**Fan-Controller-System “**SRS”

4 April 2016

**Overview:**

This document is to present a detailed description of the Fan Controller System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do. It will illustrate the purpose and complete declaration for the development of system. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team

**Functional Requirements**

1. The System will measure the Air temperature using the sensor "LM 35", the temperature sensor connected to a certain analogue to digital converter "ADC" pin.
2. According to the measured Air temperature the system will decide the speed of the "Fan", the "Fan" has three levels of speed

|  |  |
| --- | --- |
| **Temperature Range** | **Fan Speed** |
| From 15 To 20 C | Speed 1 |
| From 20 To 25 C | Speed 2 |
| From 25 To 30 C | Speed 3 |

1. The Measured Air temperature and the "Fan" speed will be displayed on The "LCD" (16Char\*2Line).
2. The temperature limits in SRS\_02\_1 must be configurable. i.e., the temperature limit 15 To 20 C can be configurable to any temperature limit.
3. The user will start the system by pressing the "Power on Switch ", the power on switch will connect the battery with System.
4. The "LCD" Display the Temperature and Fan speed as String in the first line ,in the second line will be the Temperature Fan speed as numeric representation as the following example :

|  |  |
| --- | --- |
| Temp: | Speed: |
| 22 C | 2 |

1. The text displayed must be static. I.e. No moving text.
2. During the initialization time, the LCD must be blank.
3. The System will be portable and it will be powered on with "3.7 Volt" External Battery.
4. No Fan is required in the final delivery of the project and the LCD will be the only indicator for the project functionality.
5. The System is preferred to be delivered on PCB board.
6. The PCB design must be as optimized in size as possible.
7. Use the minimal components available.

**Non-Functional Requirements:**

1. The "PCB" design should be simple and easy to be implemented.
2. The power consumption must be minimum as possible.
3. Fast response when the system powered on; the time between the user press the power on switch and the LCD displays the actual Temperature and Fan speed.
4. The application should be easy to extend. The code should be written in a Readable and Configurable way.
5. Can work with high performance 24/7.
6. The reliability that the system gives the right Air Temperature to be displayed.