****

# PO1\_DGC Calculator

**SRS**

**Status**: **Released**

**Document Status**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Status** | **Author** | **Date** |
| V 1.0 | Draft | Bishoy Nabil | 24/1/2020 |
| V 1.1 | Draft | Moemen Ahmed | 261/2020 |
| V1.2 | Proposed | Mina Yousry | 7/2/2020 |
| V1.3 | Proposed | Mina Yousry | 8/2/202 |
| V1.4 | Proposed | Mina Yousry | 19/2/2020 |
| V1.5 | Proposed | Bishoy Nabil | 20/2/2020 |
| V1.6 | Proposed | Mina Yousry | 23/2/2020 |
| V1.7 | Released | Mina Yousry | 27/2/2020 |

**Document History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| V 1.0 | Bishoy Nabil | 24/1/2020 | Initial creation |
| V 1.1 | Moamen Ahmed | 26/1/2020 | Created index and improved formatting  for SRS document |
| V 1.2 | Mina Yousry | 7/2/2020 | Added changes after review |
| V 1.3 | Mina Yousry | 8/2/2020 | Added Minor  Changes |
| V 1.4 | Mina Yousry | 19/2/2020 | Added changes after review |
| V1.5 | Bishoy Nabil | 20/2/2020 | Added changes after review |
| V1.6 | Mina Yousry | 23/2/2020 | Added changes after review and context diagram |
| V1.7 | Mina Yousry | 27/2/2020 | Added changes after review x |

### **Reference Documents:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref.**  **number** | **Doc. name** | **Version** | **Status** |
| 1 | PO1\_DGC Calculator  (CYRS) | V1.4 | Released |
| 2 | PO1\_DGC Calculator  (HSI) | V1.4 | Proposed |

## **Table of contents**

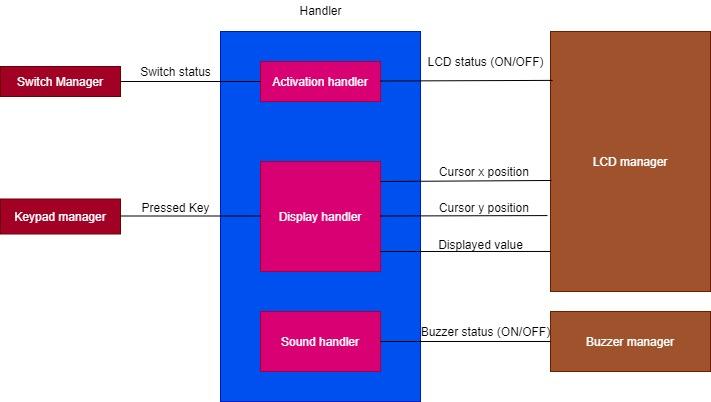
1. **Document status**
2. **Document History**
3. **Reference document**
4. **Project Description**
5. **SRS Context diagram**
6. **SW Requirements**

**Project Description:**

The purpose of this project is to make a functional calculator that supports basic mathematical operations: add, subtract, multiply and divide

The purpose of this document is to provide a detailed description of the calculator and how it operates as well as its requirements and test cases.

**SRS Context diagram**



### **SW requirements:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_001\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_002\_v1.2 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall check the pressed key | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_002\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_003\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall send to LCD data: the pressed key value  and Cursor position: 1,1 | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_003\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_004\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle if the first operand is not number or subtraction operation | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_004\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_004\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall send to LCD data: “Please enter an operand first”  and Cursor position: 1,1 | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_005\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_004\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall detect if the first operand is subtraction operation | | |
| **Inputs** | Keypad | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_006\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_004\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall send to LCD data: “-”  and Cursor position: 1,1 | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_007\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_005\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle the input of another operation it should overwrite the previous until the input is number | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_008\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_006\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle if the input is the assignment “=” before enter any operation | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_009\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_006\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall send to LCD data: the result  and Cursor position: 1,3 | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0010\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_006\_v1.1 |
| **Author** | Mina Yousry | **Date** | 20/2/2020 |
| **Description** | SW shall display on LCD the send data on the sent position | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0011\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_007\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall assign the same tone for the buzzer for every Key | | |
| **Inputs** | Pressed Key | Outputs | Buzzer Status (ON/OFF) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0012\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_007\_v1.1 |
| **Author** | Mina Yousry | **Date** | 20/2/2020 |
| **Description** | SW shall Activate buzzer for every key pressed | | |
| **Inputs** | Pressed Key | Outputs | Buzzer Status (ON/OFF) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0013\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_008\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle if the input is negative and the system wait for the first operand it should save the first operand as signed number | | |
| **Inputs** | Pressed Key | Outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0014\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_008\_v1.1 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall check if the input is negative operand and subtraction operation | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0015\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_009\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle division by zero by checking the operation and the second operand | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0016\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_0010\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall save the operands and result in floating numbers. | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0017\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_0010\_v1.0 |
| **Author** | Mina Yousry | **Date** | 20/2/2020 |
| **Description** | SW shall approximate the result to precision of 0.00 | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0018\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_0011\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle if the first input is negative sign it should save the first operand as signed variable | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0019\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_0011\_v1.0 |
| **Author** | Mina Yousry | **Date** | 6/2/2020 |
| **Description** | SW shall handle if the second operand input is negative sign should save the second operand as signed variable | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO1\_DGC\_SRS\_0020\_v1.3 | **Covers** | Req\_PO1\_DGC\_CYRS\_0012\_v1.0 |
| **Author** | Mina Yousry | **Date** | 20/2/2020 |
| **Description** | SW shall count to 15 seconds after displaying the result if no other inputs system shall turned off | | |
| **Inputs** | Pressed Key | outputs | Cursor x position  Cursor y position  Displayed value |