FINAL REPORT: SMART COOK

ENME 615: PRODUCT DEVELOPMENT - GROUP F

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Abstract

One can say for certain that everyone, with very few exceptions, loves a good taste. Also many have never focused part of their training process to learn how to cook. Some who have good cooking skills have very busy schedules and may not always have the time needed to prepare a good meal. Others due to limitations in their physical abilities have to depend solely on others to prepare meals for them. All these concerns and many more pushed us to come up with a solution by creating a device that automatically prepares a meal simply by choosing a menu. Enough useful information from the user and customer perspective was gotten from surveys and interviews which shaped our design to meet the most critical need of the customer.

For all this we are grateful to Professor Steven Falk who guided us throughout this process, all the honored members of the panel who gave important critic and suggestion during the presentation of our results and also the entire class whose active participation not only created a conducive learning environment but also helped us gain different and better ideas on the product development process.

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1. Introduction: Elevator Pitch

I would like to begin with this –self-explanatory teaser "*If you have never eaten in your neighbor's house you will always know mum is the best cook. "*

It speaks for itself because you have no other food to compare with. Everybody likes delicious food. But this begs the question.

What makes food tasty? While there may be a variety of answers to this question, such as salt makes food tasty, Maggi makes food tasty, curry makes food tasty. They can be summarized with the common name spices or ingredients makes food tasty.

1.1. Our Journey: Origin of our Idea

The COVID-19 Lock down had a devastating effect on public restaurants. People were restricted from going out and gathering in public places and could no longer get their favorite tasty food. Many who were used to eating in such places never really bothered to learn how to cook .So we thought we could provide a solution by creating a device that can prepare a meal simply by choosing a Menu.

1.2. Functioning of the device

A cross section of our device shows its main features and helps to give an idea of how it works .It contains sealed cylindrical cups above with an opening at the bottom and contains the different spices to be used for a meal .Below is a funnel which channels the spices through the steering mechanism into the cooking pot . A heating coil underneath the cooking pot provides a gentle regulated heat to prepare the food. Some very common and delicious menu are already programmed in the software such that one chooses the menu and the quantity of food in the pot .For example if one chooses 10 oz. of curry tomatoes source , the software will dispense the right amount of already chosen spices to give 10 oz. of curry tomatoes source an ideal taste . The heating is regulated automatically, and the cooking time is predetermined.

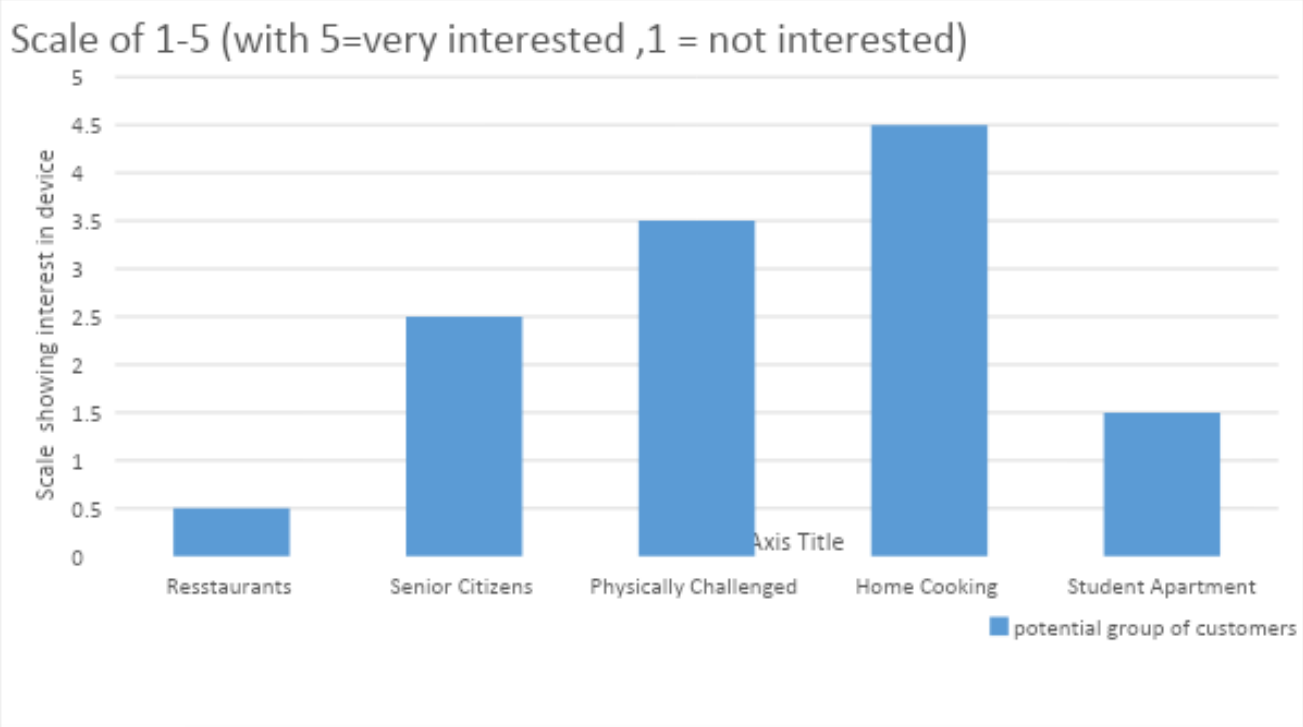
1.3. Product advantages

The product offers the following advantages to its users.

- Saves time. The food can be cooking while you do something else.
- Easy to use. The food is prepared just by selecting a Menu. All the information needed is built in the software.

- Prevents Hot steam Burns and its polymer outer coating prevents burns from touching the hot device.
- Food does not get burned. The device is automatic and knows when to stop heating.

2. Addressable Market



We initially wanted to target those who never knew how to cook but to our greatest surprise after conducting the surveys and interviews every household was interested in our product. We had two categories of users: Restaurants and home cooks. The restaurants did not show much interest in our product as can be seen on the pie Chart above. Apart from the regular family, the Home users had other subcategories which included the senior citizens and the physically challenged. From the student Apartment the response was not very positive, and we guessed that

since they get subsidized meals from university restaurants, they might not be interested in spending a lot of money on such a device

3. Customer Segmentation

- Asian Community – Family Home Cooking
- African / Jamaican Community – Family Home Cooking
- American/European Community –Family home and Senior Citizens, physically challenged

Our segmentation helped us know what kind of menu we will programmed in the software for our device to prepare. From the interviews and surveys, we prioritized the Asian Communities / Asian foods because we realized every culture or country had Asian restaurants and loved Asian food. Though our device also has the possibility of customizing a menu we included many African and American Menus so as to give the user a large pool of menus to choose from and not to exclude any segment of the market who preferred such taste. We therefore targeted African/ Jamaican communities and the American Communities. Since our device could prepare a meal simply by choosing a menu, we also included the segment of the market of people who may have mobility difficulties and are 60-80% dependable such as the senior citizens and physically challenged.

4. Stake Holder Influencer Map

Some important Stakeholders of our product include

- Senior Citizen Facilities.
- Rehabilitation centers for the physically challenged.
- Apartment Leasing Companies/ Real Estate
- Home insurance companies
- Food companies that produce spices.
- American Association of retired persons AARP

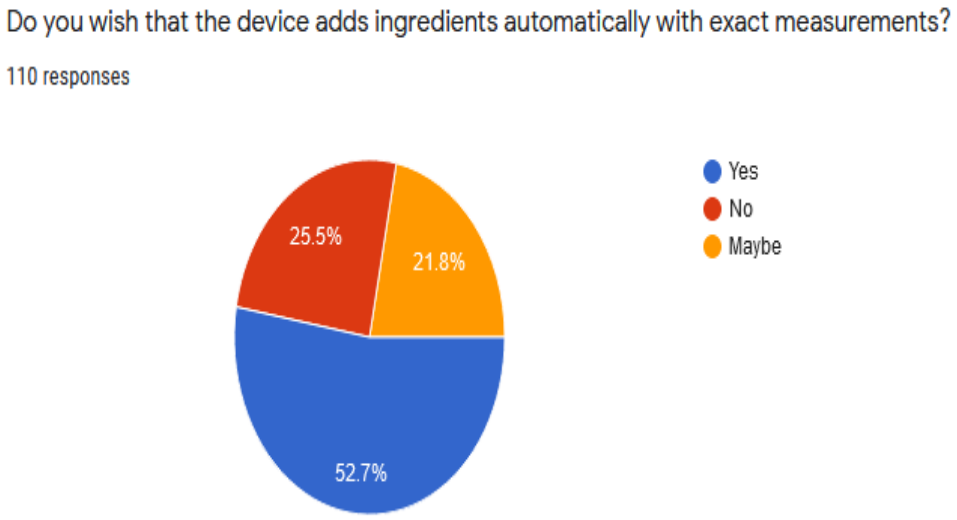
The Home insurance companies are a significant stake holder to our product because if our product is validated as meeting required safety standards for kitchen appliances, they will be ready to cover fire accidents caused by our device. This will thus make our product appealing to Apartment leasing companies and real estate companies because they might want to provide their future tenants or occupants a delight by telling them they will be getting as one of their kitchen not just a microwave but also a smart cooking device .Another important stake holder will be the food companies who produce spices. While we provide business for them, they will supply us with the spices in sealed cups. The AARP (American Association for Retired Persons) will be an important stake holder because if their approval of our product is given as beneficial to senior citizens their large membership base will be a potential customer for our product.

5.Voice of the Customer

From our surveys, we had 111 responses and we did 15 interviews. To our amazement the responses were very positive which gave us a boost of confidence in our product. The 70 % who responded that they spend an hour or more in preparing a meal meant they will be interested in a product that will help them save time .67% who said they will love to prepare a meal for more than one person in a single session gave us some information that could be used for design input for our device .We had to ensure our device could be used not just to prepare a meal for a single person but also for 5 or more persons. The device will be available in more than one size considering the serving capacity each possess.

The 40% who rated their cooking skills as average would definitely be interested in a device that would give them a better and different taste. 85% confirmed they cooked frequently in a week and we could assume they would use our device frequently if acquired. Those who intend to use it frequently would be more willing to purchase it than those who think they might not wish to use it often.

This number tells us the number of person who got burns while cooking in the past year more than once. The safety factor was a very important design parameter, and we used a polymer outer insulating coating and a safe steam exit path in order to minimize or totally eradicate burns during cooking.



This information gave us an approval rating of accepting to eat food from our device. This was important to us because when it comes to food some people have some cultural preferences and may not wish to eat food automatically cooked by a machine.

We also kept customizing buttons for some customers through which they can increase or decrease the amount of ingredients they desire and save in the software as per their personal choice thus creating a different recipe.

The chart above shows the ratings of those interviewed on our device. From the interviews we had the following common responses

- Customer Price suggestion between 100-200$
- One-year Warranty period and after sales service.
- Easy to clean and dishwasher safe.

This helped us to know what important aspects to focus on during our product development journey. To address the problem of easy to clean we designed the steering mechanism to be detachable and easy to reassemble before and after use. We also choose material that would be dishwasher safe. We also took into consideration making warranty and after sales service just a phone call away as requested by those interviewed.

Those interviewed also identified some possible problems that could occur while using the device which we spoke about in our discussions and came out with some concrete resolutions. Below is a list of them.

Power outage while using the device:

Due to the very low probability of it occurring it is prioritized less. Also, since we are launching

the product at a very minimal MRP we decided not to add any reddendum facilities for the power outage right now.

- **User Manual - Easy to understand**

We would have a very friendly user manual. We will also have several YouTube videos links in the soft version of the user manual demonstrating in detail the whole process of using and cooking with our device.

- **Powder ingredients flow prevented by coagulation by vapor/Moisture**

We resolved that the powder ingredients be supplied by a food company in sealed cylinder cups with an opening at the bottom. The overall sealing of the cups and the region in between cups will be in our high priority to prevent the ingredients from vapor contamination.

Excess salt in food – Sign of a malfunction of device

Our product will have buttons to customize the ingredients quantity as per one's personal choice of taste. So, it may be that an early customized save version is running. There will be a default setting, which can be used to reset the problem. Also if by mistake the quantity of food to be prepared is chosen as 20 oz. and only 10 oz. was in the cooking pot the quantity of ingredient dispensed would be to make 20 oz. of the food which will lead to an excess taste of ingredients. Still if the problem persists, with unidentified causes we will have a very active after sales service (free for one year) to take care of that.

Adding Water while food is cooking.

There will be a cylinder dedicated for storing water. It will dispense water automatically like other ingredients when required.

Easy to clean, Durable, Less Noise.

All the parts of the Smart cook are detachable and easy to clean. Best quality materials and processes will be used for manufacturing the product to ensure durability. Spring and damping system will be attached at the bottom of the cooking pot in-between the container for the cooking pot and the cashing (which also has an induction cooktop). This will allow slight flexible motions of the cooking pot as the stirrer moves making the cooking process almost noiseless.

6. QFD diagram and takeaways

6.1. QFD Diagram:

We identified 8 customer requirements (What) and 9 functional requirements (How). Calculated completeness criteria, technical importance score, priorities rank to identify and translate customer needs into technical requirements, measurable features, and characteristics. The Figure below shows the Quality Function Deployment (QFD) of the Smart cook.

1: low, 5: high	Desired direction of improvement (↑,0,↓)											
Customer importance rating	Functional Requirements (How) → / Customer Requirements - (What) ↓	Incased with Ceramic	washable	plug and use	Automatic stirer	Ingredient organizer	Inbuilt heating system	Automatic ingredient dispenser	handy	software application		Weighted Score
3	Size		1			3			9			39
4	easy to use and clean	3	9									48
5	avoid burns	9					3					60
4	reasonable price							3				12
4	automatic stiring				9							36
2	Saved recipe					1				9		20
2	ingedient organisar					9		1				20
3	notification									9		27
												0
	Technical importance score	57	39	0	36	29	15	14	27	45	0	262
	Importance %	22%	15%	0%	14%	11%	6%	5%	10%	17%	0%	100%
	Priorities rank	1	3	9	4	5	6	7	4	2	5	

6.2. Takeaways:

Using Technical importance score, found the high ROI elements, which indicates,

- Incased with polymers (Rank 1), Software notification (Rank 2), Washables (Rank 3) are priorities.
- Automatic Stirrer and handy compact design (Rank 4) are important features.

Using the completeness criteria score,

- Safety (score 60) ranks as the top need for customers which makes inbuilt heating system features crucial.
- Less complicated design is needed which would make the cleaning and handling of device easier (score 48), as cleaning dishes is also a tiring and time-consuming work.

7.Critical Customer Requirement

From all the information we got from the interviews and surveys we came up with a list of some very important customer requirements

- Prevent ingredients from Vapor/moisture through sealed cups.
- Safety from kitchen accidents such as steam burns.
- Device should be easy to clean after use and should be dishwasher safe.

After preliminary review of the critical customer requirement, we charted the QFD (Quality Function Deployment) to optimize our priorities of focus. QFD helped us to focus on certain aspects of the product functionality and system characteristics

We found that customer satisfaction lies on very basic features of the product like

1. **Safety:**

   We will take utmost priority for the safety of our customers. All the electric attachments will have ISI certified parts. No rotating parts or hot metal parts will ever come in contact with the users in running condition. Externally the product will have a heat resistant polymer coating. We will prefer ACRYLITE® Heat resist FT15 brand coatings.

2. **Cleanliness:**

   Most of the parts which come in contact with food items would be detachable and can easily be cleaned in hand or dishwashers. All parts of the device which come in contact with processed or unprocessed food items can be cleaned with water.

3. **Easy to use software:**

   The product will have a touch screen display powered by latest processor-controlled software. The software will be menu based with options to customize a particular preparation as per personal choice as well. A 64GB memory card will be attached to save your own customized menus There will be normative annunciation with melodious beep sound whenever attention is required.

4. **Clog free operation:**

   Special care for sealing of the cups and free escape of vapors/ smoke will be there to keep the ingredients clog free. A soft key for flushing water will also be placed in the software to flush water in the passage piping before/ after a food is prepared.

8.Protection Strategy

The five essential legal tools for protecting ideas are patents, trademarks, copyrights, contracts, and trade secrets. We will protect our idea using all five forms of protection tools, some of these legal tools will also be used creatively as marketing aids.

Patents:

We will use Aggressive/Licensing strategy patent on our idea, technology, Composition of matter, process, and design to exclude others from making, using, selling, or importing our invention across the world without our consent. We will use "patent pending" on our products and marketing materials just after a patent application is filed. We will protect using Utility patent, Design patent, and Plant patent.

Trademarks:

We will trademark the name ‘Smart Cook’ and use it as a registered trademark to brand our product across the globe.

Copyright:

We will make our software, website, product images, User interface design, as a Copyright protected material.

Contracts:

To protect intellectual property rights, there are various types of contracts executed by the owner of the Intellectual Property. We will sign 7 different contracts to protect our idea/product in every phase (design, build, production, and sales). Intellectual property Assignment Agreement,

Non-Disclosure Agreements, Technology Licensing or Technology Transfer Agreements, Trademark Licensing and Franchising Agreement, Inventions Assignment Agreement, Research and Development Agreement, Work for Hire Agreements

Trade secrets:

We will take precautions to maintain the secrecy about the extent of technology within the device, which provides a competitive advantage.

Other cautionary actions:

We will be careful about the infringements to avoid paying any royalty, will be cautious of the blocking patents and problem patents.

9. Manufacturing Strategy

The manufacturing will be done in four steps

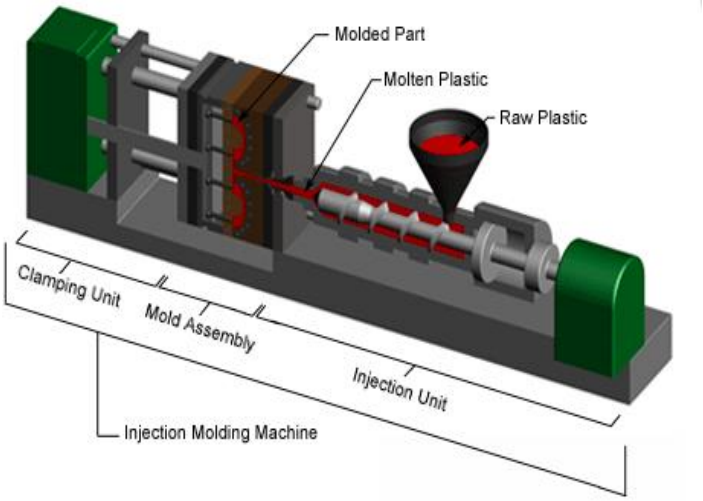
1. Some parts will be manufactured in house
2. There will be some Items that will be outsourced to outside vendors on a partnership basis.
3. Assembly will be done inhouse
4. Packing and stamping to be done in house.

9.1 Details of the manufacturing process

Infrastructure to prepare four sets of SMART COOK in a day within eight hours is considered. The list of items which we will prepare in house and that which we will outsource is given in the item list attached in the following page.

The infrastructure which we require for the in-house manufacturing are

- 3phase industrial electric connection
- 6 Polymer injection molding machines.
- SS casting setup.
- Portable SS welding machine.
- 3 phase SS welding machine (2)



Raw materials:

- Cast ASTM: A560 grade cast steel
- DuPont™ Zytel® PLUS nylon and DuPont™ Zytel® HTN92 Series PPA resins

Items list for single unit of SMART COOK

ITEMS TO BE MANUFACTURED IN-HOUSE

1. Integrated SS casting of 12 ingredient cups with funnel and 1 big ingredient cup for water storage
2. SS casting of the receiving funnel.
3. SS casting of Stirrer.
4. 3 set SS cooking tray
5. Polymer casting for upper housing
6. Polymer casting for lower part with embedded cast iron balance plate.
7. Polymer casting supporting and alignment stand.
8. Polymer casting of protective split casing.

ITEMS TO BE OUTSOURCED FROM PARTNER ORGANISATIONS

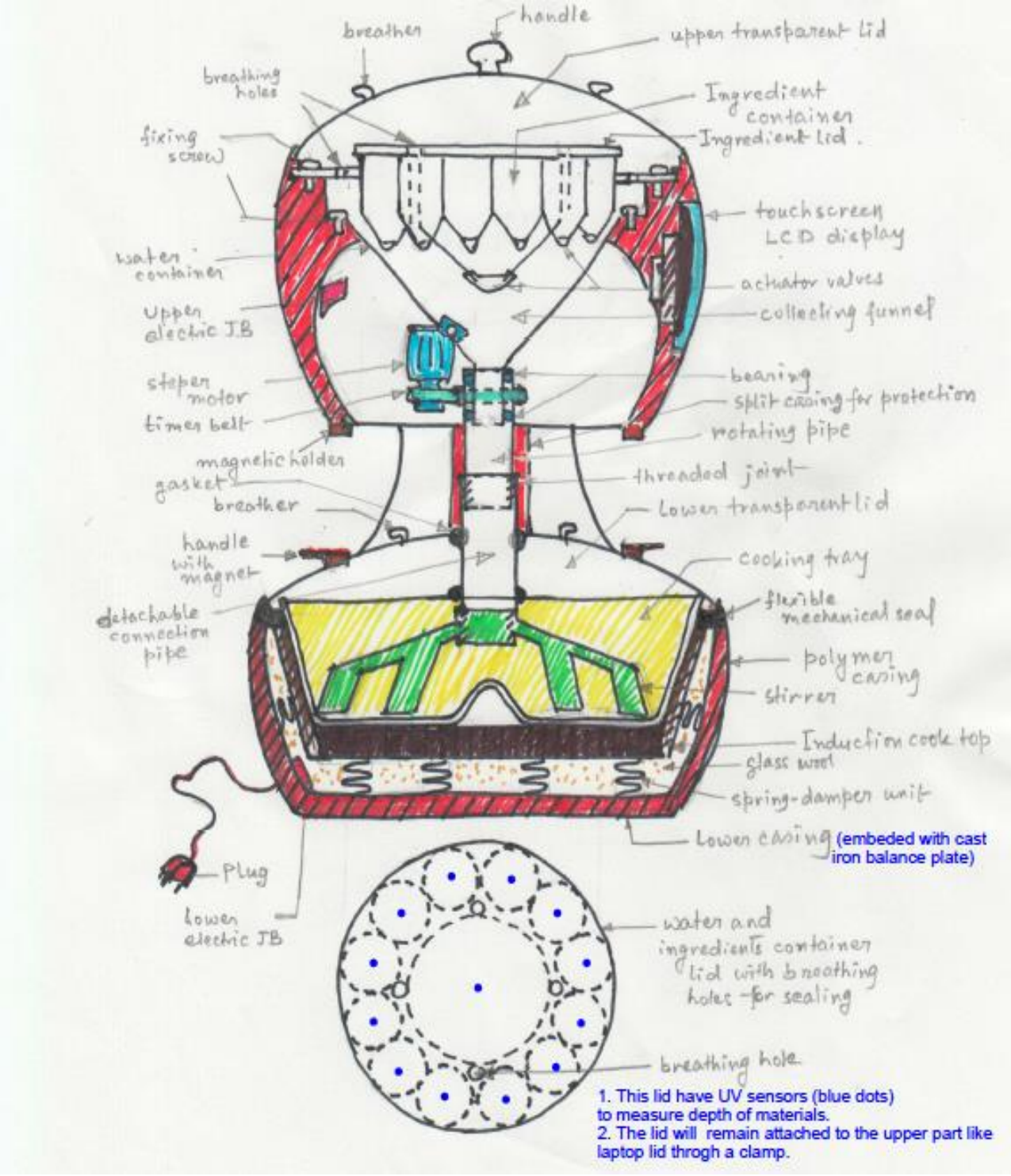
1. SS T22 graded rotating pipe
2. SS T22 grade connection pipe
3. A stepper motor coupled with pulley wheel
4. Pulley wheel for the rotating pipe
5. Timer belt
6. 2 ball bearing (50NBSKF)
7. SS upper lid with embedded 13UV sensors.
8. 13 actuator valves
9. Upper transparent cover
10. Lower transparent cover.
11. LCD display and hardware support materials.
12. 2 electric Junction box
13. 2.5 m Internal wiring cables.
14. External cable with plug
15. 6 set of spring-damper units
16. Specially design INDUCTION COOKTOP
17. 2 Flexible mechanical seal
18. 2 kg glass wool
19. Nuts and bolts
20. Stamped cardboard cartoon
21. Casted thermocol
22. Printed User manual

ITEMS REQUIRED FOR IN_HOUSE MANUFACTURING AND ASSEMBLING

1. 6 Polymer Injection moulding machine
2. SS casting setup
3. Portable SS welding machine (1 no)
4. 3 phase SS welding machine (2 nos)
5. Anabond
6. 1.5mm gasket (0.5m2)
7. Teflon 2 nos

PACKING AND SEALING ITEMS

1. Cardboard cartoons
2. 2 inch celotape
3. Casted thermocol
4. Label
5. Fevicol



DIFFERENT PARTS OF SMART COOK

9.1.1. In-house Manufacturing

All the cast products (except the upper SS sealing lid with embedded UV sensors and clamp) will be manufactured in house. The items consists of

1. Integrated SS casting of 12 ingredient cups with funnel and 1 big ingredient cup for water storage
2. SS casting of the receiving funnel.
3. SS casting of Stirrer.
4. SS cooking tray
5. Polymer casting for upper housing
6. Polymer casting for the lower part with an embedded cast iron balance plate.
7. Polymer casting supporting and alignment stand.
8. Polymer casting of protective split casing.

- For steel castings we will prefer Cast ASTM: A560 grade cast steel to enhance durability. (metaltekwww.wpengine.com)
- For polymer castings we will prefer to use DuPont™ Zytel® PLUS nylon and DuPont™ Zytel® HTN92 Series PPA resins (dupont.com)

We will try to keep good craftsmen and sigma six quality control methodologies to ensure best quality for our castings.

9.1.2. Items to be outsourced from Vendors/ Partners

To reduce the initial investment on Capital we would outsourced various specialized and non-specialized items of our manufacturing.

We selected and contracted our vendors on a long-term basis to ensure uninterrupted production. The quality of the items is ensured through third party quality control service. We recommend International Inspection Standard ANSI Z.1.4-2003 (ANSI Sampling Table) to determine the number of units that will be randomly selected for evaluation.

(proqc.com)

The various items which we outsource from our vendors are:

1. SS T22 graded rotating pipe
2. SS T22 grade connection pipe
3. A stepper motor coupled with pulley wheel
4. Pulley wheel for the rotating pipe
5. Timer belt
6. Ball bearing (50NBSKF)
7. SS upper lid with embedded 13UV sensors.
8. 13 actuator valves
9. Upper transparent cover
10. Lower transparent cover.
11. LCD display and hardware support materials.
12. Electric Junction box (JB)
13. Internal wiring cables.

14. External cable with plug
15. Spring-damper units
16. Specially design INDUCTION COOKTOP
17. Flexible mechanical seal
18. Glass wool
19. Nuts and bolts
20. Stamped cardboard cartoon
21. Casted thermocol
22. Printed User manual

9.1.3. Assembly of manufactured or Outsourced parts

The assembly shop is separated in 3 parts for easy WBS and maintenance of spare parts and related tools and tackles.

1. **The Mechanical Assembly shop**: (The following jobs are performed here)
    1.1. Assembly of all the cast parts (SS and polymer)
    1.2. Bearing and pulley fitting for the rotating pipe.
    1.3. The whole of the transfer pipe and the stirrer

2. **The Electrical Assembly shop** (The following jobs are done here)
    2.1. The stepper motor is fitted to the collecting funnel and attached to the rotating pipe through the timer belt.
    2.2. The induction cooktop is placed to the base after adjusting the spring-damper assemblies and the flexible mechanical seal.

2.3. The upper and the lower JB's (Junction box) are fitted.

2.4. The external plug is connected to the lower JB.

2.5. Other connection (actuator v/v's, UV sensors, Electric motors) are made to the JB

3. **The Electronic Assembly and Testing shop** (The following jobs are done here)

3.1. The LCD display is fitted to its socket and connection is made to JB.

3.2. Feedback connections are drawn from the actuator v/v's, UV sensors and the motor.

3.3. Testing is done on the assembly at different menu settings.

After testing the assembly is sent to the packing and stamping house

9.1.4. Packing and Stamping House

Here the product is packed in molded thermocol and put in laminated printed cartoons. It is then sealed with a wide sellotape. The pack is then stamped with batch number and other details for final dispatch.

10. Selling/ Promotion strategies

10.1. Promotion strategy:

From our survey we found that most of our customers are mostly from households. So, we will penetrate the market at the household level.

We will select some smart housewives (through interviewing) from different cities and train them to give a demo of our product in the ‘go live’ section of their own social network profile. They will also be asked to upload videos of their demo in their own social network profile.

We will hire a professional videographer to prepare the demonstration videos for the selected ladies to be uploaded in the social media.

In this way we will be able to curtail the huge expense of advertising in mass media through advertising agencies. It will help to keep our cost of production low.

10.2. Selling Strategy:

We choose to sell our products through online giants like Amazon/ shop USA. We will make agreed contracts with any of these giants to distribute our product worldwide.

To keep our production cost low, we will not go to create a dealers’ network at least for the first two years. We may choose to operate in the traditional marketing system after getting market feedback from the two years.

11. Business model summary and assumptions

Program Costs - Expected Case	Total
Total Prog I&E	1,269
Expense	1,074
Program	550
P&E Write-Offs	-
Mktg/Launch	460
Investment	195
Tooling	125
Equipment	70
Building	-

Program Costs - Expected Case	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Expense	450	156	156	156	156
Program	350	50	50	50	50
P&E Write-Offs	-	-	-	-	-
Other	-	16	16	16	16
Mktg/Launch	100	90	90	90	90
Investment	155	10	10	10	10
Tooling	125	-	-	-	-
Equipment	30	10	10	10	10
Building	-	-	-	-	-

Program engineering cost

Program engineering will cost 550 thousand dollars as per Indian salary for first years, we are planning to hire engineers from India in regards of low annual salary. An average engineer salary per annum: 20000 $ / per annum. We are planning to hire 15 engineers which includes

- Mechanical Engineer
- Manufacturing Engineer

- Quality engineer
- Software engineer
- Electrical engineer
- Instrumentation and control

Marketing/Launch cost

Marketing will cost 460 thousand dollars for first 5 years. We are planning to promote our product using social media (Instagram, Facebook) and by promoters

Tooling cost

Tooling will cost 125 thousand dollars for molding tools including tool maintenance.

- SS Casting tool
- Polymer injection molding tool

Equipment cost

Equipment will cost 30 thousand dollars for initial year and in later 10 thousand for equipment maintenance. Equipment such as tools to assemble and pack. Maintenance tool also that included

Cost of goods sold

S.NO	Parts	Cost
1	Ss casting mold	10
2	Display	10
3	Software	5
4	Motor	5
5	Vessels (Cooking pot and ingredient jar)	10
6	Gears and mechanical function	10
7	Glass lid	3
8	Sensors	12
9	Automatic ingredient dispenser mechanism	5
10	Packaging and label	3
11	Tools	2
Total		75 (+\-2)

Cost of producing one unit of smart cook is around 75 dollars. Most of the parts are bought under high quality check with reasonable best price to produce. We are planning to purchase, produce and assemble all the parts in India. Except the SS Casting tool Polymer injection molding tool will imported from USA in order to maintain quality and accuracy of our product.

Market Data	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Market Size	$ 200,000	$ 212,000	$ 226,840	$ 244,987	$ 267,036
Units	-	-	-	-	-
Market Growth					
Expected Case		6.0%	7.0%	8.0%	9.0%
Best Case		10.0%	10.0%	10.0%	10.0%
Worst Case		2.0%	2.0%	2.0%	2.0%

New Product - Expected Case	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Units	1	10,000	10,700	11,556	12,596
ASP	0.20	0	0	0	0
Price Erosion	2.0%				
COGS	0.075	0	0	0	0
Installation	-	-	-	-	-
Warranty	0.005	0	0	0	0
Other VC	-	-	-	-	-
Total Prod Cost	0.080	0	0	0	0
Share	0.0%	0.9%	0.9%	0.9%	0.9%
Sales	0	2,000	2,183	2,405	2,673
COGS	0	750	803	867	945
COGS%	37.5%	37.5%	36.8%	36.0%	35.3%
SM	0	1,250	1,380	1,538	1,729
SM%	62.5%	62.5%	63.2%	64.0%	64.7%
Installation	-	-	-	-	-
Installation %	0.0%	0.0%	0.0%	0.0%	0.0%
Warranty	0	50	54	58	63
Warranty %	2.5%	2.5%	2.5%	2.4%	2.4%
Other VC	-	-	-	-	-
Other VC %	0.0%	0.0%	0.0%	0.0%	0.0%
CM	0	1,200	1,327	1,480	1,666
CM%	60.0%	60.0%	60.8%	61.6%	62.3%

NPI Benefits - Expected Case	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Price	0	2,000	2,183	2,405	2,673
Share	(0)	-	-	0	0
VCP	(0)	(800)	(856)	(924)	(1,008)
CM	0	1,200	1,327	1,480	1,666

- From the survey and analysis study we concluded our marker size would be 1 million.
- Actual selling price of our product is 200$
- Therefore, our total market size valued minimum of 200 million dollars
- We offer one year of warranty for which we consume 5$ from actual selling price of the product
- Our anticipated market growth after 5 years of launch would be 267 million dollars

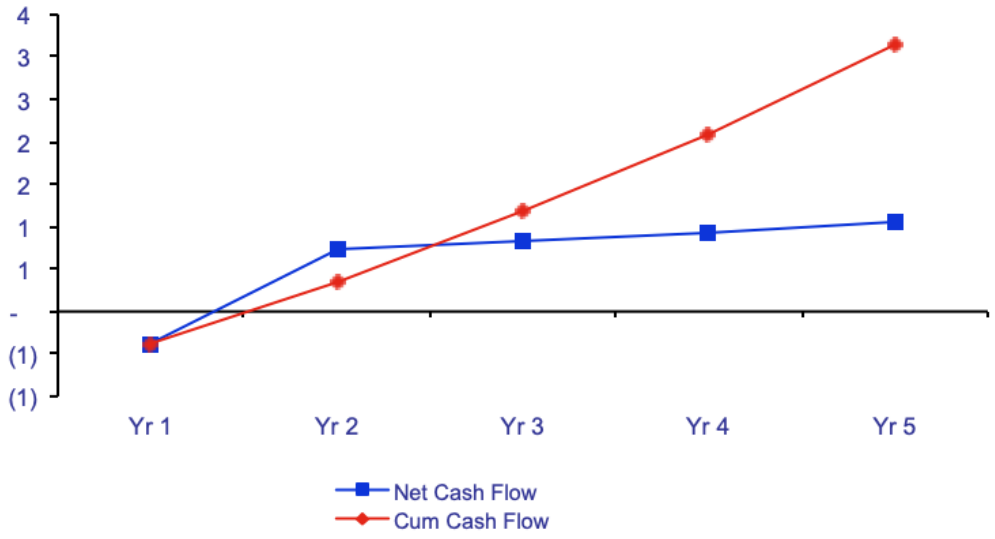
Financial Summary - Expected Case
$M

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Costs						
Expense	0.5	0.2	0.2	0.2	0.2	1.1
Investment	0.2	0.0	0.0	0.0	0.0	0.2
Total	0.6	0.2	0.2	0.2	0.2	1.3
Benefits						
Revenue	0.0	2.0	2.2	2.4	2.7	9.3
VCP	(0.0)	(0.8)	(0.9)	(0.9)	(1.0)	(3.6)
MCR	(0.0)	(0.8)	(0.8)	(0.9)	(0.9)	(3.4)
I&W	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)
OVC	-	-	-	-	-	-
CM	0.0	1.2	1.3	1.5	1.7	5.7
BC	0.4	0.1	0.1	0.1	0.1	0.7
OM	(0.4)	1.1	1.2	1.4	1.6	4.9
NI	(0.2)	0.7	0.8	0.9	1.0	3.2
NPV	1.9					
IRR	202.8%					
Payback	1.7	years				

- From the analysis our initial rate of return would be 202.8% with a payback of 1.7 years

Cash Flow

Return to Main Menu



- Graph indicates consistent and long-term positive cash flows, which means we would be financially healthy and meet our short-term obligations without any burden.

12. Conclusion:

We started our journey to help the amateur cooks to cook in an easier way by using our device, but we realized from the customer feedback that our product could serve good food to every household of the globe. People need food to survive, but not everybody is a good cook. Also, some people have time constraints to engage in the act. Even those who are experts in the act sometimes get heat accidental injuries in the process. At old age, cooking one's own food becomes more challenging. So, we choose to design a smart cooking device that will take care of doing this vital activity in the best possible way, hopefully to the delight of every human palate.

In our survey and the interviews, we came across some vital opinions to include in our product functionalities and system characteristics. To our delight, most of the interviewee seemed to be very satisfied with our product.

We hope to keep our price within the expectation of our customers without compromising durability, functionality and aesthetics. Dampers will be attached to support the cooking bowl to allow flexible motion and make the process almost noiseless. The internal structure will mostly consist of steel parts for durability with an attractive polymer coating above to stop heat burns and give an aesthetic finish. Our product will be sold with a proper user manual. We will also provide a 1-year warranty on defective parts and 1 year of free after-sales service.

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