

USE CASE DESCRIPTION:

ID	NAME	PRIMARY ACTOR	PRE-CONDITION	DESCRIPTION	EXTENSION POINTS	TRIGGER	POST-CONDITION
UC1	SELECT DRINK	CUSTOMER	1. Machine In Service 2. Adequate Stock	1. Customer Press Keyboard Pad To Select A Drink 2. Machine Check The Stock Level According To The Drink_Code	1. Reject If Out_Of_Stock = True 2. User Cancel Order		1. ORDER HAS BEEN PLACED
UC2	PAYMENT	CUSTOMER	1. Cash_Box_Full	1. Customer Inserted Coins According To Drink Price 2. Machine Give User Change	1. Refund If Cash_Box_Full = True & User Cancel & Change Failed 2. Change If Coins > Price 3. Print Receipt	UC1	1. PAYMENT COMPLETED
UC3	GET DRINKS	CUSTOMER	1. Payment Success 2. Drink Is Available	1. Machine Dispensing Drinks And Poll Into Cup 2. User Get Drinks	1. Drink_Not_Available	UC2	IDLE
UC4	CANCEL ORDER	CUSTOMER	1. Order Has Not Been Confirmed	1. User press keyboard pad to cancel before confirm their order	1. If Coins Were Inserted, Refund	UC1 & UC2	IDLE
UC5	CONFIRM ORDER	CUSTOMER	1. Payment Has Been Completed	1. User Press "Enter" To Confirm This Order 2. Machine Start To Prepare Drink		UC2	1. PREPARING DRINKS
UC6	REFUND	CUSTOMER	1. Coins Were Inserted, Order Has Not Been Confirmed	1. When Machine Failed Or User Cancel The Order, Return The Coins Were Inserted	1. Machine failed	UC4	REFUND COINS

UC7	CHANGE	CUSTOMER	1. COINS WERE INSERTED	1. When Coins inserted > Price, Machine gives customer change			
UC8	COLLECT CASH	ENGINEER	1. Cash_Box_Full 2. Door Is Opening 3. Identity Authenticated	1. Engineer authentic his identity 2. Engineer collects money in cash box	1. Failed To Authenticate		CASH_BOX_isEmpty
UC9	ADD STOCK	ENGINEER	1. Door Is Opening 2. Out_Of_Stock = True 3. Identity Authenticated	1. Engineer authentic his identity 2. engineer adds ingredient and cups into machine	1. Failed To Authenticate		STOCK = ADEQUATE
UC10	TESTING	ENGINEER	1. Door Is Opening 2. Identity Authenticated	1. Engineer authentic his identity 2. engineer does some tests on machine	1. Failed To Authenticate		
UC11	CLOSE THE DOOR	ENGINEER	1. Door Is Opening	1. Engineer finished his job 2. Engineer closes the door			IDLE
UC12	AUTHENTICATE	ENGINEER & SERVICE OPERATOR	1. System Working 2. Machine Is Online	1. User want enter machine system 2. User enter his pin or username and password	1. Alarm, If Timeout For Waiting Passcode 2. Inform Operator, If Timeout For Waiting Passcode 3. Create New Account Via Master Password By Operator	UC8, UC9, UC10	IDENTITY AUTHENTICATED
UC13	CHECK BALANCE	SERVICE OPERATOR	1. Identity Authenticated 2. Machine Is Online	1. Operator login system 2. Operator check the level of stock and cash	1. Uc15 — Download Information		

UC14	INFORMED	SERVICE OPERATOR	1. Identity Authenticated 2. Machine Is Online	1. If level of coins or stock too low, machine inform operator			
UC15	DOWNLOAD INFORMATION	SERVICE OPERATOR	1. Identity Authenticated 2. Machine Is Online	1. Operator login system 2. Operator make requests to download accounts information from the machine for a particular accounting period			
UC16	RE-ENTER PIN	SERVICE OPERATOR	1. Identity Has Not Been Authenticated	1. User enter a wrong pin to login the system 2. User re-enter the pin		UC12	
UC17	CREATE NEW ACCOUNT	SERVICE OPERATOR	1. Identity Authenticated 2. Master Password 3. Machine Is Online	1. A master password available which can be used create new accounts in case the machines memory has been wiped due to hardware failure		MACHINE SYSTEM FAILED	
UC18	RETURN STOCK LEVEL	SERVICE OPERATOR OR CUSTOMER	1. Operator Request 2. Or Processing Purchase	1. User Get The Level Of Stock, Include Cups And Ingredient	UC14 — INFORM OPERATOR	UC1, UC13	
UC19	RETURN CASH BOX LEVEL	SERVICE OPERATOR OR CUSTOMER	1. Operator Request 2. Or Processing Purchase	1. User Get The Level Of Cash Box	UC14 — INFORM OPERATOR	UC1, UC13	
UC20	DOWNLOAD RECIPES	SERVICE OPERATOR	1. Identity Authenticate 2. Machine Is Online	1. Operator Login System 2. Download New Recipes To Make New Product			

TASK2: REQUIREMENTS

QUALITY	Requirement	Criteria
SPEED	Drinks should be prepared as soon as possible	Drinks should be delivered within 2 minutes after customer completed the payment and confirmed.
EASE OF USE	The vending machine shall be intuitive and self-explanatory	95% customers shall be able to buy drinks within two minutes of encountering the product for the first time
RELIABILITY	Machine should have small Mean-Time-To-Failed	Can be defined in terms of a percentage (say, 0.01%)
SIZE	Memory size of machine should be enough to maintain daily use	Can be defined in terms of a precise number (say, 1TB)
ROBUSTNESS	Machine can restart after failed in a short time	Can be defined in terms of a precise time (say, 5 minutes)

TASK3: STATECHART

STATES	EVENTS
Heat	Heating water, Overheat
Stop_heat	Stop heating water, remind to dispense
Error_state	report error to main system and exit

STATES	EVENTS
CHECK_RECIPES	Check Recipes Of Drink Code
CHECK_STOCK_LEVEL	Check Stock Level Of Cups And Ingredient
DISPENSING	Mix Water_Hot With Ingredient, Poll Water Into Cups, Discard Unavailable Drink, Refund
DISCARD	Discard Unavailable Drink

STATES	EVENTS
INITIAL STATE	Create New Order
ACCEPT ORDER	Check Recipes, Check Stock Level, Process Order
CONFIRM ORDER	Confirm Order, Cancel Order, Exit
COLLECT COINS	Collect Coins, Confirm Payment, Refund If Time_Out
REFUND	Exit
PREPAR ORDER	Heat Water, Dispensing Drink, Deliver Drink
FINISH ORDER	Store Order
REQUEST SERVICE	Inform External
ENGINEERING MODE	Debugging

