**PO2EBL\_ELECTRIC BLENDER**

**HSI DOCUMENT**

**Version 0.1**

**Draft**

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 1/23/2020 | 0.1 | Initial Draft, mentioning all the hardware components needed for the system. | Amira Zaher |
| 1/26/2020 | 0.2 | Update Pin Mode Representation | Ali Samir |
|  |  |  |  |

**1 Introduction**

This section introduces the hardware specification for the project.

**1.1 Hardware Requirement**

This specification documents all the hardware requirements for the Electric Blender including:

* Microcontroller
* One push button
* 3 LEDs
* DC motor

**2 Hardware System:**

**2.1 The System Block Diagram**



**2.2 Pin Mode Representation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component Name** | **Port** | **Pin** | **Mode** | **Function** |
| Motor | Port A | Pin 0 | Digital Output PWM | Operate when it receives HIGH from the timer of the microcontroller |
| LED1 | Port A | Pin 1 | Digital Output | Operate when it receives HIGH based on the state of the Motor |
| LED2 | Port A | Pin 2 | Digital Output | Operate when it receives HIGH based on the state of the Motor |
| LED3 | Port A | Pin 3 | Digital Output | Operate when it receives HIGH based on the state of the Motor |
| Push Button | Port C | Pin 0 | Digital Input pull up | Gives the signal to the motor pin |

**2.3 Speed Mode Block Diagram**

**3 Functional Requirements:**

|  |  |  |
| --- | --- | --- |
| **Feature** | **REQ\_ID** | **Description** |
| **Speed Controls** | REQ\_PO2EBL\_CYRS\_01\_V01 | When the switch is first pressed the blender shall be turned on, when the switch is pressed again, the blender shall operate on the higher speed level until it reaches the maximum level, and the next press shall turn it off.  #imp SW |
| **Safety Monitoring** | REQ\_PO2EBL\_CYRS\_02\_V01 | The system should monitor the input voltage level to ensure the safety of the motor. If the input voltage level increases over the charted levels or decreases below it, the blender shall be turned off.  #imp SW, HW |