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# PO1\_DGC Calculator

**(HSI)**

**Status** : **Proposed**

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### **Document Status**

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| --- | --- | --- | --- |
| **Version** | **Status** | **Author** | **Date** |
| V 1.0 | Draft | Areej Ayman Helal | 23/1/2020 |
| V 1.1 | Proposed | Areej Ayman Helal | 6/2/2020 |
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### **History Table**

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| **Version** | **Author** | **Date** | **Change** |
| 1.0 | Areej Ayman Helal | 23/1/2020 | Initial creation |
| 1.1 | Areej Ayman Helal | 6/2/2020 | * Document status updated. * Version of Document is defined in all pages. * History table location is updated . * Reference documents table is added. * Features section is updated. * Components’ IDs are added to the microcontroller pins section. |
| V 1.2 | Areej Ayman Helal | 7/2/2020 | * Document status table location changed . * Block Diagram updated following the review instructions to put inputs on the left side and outputs on the right side. |
| V 1.3 | Areej Ayman Helal | 8/2/2020 | * Features section is removed. * Requirement id for microcontroller pins section is added. |
| V 1.4 | Areej Ayman Helal | 10/2/2020 | * Document status is removed from first page using microsoft word instead of google docs . * Requirement id for microcontroller pins section is edited. |

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## **Hardware Components :**

* **AVR Atmega32 Microcontroller**
* **Keypad 4\*4**
* **Push Button**
* **Buzzer**
* **Character LCD 16\*2**

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### **Block Diagram**

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### Figure 1

### **Microcontroller Pins**

### **Req\_PO1\_DGC\_HSI\_001\_v1.3 Imp#HW**

### Figure 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component** | **Port** | **Pins** | **Direction** | **Description** |
| **Keypad** | **Port B** | **0 : 7** | **Input** | **8 Pins from Port B connected to the Keypad** |
| **Push Button** | **Port D** | **4** | **Input** | **1 Pin from Port D connected to Button** |
| **Push Button** | **Ground** | **Power Pins** | **-** | **1 Pin ground connected to Button** |
| **LCD** | **Port A** | **0 : 7** | **Output** | **8 Pins from Port A connected to Data Pins** |
| **LCD** | **Port D** | **0 : 2** | **Output** | **3 Pins from Port D connected to Rs , Rw and Enable** |
| **LCD** | **Ground and VCC** | **Power Pins** | **-** | **2 Pins 5v connected to Anode and Vdd** |
| **LCD** | **Ground and VCC** | **Power Pins** | **-** | **2 Pins ground connected to cathode and Vss** |
| **Buzzer** | **Port D** | **3** | **Output** | **1 Pin from Port D connected to Buzzer** |
| **Buzzer** | **Ground** | **Power Pins** | **-** | **1 Pin from ground connected to Buzzer** |

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### **Reference Documents**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reference Number** | **Document Name** | **Version** | **Status** |
| 1 | CRS | - | - |

### Figure 3

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