

DESIGN STUDIO PROJECT REPORT

FOURTH EDITION

INDIAN URBAN STREET FOOD POST COVID-19

Team Disease Business

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1.0 Introduction

In this current pandemic, many city dwellers have been forced to let go of many of the conveniences that facilitate a fast paced lifestyle. Working from home has drastically changed the nature of urban life and their daily routines. Of course, many of these ‘conveniences’ are simply ways to cope with the rapid rush of life in the city, but to those who have lived with these conveniences, they have become a way of life and a culture.

One such convenience is the fast and easy access to food. Indian street food is renowned for its popularity with every strata of its society. It transcends most boundaries and is a shared culture that unites all urban Indians. From the vada pav of Mumbai to the kati rolls of Kolkata, from the uthappams of Chennai to the parathas of Delhi, the culture of quick street food is pervasive and unifying. But perhaps none of these dishes is more widespread and popular as paani puri.

In this project we will look at the role paani puri plays in the lives of city dwellers all across India and see how we can preserve this important aspect of our lives while keeping the experience of street food safe and hygienic.

2.0 Brainstorming and problem identification

2.1 Mind mapping

We began by making a mind map of all of the aspects of life that were affected by the coronavirus. We identified many of these areas where a shift had occurred, perhaps permanently, in the public perception of these aspects of life.

We came up with quite a few areas where we saw a scope for further investigation:

- Public washrooms
- Restaurants and other public spaces
- Seating and air conditioning
- Ticket booking in queues and other forms of queueing
- Commuting using shared vehicles including public transit, autos and cabs
- Cash management
- Salons
- Dentists
- Street food

We laid out all these ideas visually and drew connections where we saw them. This helped us branch into other ideas. We did not, however spend too much time on this stage as we needed to begin our research.

2.2 Problem assessment and ranking

We fleshed out each of the problem areas on our final list and put down what they would each broadly cover. Then we scored them against a modified version of the *Real-Win-Worth* system.

The *Real-Win-Worth* (RWW) system¹ uses three metrics to categorise the merits of a problem area. Each metric is broken down into two questions. And each of the six questions are asked of each of the problem statements:

1. *Is the market real?*
2. *Is the product real?*
3. *Can the product be competitive?*
4. *Can our company be competitive?*
5. *Will the product be profitable at an acceptable risk?*
6. *Does launching the product make strategic sense?*

Of course, not having a clear idea of a product in our minds yet, questions 3, 5 and 6 were difficult to answer. So we simplified the questions to the three core ideas:

1. *Is this a real problem?*
2. *Is this problem solvable given our resources and skill sets?*
3. *Can the solution we come up with sustain itself in the real world?*

So we made a table and scored the problems on a tiered scale of 1, 3 or 9. (Table 1) The reason behind using this scoring system was to “pop” highly-ranked factors more clearly, while lowering the scores of low-ranking factors.

Based on our assessments of the problems, we had one clear winner. Street food vendors had a perfect 9-9-9 rating.

3.0 Secondary research

3.1 History

Although there are many myths and legends about the origins of the dish, the actual beginnings of pani puri probably reach back to the end of the 19th century. It seems to have first appeared in South Bihar. It has since proliferated throughout India becoming one of the most recognizable snacks of the subcontinent.

3.2 Local names

There are many names for the dish and they vary in usage mostly by state.

Table 1: Real-Win-Worth analysis

Problem Area	Real	Win	Worth	Total
Washrooms	9	3	3	15
Local Buses	9	1	3	13
Local Trains	9	1	3	13
Salons	3	3	1	7
Ridesharing	3	9	3	15
Street vendors (commodities)	9	3	9	21
Restaurants (paymentsl, seating)	3	9	3	15
Street food stall	9	9	9	27
Medicine transport and storage	9	3	3	15
Telemedicine	9	3	3	15
Home grown food (aquaponics)	3	9	3	15

These different dishes all share the basic concept of a ball shaped puri stuffed and dipped in diluted chutney. But the filling, chutney and even toppings vary from region to region. The three most popular versions of the dish are paani puri, fuchka, and gol gappe. Paani puri is used throughout India, fuchka is used in West Bengal and gol gappe is used in the North and Northwest.

3.3 Travel and food blogs and vlogs

We were limited in our access to paani puri stands and restaurants as we are still in some of the worst of the pandemic in our cities, Delhi Bangalore and Aurangabad. We still needed to observe the experience of eating at a stall and so we looked to the next best option we had; travel and food blogs and videos. We looked at videos to observe the workflows of the vendor as well as the customer. Since there are very few good quality videos with decent angles online we were quite limited in our sample. It also didn't help that the videos were from different regions and thus had different recipes and workflows. However we did get some insights as to the prioritization of cleanliness, hygiene and customizability offered by the vendors.

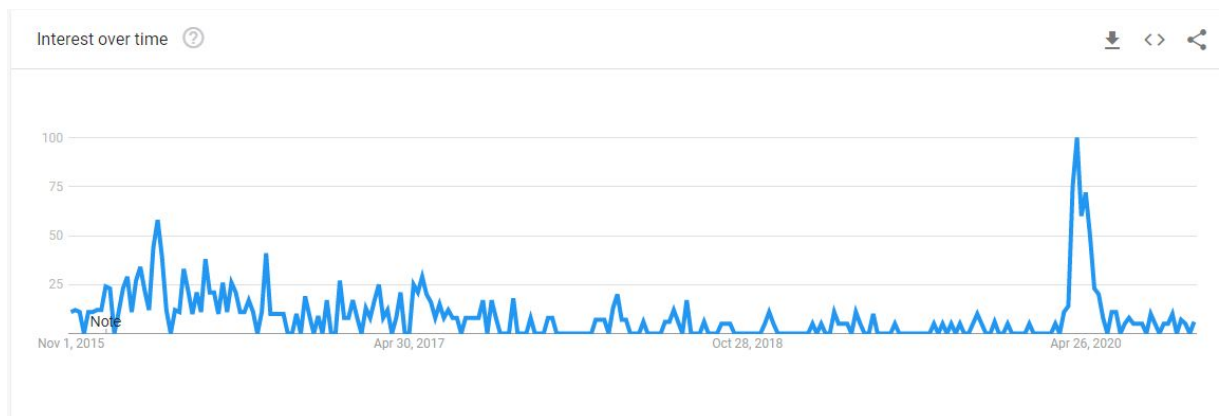
3.4 Google Analytics

Online presence is a great metric to measure recognition of a term and how it changes with time. We ran the terms ‘paani puri’, ‘paani puri recipe’, ‘gol gappe recipe’ and ‘near me’ through google search analytics and got search data from the last five years.

Paani Puri



Gol gappe



Clearly there is a sharp peak in both of these terms at the beginning of the pandemic which peaked around April. This decline can be explained by two possible factors. One is the fact that once it has been googled once, the user has no more need for the recipe. The other possibility is that the recipe did not provide a good alternative to the real thing.

4.0 Primary research

4.1 Questionnaire

We still had a lot of questions for customers that needed to be answered. We designed a short questionnaire to gauge preferences and priorities in their paani puri experience. Each question was made to give us insight into the users needs and requirements in this experience. We covered topics ranging from taste preferences to location and convenience based preferences to toppings to utensils. We even looked at the social aspect of the experience, looking at the social setting people prefer to eat paani puri. We have received 36 responses to the questionnaire so far.

4.2 Interviews

The quantitative data we got from the questionnaire was useful in validating our idea as well as giving us some broad insights into the problem we were tackling, but we needed some in depth answers that required conversations.

4.2.1 Business Interview

We found an entrepreneur who had set up a paani puri stand in Bangalore in 2008. They had bought the stand and rented it to the person who ran the stand. After a while the stand was given to the vendor. This method was sustainable, but perhaps not very scalable. From this interview we got some numbers on the costs and other factors that go into this operation. While we spoke at length about this topic, we also touched on home food production for urban dwellers using aquaponics and vertical farming. While the idea has some promise, we feel that the present conditions make it impossible for us to follow through with this idea and do it justice.

4.2.2 Paani puri enthusiast interviews

These interviews give us insights into the actual experience of the customer at the paani puri stall. We got detailed accounts of the experience as well as insights into the decision making and prioritization that goes into choosing where to go to get paani puri. We put the insights we got from these interviews into a spreadsheet to analyse them in an affinity diagram.

5.0 Further research

5.1 FSSAI Guidelines

We looked at the published FSSAI guidelines on street vendors. The guidelines were even used by the FSSAI to create a pseudo-business model, but this model failed because it did not give clear incentives to the vendors.

5.2 Cost Analysis

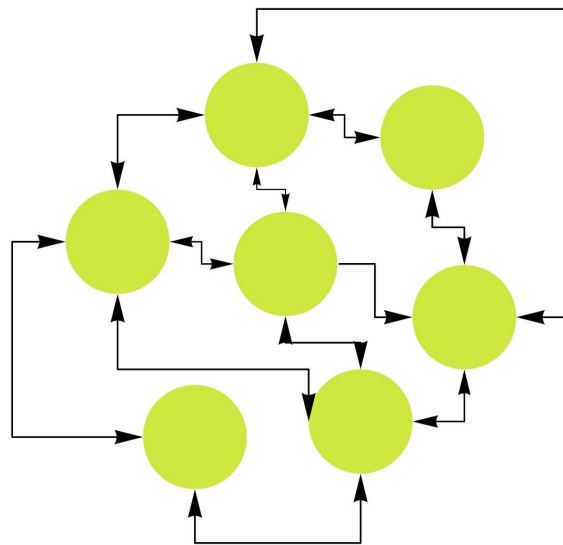
We looked at a 2010 study which outlined the operational costs of a paani puri stand which broke the costs down. This will help us when making our business plan.

5.3 NID Research

We also found a branding project from a student in NID Ahmedabad which had some interviews with paani puri walas which gave us more insights into the needs of the users.

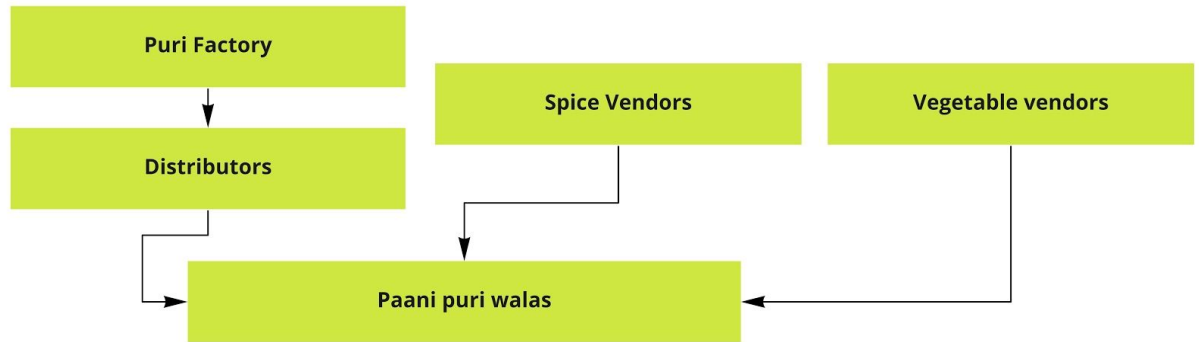
5.4 Industry professionals

5.4.1 Vivek Kant



We consulted Prof Vivek Kant about the system we were working on for our redesign. He told us about an approach to system redesign where we look at all the elements of the system (users and mechanisms) and analyse how they interact with each other. Next we analyse these interactions and the problems that occur at each level. We are also looking at these interactions through the lens of the hygiene considerations.

5.4.2 BK Chakaravarthy



We spoke to Prof Chakaravarthy about the existing ecosystem around chaat and street food. He told us to consider every level of the ecosystem and look at how our solution affects the existing solution. We also have to see if the solution we propose will be accepted as part of the ecosystem. He also connected us to various other industry leaders in street retail and design.

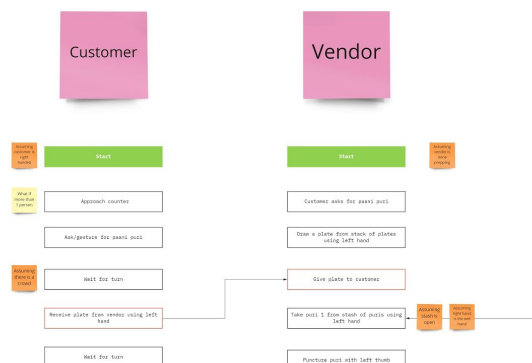
5.4.3 Richa (Food blogger at andthentiate.com)

We spoke to a food blogger because food bloggers primarily analyse eating experiences for a living. She told us about the importance of the group experience in street food, such as eating with friends and family. She also stressed the fact that people are not going to street vendors because of hygiene concerns, but because of the taste and experience factors.

6.0 Journey Mapping

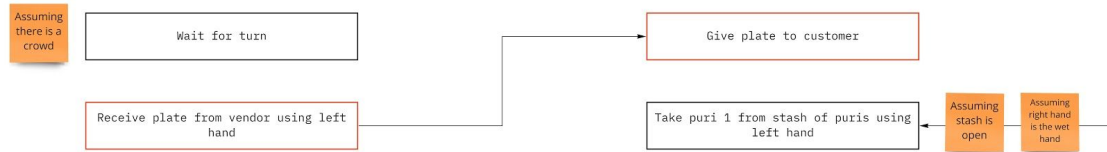
6.1 Customer-Vendor interaction map

We analysed many youtube videos and our own notes to create a comprehensive interaction journey map.



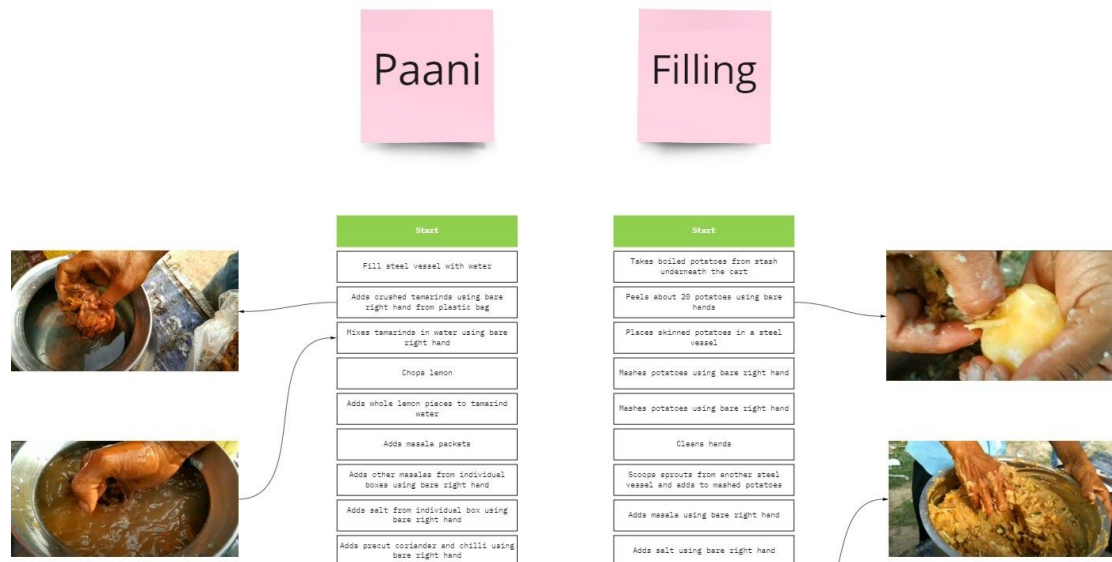
The entire map can be seen on our Miro board. We also looked at the assumptions we had to make, the conditional steps and the direct contact interactions between the user and the vendor.

We used the Actor → Scenario → Journey stage → Mindset → Opportunities model.



6.2 Vendor preparation map

We also journey-mapped the vendor's preparation of the ingredients. This gave us the weak and unhygienic stages of the preparation.

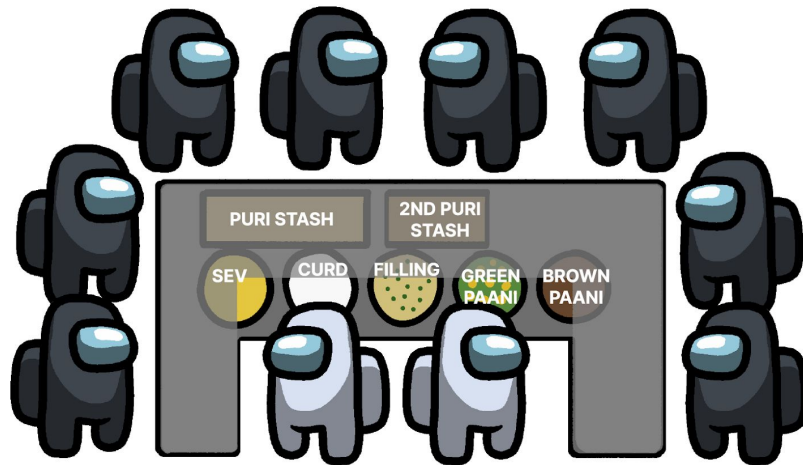


7.0 Workspace models

We analysed the physical space that the stalls take as well as the workspace of the vendors. We saw three main types of stalls.

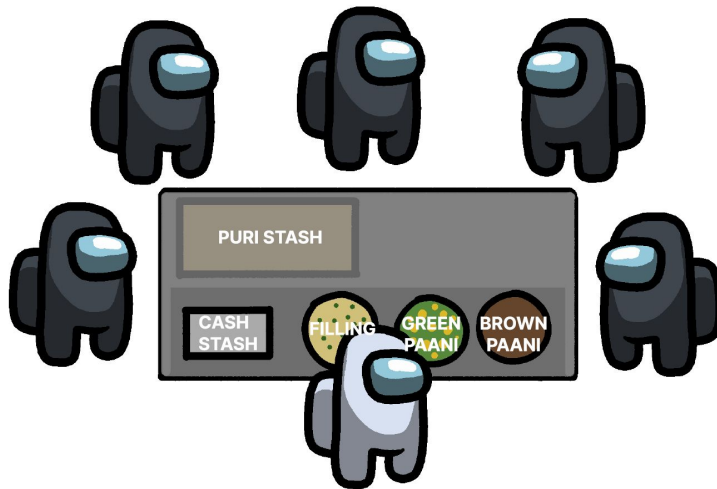
7.1 Large permanent stalls

The first type of stall is the large format chaat stall, usually found in front of restaurants and sweet shops. These are usually two man operations. They have more options and usually cost more. They also usually have a cleaner environment. They have multiple options for the chaat, and serve a lot of variations.



7.2 Medium sized carts

The second type of establishment is the push cart vendor. This is a mobile station, but usually operates from just one location. It is smaller than the permanent stalls and is usually operated by a single vendor. These carts can be moved in case the police ask them to leave and they can also help in moving the carts between the markets and the homes of the vendors.



7.3 Small stand stalls

The final type of stall is the single cane stand stall. This hourglass shaped stall is a very common sight in all major Indian cities. They are operated by a single vendor and

pose a pretty large hygiene risk as the vendors are in extreme proximity with the users.



8.0 Finalised user needs

From these insights, we arrived at two sets of user needs; the vendor's needs and the customer's needs.

8.1 Vendor needs

- Needs to communicate that they can be trusted
- Needs customers to follow hygiene guidelines
- Needs a way to keep their environment clean
- Some vendors need to minimize the bulk of their apparatus
- Needs a way to minimize contact between themselves and customer
- Needs to manage payment in a hygienic manner
- Needs clean water for drinking and washing
- Needs to protect himself from potential infection

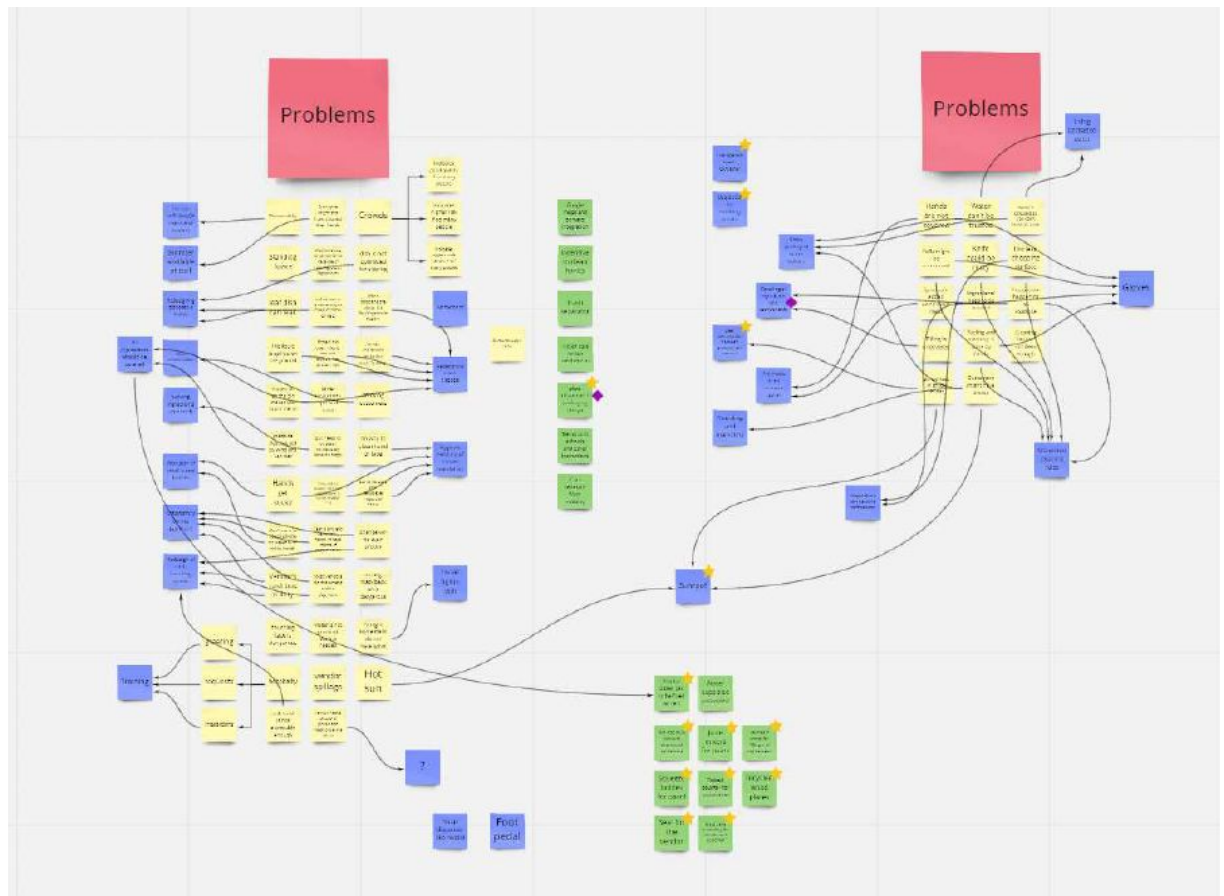
8.2 Customer needs

- Needs to protect themselves from infection from the vendor
- Needs to protect themselves from infection from other customers
- Needs to clearly and hygienically indicate their order to the vendor
- Needs to receive dish from vendor safely
- Needs to trust the quality of the food
- Need the food to taste good
- Need a safe way to pay

- Need a clean place to dispose of dishes
- Need a way to clean hands and face

9.0 Brainstorming from Journey Mapping

Based on the journey maps, we identified several actionable problem areas. We listed them all down under both the journey maps. We then brainstormed potential solutions to the individual problems. We looked at the roots of the problems to see if we could solve an underlying issue that the problem was just a symptom of. We also found many potential solutions which solved multiple problems and linked them up.

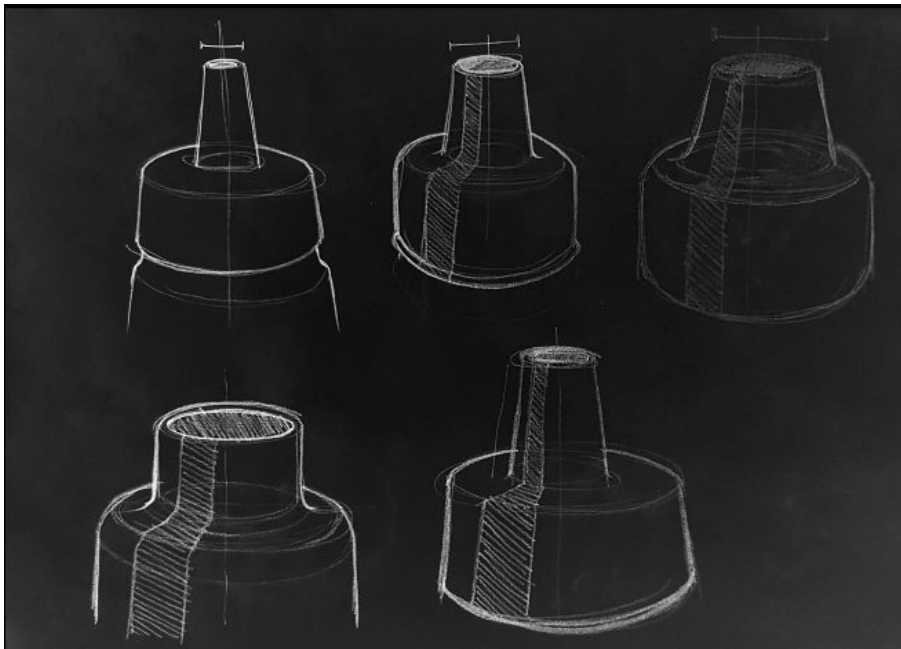


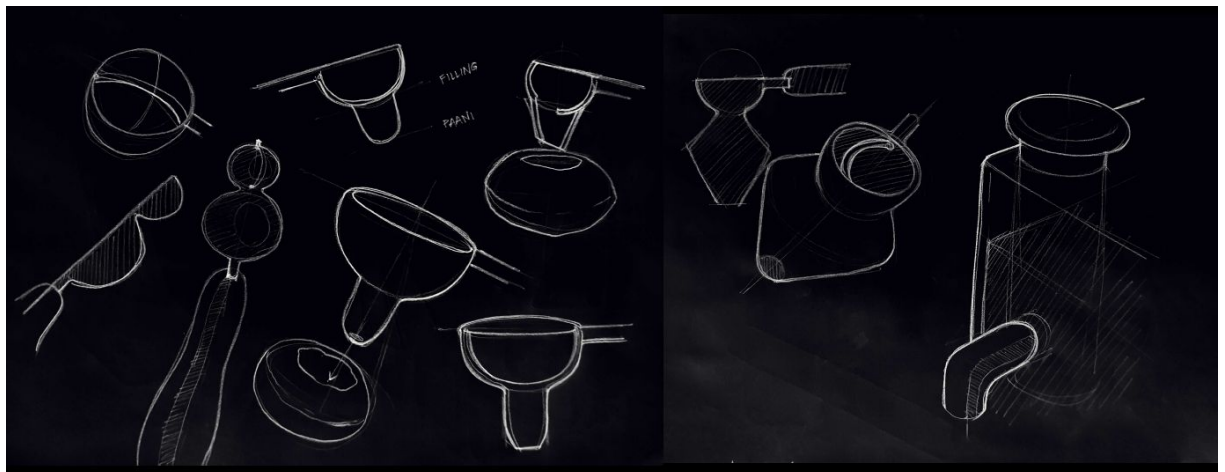
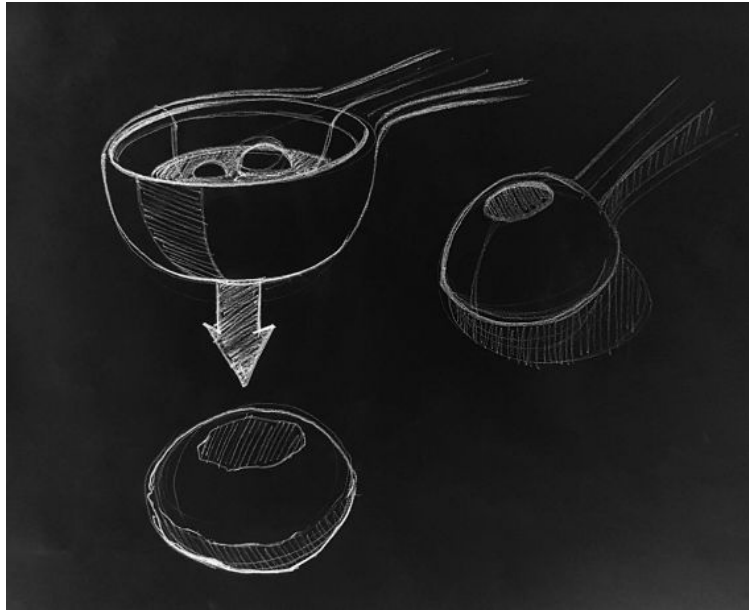
9.1 Preparation problems

The main issues faced by the vendors during the preparation stage were related to cleanliness and hygiene. Some other problems included storage and the surrounding environment and ambience of the cart. Separating the ingredients from the contaminants on the street were also a concern we looked at. We thought of potential solutions such as depressed containers on the cart which could be lidded when not in use, closed paani enclosures which can be dispensed from, sealed storage and safely stored dishes.

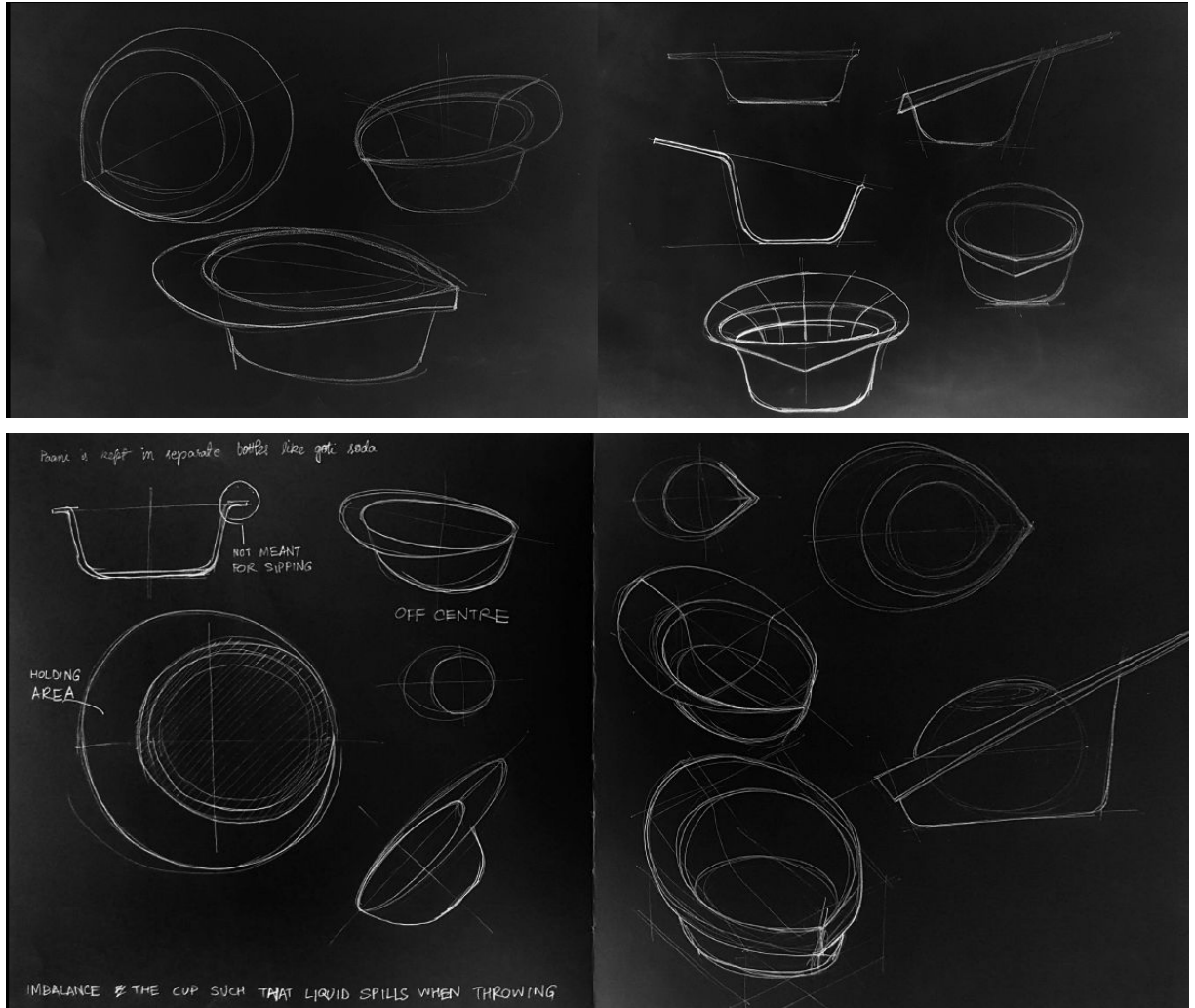
9.2 Customer-Vendor interaction problems

Most of the customer-vendor interaction problems stem from the issues of separation of food from vendor, vendor from customer, and customer from customer. These separation issues were the focus of our brainstorming. The vendor-food separation issues needed to be solved by providing interfaces between them, such as scoops for the filling, ladles or nozzles for the paani, gloves for the puri itself and other separators. We looked at various options for the scoops as well as the paani dispensers.

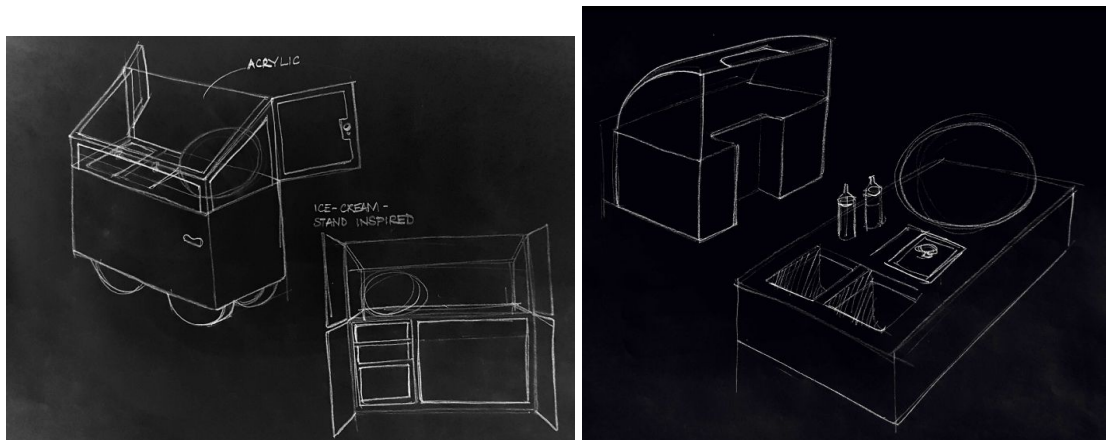




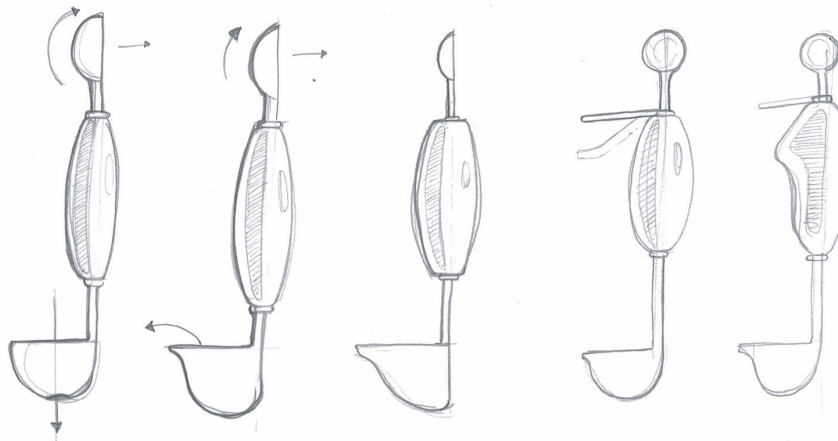
The vendor customer separation is a little more tricky, because it needs to address the passing of the dish to the customer as well as the returning of the dish for a refill. We solved a part of this by proposing a transparent barrier between the customer and the vendor which would have a small slot at the bottom for passing the dishes. This at the very least prevents the customers from breathing into the vendors space as well as onto the food being prepared. Another aspect we looked at was the eating and disposal experience. We explored designs for the puri dish which allowed for sanitary disposal as well as easy sipping, something which the current design prevents.



The bins for disposal were also unsanitary as the liquid pooled at the bottom and caused a stench. We brainstormed potential solutions to this issue as well. The overall cart also clearly needed a redesign as there was a lot of unused space.



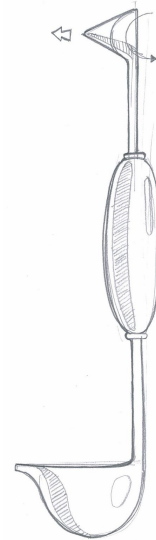
10.0 Multitool



In the existing workflow one of the main identified problems was the contact that the vendor made with the paani and the filling. To remedy this problem, we ideated on several options. We considered automatic dispensers, foot pedal operated machines, squeeze bottles and several types of multitool.

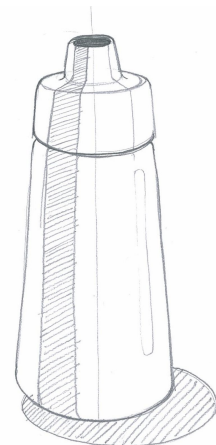
We considered several designs, each with a large ladle to dispense the paani and another one to collect and dispense the stuffing. It needed to be easily flippable while not being unstable in the hand. We also implemented a secondary use for the smaller, stuffing scoop, to pierce the puri. So the tip was sharpened, but the internal shape remained optimal for scooping.

However, more iterations are needed to finalize the exact dimensions.



11.0 Squeeze bottle

Another way of removing contact between the vendor and the paani was through the use of a squeeze bottle. This small container could be handed to the customer as a part of a deliverable or takeaway meal. The nozzle needed to be designed to allow easy passage for the non-homogeneous paani.



12.0 Dish redesign testing

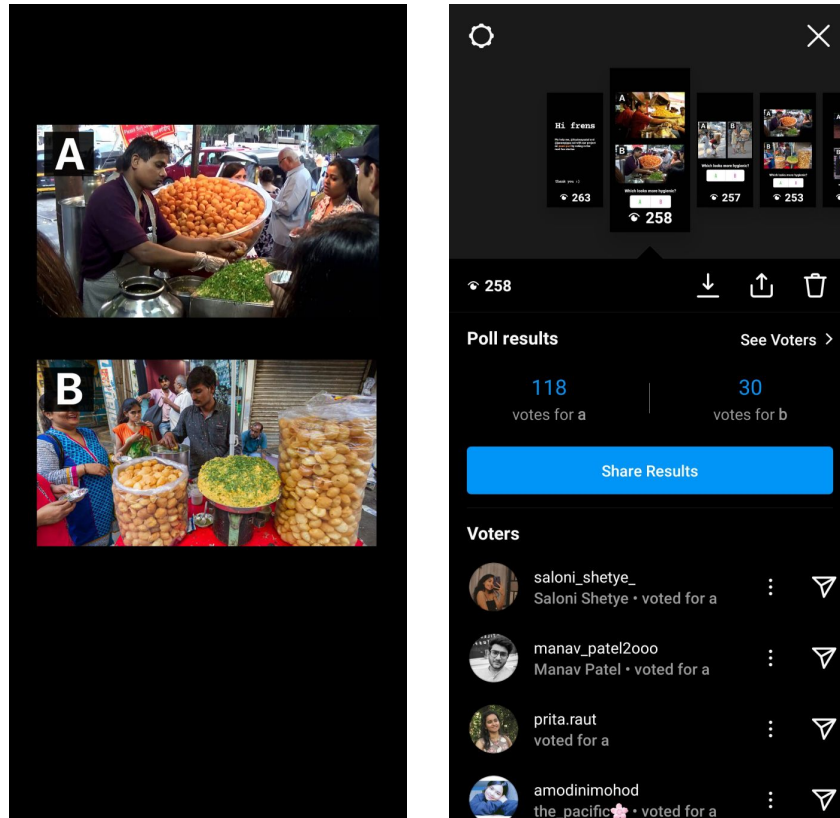
We also conducted a series of tests on our redesign concept for the dish. We made a physical model out of the cardboard and tin foil. We then did a series of drop tests with liquid in it and analysed the falls with slow motion footage.



Our initial assumptions were confirmed; the redesigned dish tumbled as expected and prevented any excessive spillage.

13.0 A-B perception testing

We needed to confirm many of the assumptions we had made so far in customer perception. We sent out a large survey consisting of many questions which asked users to select one of two pictures. The questions were formulated to gauge perception of certain identified hygiene factors. The factors were not explicitly mentioned in the questions, so the users were not biased. We received more than 150 responses, We then tabulated the responses and made a series of inferences from them.



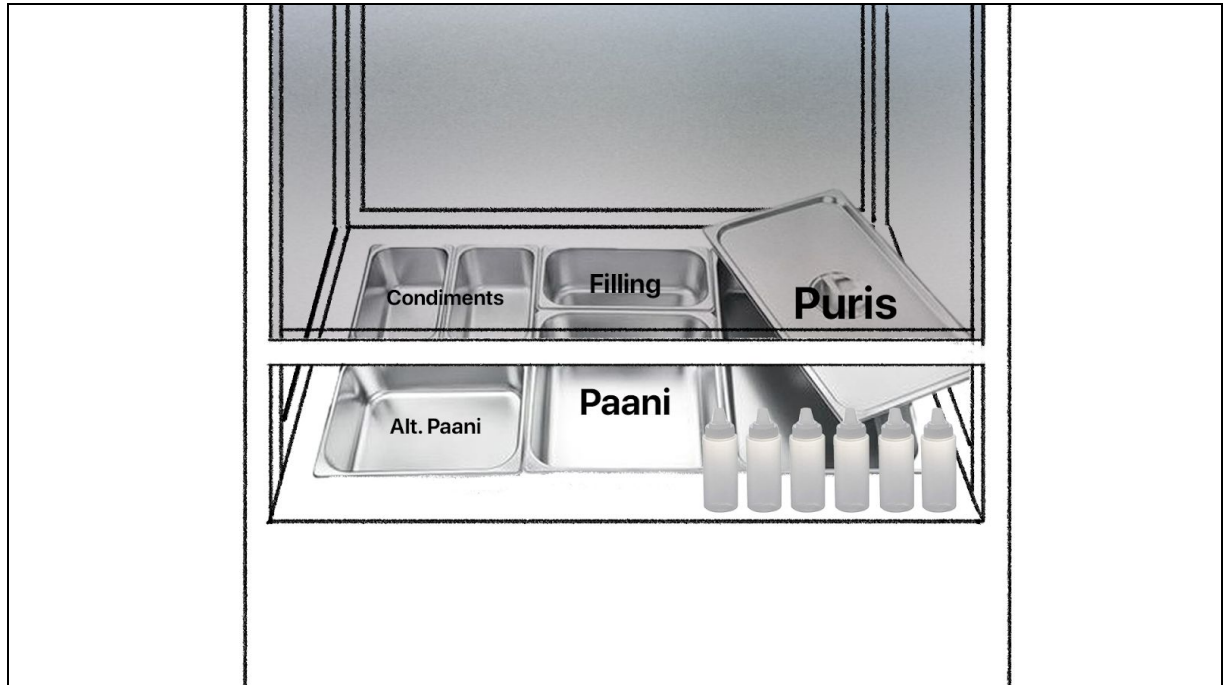
13.1 A-B Testing inferences

From the testing, we made the following inferences.

- Uniformed vendors are seen as more hygienic
- Ambient cleanliness plays a role in perception of the cart
- Vendors need to wear gloves at all costs
- Use of a tool to pour the paani is preferred
- Hairnet is also mandatory
- From a hygiene standpoint, customers prefer paani served separate
- Covered ingredients are preferred to uncovered

14.0 Cart design

Based on all the testing and A-B test inferences, we combined many of our ideations into a single cart design.



Gastronoms are used to keep the food protected from the elements as well as away from the view of the customers.

15.0 Business models

We consulted Prof Arti Kalro from the School of Management to help us formulate our business plans. We made two plans, one B2B and one B2C.

