**PO1\_DGC\_Digital**

**GDD Document**

**Version 1.1**

**Proposed**

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| 1.0 | - Salma Amr | 29/2/2020 | * Initial creation * Adding project Description * Adding static architecture | Proposed |
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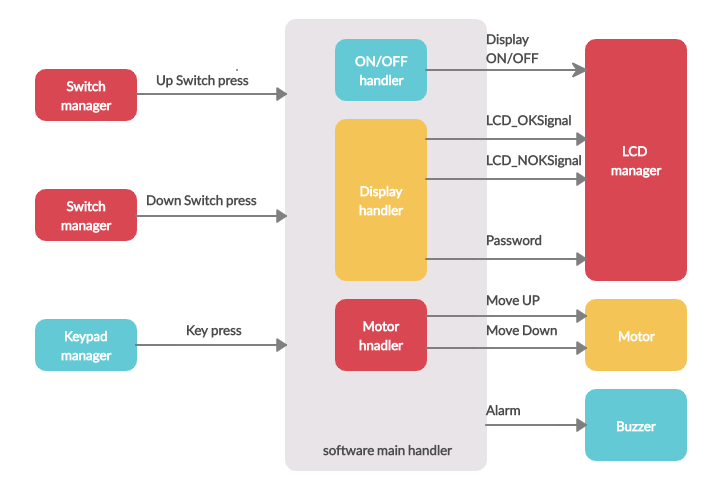
# **Project Description**

The major feature of the digital elevator as listed below:

* Check if the user is signed in/up or not.
* Check the limit number of users (maximum number of users is 10).
* Display the status using a user-friendly interface.
* Require the password and user ID.
* Two buttons to control the system:

1. Button for up movement.
2. Button for down movement.
3. Pushing Two Buttons together resets the system.

## **Software Context Diagram**



*Figure ‎1-1 Software Context Diagram*

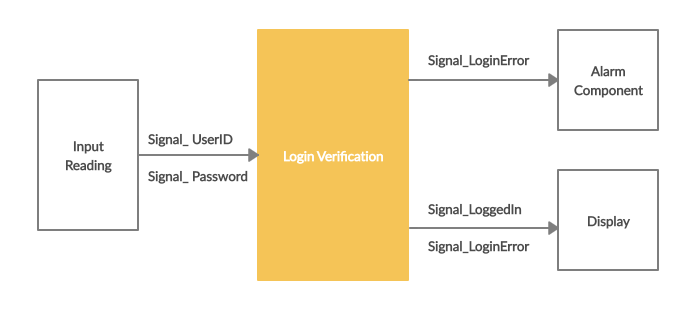
# **Input and Output Signals**

The input and output signals in the project are listed below in figures, with explained information about each signal.

## **Login Verification**

Input signals: Signal\_ UserID, Signal\_ Password.

Output signals: Signal\_LoggedIn, Signal\_LoginError.



*Figure ‎2-1 Login Verification Control Signals*

|  |  |
| --- | --- |
| Signal\_ UserID | |
| **Range** | [A,C] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ Password | |
| **Range** | [0000,9999] |
| **Unit** | NA |

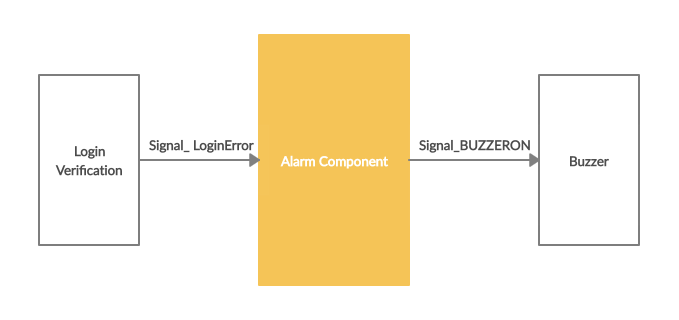
|  |  |
| --- | --- |
| Signal\_ LoggedIn | |
| **Range** | [1] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ LoginError | |
| **Range** | [0] |
| **Unit** | NA |

## **Alarm Component**

Input signals: Signal\_ LoginError.

Output signals: Signal\_BUZZERON.



*Figure ‎2-2Alarm Component Control Signals*

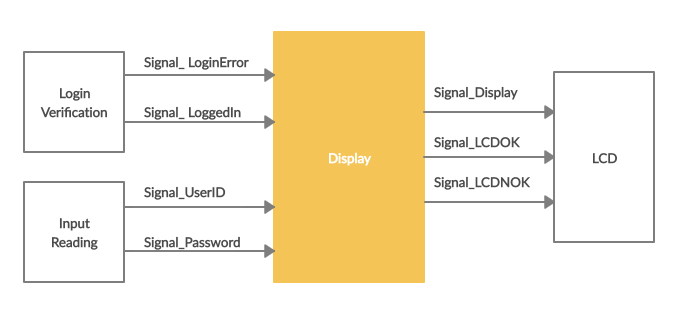
|  |  |
| --- | --- |
| Signal\_ BUZZERON | |
| **Range** | [0,1] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ LoginError | |
| **Range** | [0] |
| **Unit** | NA |

## **Display**

Input signals: Signal\_ UserID, Signal\_ Password, Signal\_LoggedIn, Signal\_LoginError.

Output signals: Signal\_Display, Signal\_LCDOK, Signal\_LCDNOK.



*Figure ‎2-3Display Control Signals*

|  |  |
| --- | --- |
| Signal\_ LoggedIn | |
| **Range** | [1] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ LoginError | |
| **Range** | [0] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ UserID | |
| **Range** | [A,C] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ Password | |
| **Range** | [0000,9999] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ Diplay | |
| **Range** | [0,1] |
| **Unit** | NA |

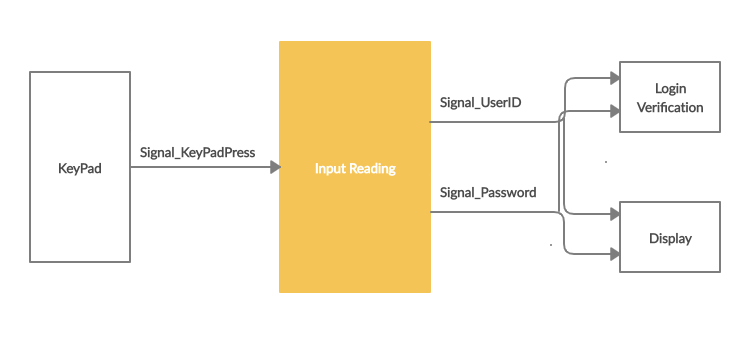
|  |  |
| --- | --- |
| Signal\_ LCDNOK | |
| **Range** | [0] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ LCDOK | |
| **Range** | [1] |
| **Unit** | NA |

## **Input Reading**

Input signals: Signal\_KeypadPressed.

Output signals: Signal\_ UserID, Signal\_ Password.



*Figure ‎2-4Input ReadingControl Signals*

|  |  |
| --- | --- |
| Signal\_ UserID | |
| **Range** | [A,C] |
| **Unit** | NA |

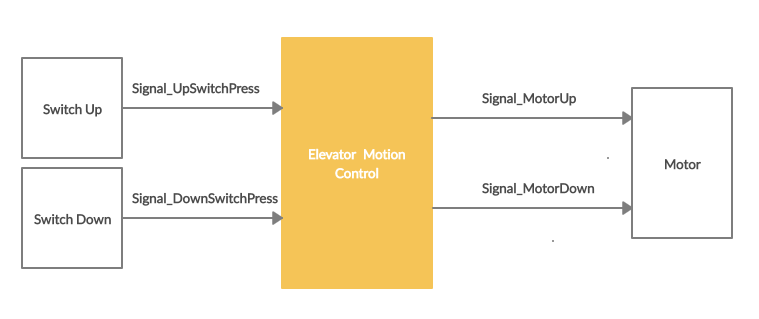
|  |  |
| --- | --- |
| Signal\_ Password | |
| **Range** | [0000,9999] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ KeyPadPress | |
| **Range** | [0,9 and A,C] |
| **Unit** | NA |

## **Elevator Motion Control**

Input signals: Signal\_UpSwitchPressed, Signal\_DownSwitchPressed.

Output signals: Signal\_ MotorUp, Signal\_MotorDown.



*Figure ‎2-5Elevator Motion Control Signals*

|  |  |
| --- | --- |
| Signal\_UpSwitchPress | |
| **Range** | [0,1] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ DownSwitchPress | |
| **Range** | [0,1] |
| **Unit** | NA |

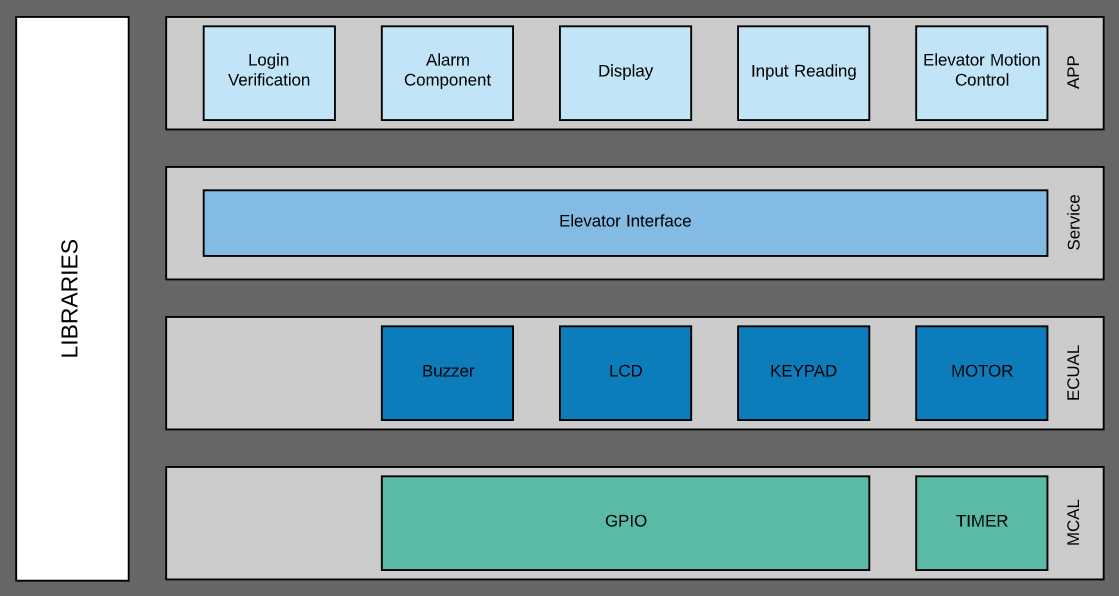
|  |  |
| --- | --- |
| Signal\_ MotorDown | |
| **Range** | [00 or 01] |
| **Unit** | NA |

|  |  |
| --- | --- |
| Signal\_ MotorUp | |
| **Range** | [00 or 10] |
| **Unit** | NA |

# **3. Static Architecture**

## **Layered Architecture**

The layered architecture represents the architecture of the project as separate horizontal layers, and shows the dependency of each module in any layer on other modules as shown in Figure ‎4-1.



*Figure ‎4-1 Project Layered Architecture*