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| **Coffee Machine** Requirements Document Specification |  |

**Coffee Machine**

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**1. Introduction**

This document contains the system requirements for project **Coffee Machine**. These requirements have been derived from several sources, including brief listing of most important sources.

**Purpose of this document**

This document is intended to guide development of ***Coffee Machine***. It will go through several stages during the course of the project:

* **Draft:** The first version, or draft version, is compiled after requirements have been discovered, recorded, classified, and prioritized.
* **Proposed:** The draft document is then proposed as a potential requirements specification for the project. The proposed document should be reviewed by several parties, who may comment on any requirements and any priorities, either to agree, to disagree, or to identify missing requirements. Readers include end-users, developers, project managers, and any other stakeholders. The document may be amended and re-proposed several times before moving to the next stage.
* **Validated:** Once the various stakeholders have agreed to the requirements in the document, it is considered validated.
* **Approved:** The validated document is accepted by representatives of each party of stakeholders as an appropriate statement of requirements for the project. The developers then use the requirements document as a guide to implementation and to check the progress of the project as it develops.

**Overview of the requirements document**

Summary of the requirements

**2. General Description**

This section will give the reader an overview of the project, including why it was conceived, what it will do when complete, and the types of people we expect will use it. We also list constraints that were faced during development and assumptions we made about how we would proceed.

2.1 Product Functions

**Coffee Machine Algorithm:**

**The user will be asked for a password that will be entered through the keypad. If it’s correct,**

**the LCD will ask the user the following:**

**-The size of the cup. (Medium and large)**

**-A type of the available dink (1 of 5)**

**-Amount of sugar. (None, 1 cube, 2cubes)**

**After that the user will be asked to confirm his choice by pressing the pushbutton of his choice again.**

**Once the user confirms, the drink pouring commences.**

**If the user enters the wrong password 4 times in a row, the system will lock and require an admin password to activate the system.**

2.2 User Characteristics

Users are expected to know how to activate the Coffee Machine.

2.3 General Constraints

**3. Specific Requirements**

This section of the document lists specific requirements for ***Coffee Machine***. Requirements are divided into the following sections:

* User requirements. These are requirements written from the point of view of end users, usually expressed in narrative form.
* System requirements. These are detailed specifications describing the functions the system must be capable of doing.
* Interface requirements. These are requirements about the user interface, which may be expressed as a list, as a narrative, or as images of screen mock-ups.

3.1 User Requirements

The user must be able to use a password to activate the Coffee Machine. And be able to choose which drink he/she wants using keypad and several push buttons.

3.2 System Requirements

**000 - Dimensional Requirements:**

* The coffee machine should be 445mm (height) x 172mm (width) x 282mm (depth) including bean container.

**100 - Functional Constraints:**

* The coffee machine provides 5 types of hot drinks with 3 sugar profiles
* The coffee machine has the ability to mix different types of drinks ex: Tea with Milk , Black Coffee with Milk
* The coffee machine can deal with 2 different sizes of cups (Medium - Large)
* Each drink cartridge should be able to serve at least 10 cups
* The Machine should only be activated by the password dedicated for company employees

**200 - Coffee Machine’s Access Control Requirements:**

* Maximum number of users: 10 users
* Authentication method: Password
* LCD screen: 3 inchs
* Keypad: 4\*4

**300 - Temperature Sensor**: (for boiler)

* Water temperature sensor for the boiler (If temperature of water inside boiler exceeds 100 C, the boiler will switch off)
* Output: 4-20 mA
* Operating Voltage: 10-36 VDC
* Operating Temperature: -58 to +212° F (-50 to +100°C)
* Accuracy: ±0.2°F or ±0.1°C

**400 - Level Sensor:**

* Water level sensor to check if the tank is empty or not.
* If the tank is empty an alert will be fire on

**500 -Water Level Sensor: (For cups)**

* Sensor to determine the right amount of liquid depending on the size of the cup
* Ability to handle cups with different sizes
* 10 cm free at the top of the cup

**600 – Sugar profiles:**

* **Giving the user the option to choose between 3 profiles:**

1. No sugar
2. One cube of sugar
3. Two cubes of sugar

3.3 Interface Requirements

**700 - Machine keypad:**

* Keypad type: Membrane Keypad (because it is the most popular type of keypad and user friendly)
* Includes buttons from 0 to 9, color: Silver
* The keypad at the front side of the coffee machine.
* All the employees will have the same password except for one of the heads that he will be the admin for safety reasons and if the system got locked

**800 – Coffee Machine screen:**

* LCD displays the states of the machine either its switched on or off
* It always shows “ENTER PASSWORD “so the employee can interface with the machine
* If the password is correct it shows “WELCOME” and ask the employee to choose his drink by pressing on the one of the 5 buttons
* If the employee choose his/her drink, LCD will display a message asking him/her to choose his/her sugar profile by pressing on of the three buttons
* If the password is incorrect it shows “WRONG PASSWORD” and ask the employee to enter the password again if the user enter a wrong password for 4 times the system will be locked and the admin should enter his password
* If the user presses a button of any drink that its cartridge is empty (less than required) it will give warning and ask for confirmation from the user if he wants to continue or not
* It will show the percentage of the available drinks (number of cups remaining), the percentage of the sugar remaining, if any of them is less than 20% (less than 10 cups) it will display them in a red color while the others in blue color
* After the operation is finished and the drink is ready it will display a greeting message “Thank you have a nice drink”

**900 – Push Buttons:**

**901 – 5 Buttons to access different types of drinks**

* Every button will be one type from different types of hot drinks
* Each button will have a small image on it for the drink that the user is going to be served with
* The key is circular in shape with red Light that it will remain on after the user pressed the button and turns off when the coffee machine is finished

**902– 2 Buttons to access different sizes of cups**

* The buttons will be (Medium, Large)
* The key is circular in shape with red Light that it will remain on after the user pressed the button and turns off when the coffee machine is finished

**903– 3 Buttons to access different quantity sugar**

* The buttons will be (Zero ,1cube, 2cubes)
* The key is circular in shape with red Light that it will remain on after the user pressed the button and turns off when the coffee machine is finished