Software Requirements Specification

for

Temperature Management System

Version 1.0 approved

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Revision History

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Name	Enrollment No	ID
Harsh Meena	*IIT2019005*	*i01*
Prasanth Kota	*IIT2019062*	i02
Gopal Pedada	*IIT2019065*	i03

1. Introduction

1.1 Purpose

The product whose software requirements are specified in this document is a website. This SRS describes the complete features and functionalities of the said system in addition,it also lists the non functional requirements of all kinds for proper functioning of this web controlled Temperature management system.

1.2 Document Conventions

Main Section Titles

Font : Times New Roman **Face : Bold** **Size :** 18

Subsection Titles

Font : Times New Roman **Face : Bold** **Size :** 14

Standard Text / Content

Font : Times New Roman **Face :** None **Size :** 12

1.3 Intended Audience and Reading Suggestions

Users: The users of the system will get an idea of the website and how it should be used to maximize its performance. Admins will also benefit in understanding how each of the features will work and could give feedback and will also provide easy maintainability once it's live.
Developers: Project Developers will have a framework to base their project on and will get to know the requirements and other such things for building a similar project.

- users should go first through the user interface and after that this document could be read in any order.
- Developers can go through any order depending on their requirements.

1.4 Product Scope

The website will help the users in managing the temperature in the campus. The website helps monitor the level of room temperature present in the environment . In an Alarming Situation the system will generate an alarm and send auto generated messages through email.

1.5 References

- SRS report based on ieee srs template.

2. Overall Description

2.1 Product Perspective

This product will help the client in remotely monitoring the temperature in each of the rooms of the campus and alert them in case there's an alarming temperature situation in any of the rooms. The website can also be used to remotely adjust the thermostat temperature in any of the rooms.

2.2 Product Functions

R.ID	Use Case	Description of Use Case
R4.2	Admin login	Allows the admin to login
R4.9	View room list	Lists all the rooms in the campus
R4.9	Choose room	Choose the room whose temperature you want to monitor
R4.3R4.5	Display temperature	Displays the temperature of the selected room
R4.6	Adjust thermostat temperature	Adjust the thermostat temperature in a particular room
R4.4	Set alarm level	Setting temperature level at which alarm will go off
R4.4	Set message	Setting alarm message
R4.7	Set emergency contact	Setting emergency email contacts for alarm situation
R4.1	User login	Login for normal user
R4.8	Complaint registration	For user to use in case of malfunctioning thermostat in his room

2.3 User Classes and Characteristics

The users of the system will all be allowed to monitor the temperature in any room but are only allowed to adjust the thermostat of their own room. The admin should be able to do the same but control the thermostat of any room.

1. **Admin**: The admin doesn't need to have any knowledge of programming or databases, but needs to have some basic understanding of computers and the internet. Some of their roles are:
    - ➢ Maintaining temperature using remote control of thermostat
    - ➢ Setting temperature levels at which alarm would go off
    - ➢ Setting emergency contacts
    - ➢ Monitoring temperature levels throughout the campus.
2. **User:** The users of this website are the residents of the campus. They need to have a basic understanding of computers and the internet. Some of their roles are:
    - ➢ Maintaining thermostat temperature within their own rooms
    - ➢ Registering a complaint if their thermostat is malfunctioning.

2.4 Operating Environment

A very basic PC setup is required to access this website. It being a web-based product, you need to have access to a browser. Any browser would work, but you should have preferably updated it to the latest version. The suggested hardware requirements are:

- ➢ An internet connection is mandatory.

2.5 Design and Implementation Constraints

The main constraints are:

- ➢ The applications must be built using Java and JavaScript inscribed in HTML.
- ➢ The website should be smooth and fast.
- ➢ The website must be secure from DOS and DDOS attacks.

Design constraints:

- ➢ The user interface must use specific fonts and font sizes that are uniform for all pages of the application.

Software System Quality Attributes:

- ➢ The system should be available for use 24x7 and all year round.

2.6 User Documentation

The user will be provided with a live demo of the functionality of the web application. A detailed diagram with the functionalities of the website will also be provided.

2.7 Assumptions and Dependencies

- ➢ It is assumed that the system that the web application will run on will satisfy the minimum software and hardware requirements.
- ➢ Proper functioning of the web application depends on the internet connection of the user.

3. External Interface Requirements

3.1 User Interfaces

The two types of interfaces found on this website are :

- UI of Home Page
- UI of Login Page

TBD : Add screen shots of home page and Login page

3.2 Hardware Interfaces

- All the hardware on which a web browser can be installed can act as an interface for the product and the user.
- It can be a mobile,laptop,pc or a tablet.

3.3 Software Interfaces

This section lists the requirements that are needed to run the system efficiently. The operating system needed for the system to run effectively, the interface to run the application,, the integrated development environment to
develop the application, and the third-party tool used for editing purposes are as follows:
The software/Tools/Languages used to implement this website are HTML ,CSS, JavaScript , MongoDB,SQl,
TODO: Add versions wherever necessary

3.4 Communications Interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for web application. But, any transaction on the web deals with the following protocols.

- TCP/IP
- HTTP

4. System Features

4.1 Use Case 1 :

Name: User Login
Summary : Allows users to Login
Actor: user
Pre Conditions:

- Internet Connection
- Require mail id associated with college domain

Main success scenario:

- user clicks on the login tab and then gets redirected to login page.
- submits passcode and then gets redirected to the home page with access.

Alternate Scenario:

1. Id or Password Incorrect
   > Contact Admin and provide necessary details.

4.2 Use Case 2:

Name : Administrator Login
summary : users logged in as admins get extra privileges
Actor : Administrators
preconditions :

- internet connection

Main success scenario:

- logged in with admin admin privileges
- grants access to view temperature of all rooms
- set message templates
- set temperature ranges based on requirements

4.3 Use Case 3 :

Name : view the temperature
Summary : users can view the temperature of a particular room and will be able to modify as necessary.
Actor : user
Pre-conditions:

- Internet connectivity.

Main Success scenario:

- user clicks on 'View temperature'.
- user browses through the temperature of the desired room until found.
- the user gets the temperature details of the desired room.

Alternate Scenario:

1. Information is obsolete or incomprehensible
   > Refresh page
   > Still Down? Contact Administrator.
2. Internet is down
   > reconnect.

4.4 Use Case 4 :

Name : monitor the temperature
Summary : system monitor's temperature and sends alerts to user/admin in case of an alarming situation.
Actor : System
Pre-conditions:

- Internet connection.

Main Success scenario:

- System checks whether the temperature is in safe range.
- if the temperature exceeds safe range send alerts to users.
- Send an auto generated message to users.

4.5 Use Case 5 :

Name : Change Temp Scale
Summary : Users of the webpage will be able to change the scale of the temperature displayed.
Pre Conditions:

- Internet connection

Main Success Scenario:

- user clicks on the button and the scale of the temperature changes from celsius to fahrenheit or vice versa.

Alternate Scenario:

1. Report Bug / Contact Developer

4.6 Use Case 6:

Name : Set Temperature
summary : Admin will be able to set temperature constraints for each room or a group of rooms as and when necessary
Actor : Admin.
preconditions :

- internet connection
- logged in as admin

Main success scenario:

- Once logged in as admin the user will be able to set temperature constraints as and when necessary based on requirements.

4.7 Use Case 7 :

Name : Set emergency contacts
summary : Admin will be able to set emergency contacts
Actor : Admin.
preconditions :

- internet connection
- logged in as admin

Main success scenario:

- Once logged in as admin the user will be able to set designated persons who have access to the room as emergency contacts and keep updated mail information in the system.

4.8 Use Case 8 :

Name : Complaint Registration
summary : Raise Complaint in case of any malfunctioning.
Actor : users
Precondition :

- internet connection
- logged in as user

Main success scenario :

- After logging in, users can raise a ticket for any complaint or a feature request.

4.9 Use Case 9 :

Name : view list of rooms
summary : once logged in a user can view the list of rooms and view the temperature level in a particular room.
Actors : users
Precondition :

- internet condition
- logged in as user

Main Success scenario:

- the user will be able to see the list of rooms after logging in and choose the room to view the temperature.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Each page must load within 3-5 seconds.
- The database should be updated in real time.
- The user interface should be easy to understand and navigate.

5.2 Safety Requirements

- All the necessary web safety models should be followed.

5.3 Security Requirements

- System must logout users automatically after a period of inactivity.
- System's database and servers shall only be accessible to authenticated admin.
- Shouldn't leave any cookies that contain passwords or any other sensitive data.

5.4 Software Quality Attributes

- The system should be available at all times.
- The backup of the database is regularly maintained and updated to reflect the most recent changes.
- The application is HTML and scripting language based. So the end-user part is fully
- portable and any system using any web browser should be able to use the features of
- the system, including any hardware platform that is available or will be available in the
- future.
- An end-user can use this system on any operating system.

5.5 Business Rules

- Only registered personnel in the campus would be able to use this website, other users can only visit the website or view old records .
- This is a proprietary software intended for use at only iiita campus as a result external trackers and analytics used should be minimal.

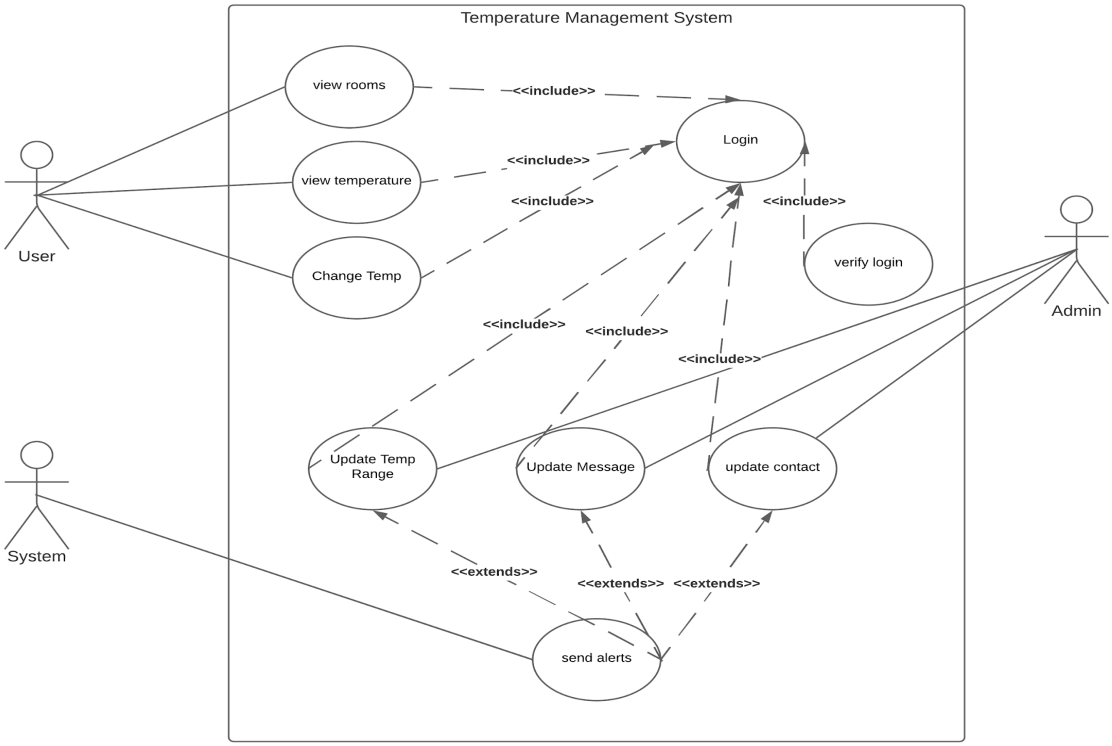
6. Other Requirements

Appendix A: Glossary

- **HTML:** Hyper-Text Markup Language.
- **CSS :** Cascading Style Sheets.
- **JS :** Java Script.
- **HTTP :** HyperText Transfer Protocol.

Appendix B: Analysis Models

Use Case Diagram :



- To Do: Add Class Diagram,E.R Diagram e.t.c as necessary

Appendix C: To Be Determined List

- **To Do :** Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.