LCD CDD

for

Digital Elevator PO4\_DGELV

Version 1.0 Draft

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Document Status

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Revision History

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| LCD\_CDD\_DIGITAL\_ELEVATOR | V\_1.0 | Islam El-Bahnasawy | Mar 4, 2020 | Initial creation of the CDD Document by adding  1) Naming convention  2) Document status  3) Revision history  4) Context diagram  5) Flow Chart  6) APIs  7) Configuration | Draft |
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Reference Table

|  |  |  |
| --- | --- | --- |
| **Ref. Document** | **Version** | **Document Status** |
| SRS\_DIGITAL\_ELEVATOR | V\_1.4 | Proposed |
| GDD\_DIGITAL\_ELEVATOR | V\_1.2 | Released |
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1. **Introduction**

**Purpose**

This project aims at developing a Digital Elevator with lock system to be more secure and have specific functionalities.

The purpose of this document is to present a component detailed design of the LCD component in our Digital Elevator System. It will explain the software context, APIs and configurations of the LCD component.

**Project Scope**

This software system will be an Embedded System for a digital elevator. This system will be designed to secure the usage of the elevator and handle the movement of it. By having a limited number of resigned users with unique ID and entered password, we can secure the usage of the elevator. Using some developed buttons, the users can easily control the movement of the elevator.

# **LCD Software Context Diagram**

DIO\_SetPinVal

CLCD\_voidWriteString

CLCD\_voidInitialize

CLCD\_voidGoToXVPos

Handler

Keypad Management

LCD

Manager

Display Handler

# **Global Variables**

# **Configurations**

# **LCD Flow Chart**

CLCD\_voidInitialize

Signal

If (x is valid & Y is valid)

CLCD\_voidWriteString

CLCD\_voidGoToXVPos

No

No

Yes

Yes

DIO\_SetPinVal

Error

If (String is valid)

Error

1. **LCD APIs**

|  |  |
| --- | --- |
| Req. ID | Req\_DIGELV\_LCD\_CDD\_001\_V1.0 |
| Component Name | LCD\_Driver |
| API Name | Error\_Status CLCD\_voidInitialize(void); |
| Return type | It’s u8 Error\_Status, it returns E\_OK or E\_NOK   |  |  | | --- | --- | | E\_OK | 0 | | E\_NOK | 1 | |
| Parameters type | It doesn’t take any parameters |
| Description | The functionality of this API to make the hardware ready by applying standard sequence on it. |

|  |  |
| --- | --- |
| Req. ID | Req\_DIGELV\_LCD\_CDD\_002\_V1.0 |
| Component Name | LCD\_Driver |
| API Name | Error\_Status CLCD\_voidGoToXVPos(u8 Copy\_u8XPos, u8 Copy\_u8YPos); |
| Return type | It’s u8 Error\_Status, it returns E\_OK or E\_NOK   |  |  | | --- | --- | | E\_OK | 0 | | E\_NOK | 1 | |
| Parameters type | u8 Copy\_u8XPos  this parameter takes the number of x position (range between 0 to 15)  u8 Copy\_u8YPos  this parameter takes the number of y position, it has 2 options  (CLCD\_U8\_LINE\_TWO or CLCD\_U8\_LINE\_ONE) |
| Description | The functionality of this API to move the cursor to the desired position |

|  |  |
| --- | --- |
| Req. ID | Req\_DIGELV\_LCD\_CDD\_003\_V1.0 |
| Component Name | LCD\_Driver |
| API Name | Error\_Status CLCD\_voidWriteString(const char\* Copy\_pchString); |
| Return type | It’s u8 Error\_Status, it returns E\_OK or E\_NOK   |  |  | | --- | --- | | E\_OK | 0 | | E\_NOK | 1 | |
| Parameters type | const char\* Copy\_pchString  this parameter takes the text you want to display on the LCD |
| Description | The functionality of this API to print a text on the LCD |