

# Test Plan for the SmartChef Automated Cooking System

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## 1. Introduction

Listed below are the test cases for the SmartChef proof-of-concept system. The system is divided into four specific components: a dispensing unit, stirring unit, pan-control unit, and a heating unit. The test cases will fall under the aforementioned categories accordingly. Furthermore, the system is controlled by the Arduino-Uno board, which will also follow a set of test cases.

## 2. System Test Plan

### 2.1 SmartChef System

The entire system is comprised of four specific components, each containing a separate test plan. The SmartChef, as an entire system, will follow the subsequent test cases.

Test Cases		Yes	No
1	Upon pressing the correct pushbutton, the entire system begins the automated cooking sequence: ingredient dispensing, heating, mixing, and serving		
2	Each subunit of the entire system is implemented into a static frame in a non-obtrusive manner		

### 2.2 Dispensing Unit

This unit will dispense solid and liquid ingredients into the cooking pan, as per the test cases listed below.

Test Cases		Yes	No
1	Ingredients are dispensed at the appropriate time		
2	Dispenser does not jam upon dispensing ingredients		
3	Circuit for the dispensing unit is appropriately contained		
4	Solid and liquid dispensers are in a non-dispensing state when the motors are off		

### 2.3 Stirring Unit

The stirring unit mixes the ingredients in the pan, following the subsequent test cases.

Test Cases		Yes	No
1	Ingredients are mixed at the appropriate time		
2	Stirring unit does not obstruct the cooking utensil		
3	The lid covers the pan before the mixing the ingredients to avoid spilling		
4	Circuit for stirring unit is appropriately contained		



## 2.4 Pan-Control Unit

The pan will be automated to move between the heating and stirring areas at the appropriate times. Furthermore, it will serve the final meal onto a dish upon completion.

Test Cases		Yes	No
1	The pan moves between the heating and food-dispensing units at the appropriate time		
2	The pan is able to serve the meal onto a dish		
3	The motors controlling the pan are able to support the load contained in the pan		
4	The pan remains within the static frame of the SmartChef system (to minimize burn related injuries)		

## 2.5 Heating Element

The heating element is to be tested while mounted on the overall system assembly. We will test the following configurations.

Configuration		Outcome
1	Manual switch OFF, relay ON	The heating element will not heat
2	Manual switch ON, relay OFF	The heating element will not heat
3	Manual switch ON, relay ON	The heating element heats to maximal temperature
4	Manual switch ON, relay at 50% duty	The heating element produces less heat than in previous test

## 2.6 Microprocessor and Circuit Board

The servo-motors and heating element are controlled by an Arduino-Uno board, following the according test cases.

Test Cases		Yes	No
1	Motors receive enough current from the power supply for smooth motion		
2	Single button is able to initiate a sequence of cooking commands		
3	Motors and relays are removable from circuit		