | | | void | NA | | | NA | | NA |
| **Configuration parameters** | | | CLCD\_u8\_DATA\_PORT  CLCD\_u8\_D0, CLCD\_u8\_D1, CLCD\_u8\_D2, CLCD\_u8\_D3, CLCD\_u8\_D4, CLCD\_u8\_D5, CLCD\_u8\_D6, CLCD\_u8\_D7 | | | | | | |
| **Algorithm** | | |  | | | | | | |

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| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_05\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_13\_V01.0  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidWriteString | | **Scope** | | | Public | |
| **Description** | | | This function is used to write string on LCD | | | | | |
| **Inputs** | **Type** | | | **Name** | | **Description** | | **Range** |
| const char\* | | | Copy\_pchString | | Pointer to array of characters to be written into LCD | |  |
| **Outputs** | void | | | NA | | NA | | NA |
| **Configuration parameters** | | | NA | | | | | |
| **Algorithm** | | |  | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_06\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_14\_V01.0  Req\_PO3\_DGW\_SRS\_10\_V01.2  Req\_PO3\_DGW\_SRS\_11\_V01.2  Req\_PO3\_DGW\_SRS\_12\_V01.2  Req\_PO3\_DGW\_SRS\_13\_V01.2  Req\_PO3\_DGW\_SRS\_15\_V01.2  Req\_PO3\_DGW\_SRS\_16\_V01.2  Req\_PO3\_DGW\_SRS\_17\_V01.2  Req\_PO3\_DGW\_SRS\_18\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidGoToXYPos | | **Scope** | | | Public | |
| **Description** | | | This function is used to move LCD cursor to a specific location on LCD | | | | | |
| **Inputs** | **Type** | | | **Name** | | **Description** | | **Range** |
| u8  u8 | | | Copy\_u8XPos  Copy\_u8YPos | | Column position  Row position | | 0 to 255  0 to 255 |
| **Outputs** | void | | | NA | | NA | | NA |
| **Configuration parameters** | | | CLCD\_u8\_LINE\_ONE, CLCD\_u8\_LINE\_TWO | | | | | |
| **Algorithm** | | |  | | | | | |
| **Req\_ID** | | | Req\_PO3\_DGW\_LCD\_CDD\_07\_V01. | | | | | |
| **Covers** | | | Req\_PO3\_DGW\_GDD\_15\_V01.0  Req\_PO3\_DGW\_SRS\_06\_V01.2  Req\_PO3\_DGW\_SRS\_08\_V01.2 | | | | | |
| **Author** | Basma Abdelhakim | | **Date** | | 4/3/2020 | | | |
| **API\_Name** | | CLCD\_voidWriteNum | | **Scope** | | | Public | |
| **Description** | | | This function is used to write number on LCD. | | | | | |
| **Inputs** | **Type** | | | **Name** | | **Description** | | **Range** |
| u32 | | | Copy\_u32Num | | Number to be written onto the LCD | | u32 |
| **Outputs** | void | | | NA | | NA | | NA |
| **Configuration parameters** | | | NA | | | | | |
| **Algorithm** | | |  | | | | | |