Software Requirements Specification

for

Temperature Monitoring Project

Version 0.1 draft

15/11/2022

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Revision History

Name	Date	Reason for Changes	version
Gal Alroy	15/11/2022	Initial release	0.1

1. Introduction

1.1. Purpose

This document aims to define the software requirements for a software device called Temperature Monitoring Project

1.2. Software Requirements as listed in sections below of this document shall be validated.

Requirements numbering scheme ([REQ.XXX]) is used for traceability purposes.

Shall – Indicates a mandatory requirement statement, and therefore, the requirement shall be tested and validated.

Will – Indicates a recommended requirement statement, and therefore, is not a mandatory requirement for compliance with this specification and may be absent in the final system.

2. Overall Description

2.1. Product Functions

2.1.1. Checking temperature every 1 second.

2.1.2. Saving measured temperature every 1 minute to file

2.1.3. Detarman 2 thresholds.

2.1.3.1. Warning threshold.

2.1.3.1.1. If temperature increases above the warning threshold it should switch **on** the red LED and write the event into the events log in file.

2.1.3.2. critical threshold.

2.1.3.3. If temperature increases above the critical threshold it should **blink** the red LED, give a constant sound signal and write the event into the events log in file.

2.1.4. When the temperature decreases the threshold, it should disable corresponding notifications: LED, sound, and write the event in to the event log in file

2.1.5. The log record should have the following data

2.1.5.1. ·Current date and time,

2.1.5.2. The log severity

2.1.5.3. Message.

2.1.6. The user could disable the buzzer signal by pressing the button

2.1.7. The use should be able to perform the following commands:

2.1.7.1. Set date and time

2.1.7.2. Set warning threshold

2.1.7.3. Set critical threshold

2.1.7.4. Print log

2.1.7.5. Clear log

2.1.8. The monitor sensor should use latest settings after boot (store them in flash)

2.1.9. Files for event and temperature log shall be stored on SDCARD.

2.1.9.1. Using FATFS

2.1.9.2. Option to read the log files with Notepad editor

3. External Interface Requirements

3.1. User Interfaces

3.1.1. UART

REQ ID	**Description**
UART-1	The App shall be able to receive the data/commands from UART
UART-2	The App shall be able to output logs
UART-3	The App shall support command specified in Appendix 1

3.1.2. BUTTONS

REQ ID	**Description**

BTN-1	The App shall be able to detect the pression of SW1 and SW2

3.1.3. BUZZER

REQ ID	Description
BUZ-1	The App shall be able to play sound

3.1.4. LED

REQ ID	Description
LED-1	The App shall be able to turn led on
LED-2	The App shall be able to turn led off
LED-3	The App shall be able to turn led blink

3.1.5. DHT

REQ ID	Description
DHT-1	The App shall be able to read temperature

3.1.6. Flash

REQ ID	Description
FLS-1	The App shall be able to read/write data from flash

3.1.7. SDCARD

REQ ID	Description
SDCRD-1	The App shall be able to write log file to sdcard

3.2. Hardware Interfaces

3.2.1. Button sw1

3.2.2. Button sw2

3.3. Software Interfaces

3.3.1. none

4. Use Cases

4.1. Power up

4.1.1. Show app version on teraterm.

4.1.2. Get data from flash
4.1.2.1. If no data on flash
4.1.2.1.1. Use default data
4.1.2.1.2. Ask user to enter:
4.1.2.1.2.1. Date.
4.1.2.1.2.2. Time.
4.1.2.1.2.3. Warning threshold.
4.1.2.1.2.4. Critical threshold.
4.1.3. Check hardware.
4.1.3.1. DHT sensor
4.1.3.2. SDCard
4.2. User remove SDCard
4.2.1. The app shows a message to tera-term.
5. App Requirements
5.1. Todo
6. Appendix 1 Commands list
6.1. Ledon test - red led
6.2. setdatetime
6.2.1. Format dd/mm/yy HH:MM:SS
6.3. showdate
6.3.1. Show current date time
6.4. Showtemp
6.4.1. Show current temperature.
6.5. setwarning
6.5.1. (Set warning threshold)
6.5.2. setwarning xx.yy e.g (setwarning 35.5)
6.6. setcritical - (Set critical threshold)
6.6.1. setcritical xx.yy e.g (setcritical 45.1)
6.7. showboundary
6.7.1. Show warning and critical threshold at tera - term
6.8. cleanlog
6.8.1. Delete all log records
6.9. readlog
6.9.1. Show all log record
6.10. cleanalertlog
6.10.1. Delete all alert records
6.11. Readalertlog
6.11.1. Show all log alert record