

Report : Week 02

Analysis of the Problem and Initial Ideation

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This report summarizes the work that we have done and the progress that we have made regarding our Collaborative Design Project over the past one week (27/10/2020 - 02/11/2020). The main focus was to research and understand the problem that we were going ahead with.

An Overview of our Timeline.

- **Tuesday (27/10/2020)**
 - Rest
 - Good 12 hour Sleep
- **Wednesday (28/10/2020)**
 - Further Research
 - SWOT Analysis
- **Thursday (29/10/2020)**
 - Persona Building
 - Additional Research
- **Friday (30/10/2020)**
 - Workflow
 - Ideation
- **Saturday (31/10/2020)**
 - Ideation
- **Sunday (01/11/2020)**
 - Presentation Building
 - Report

- Monday (02/11/2020)
- Presentation 02

Final Problem Statement from Week One

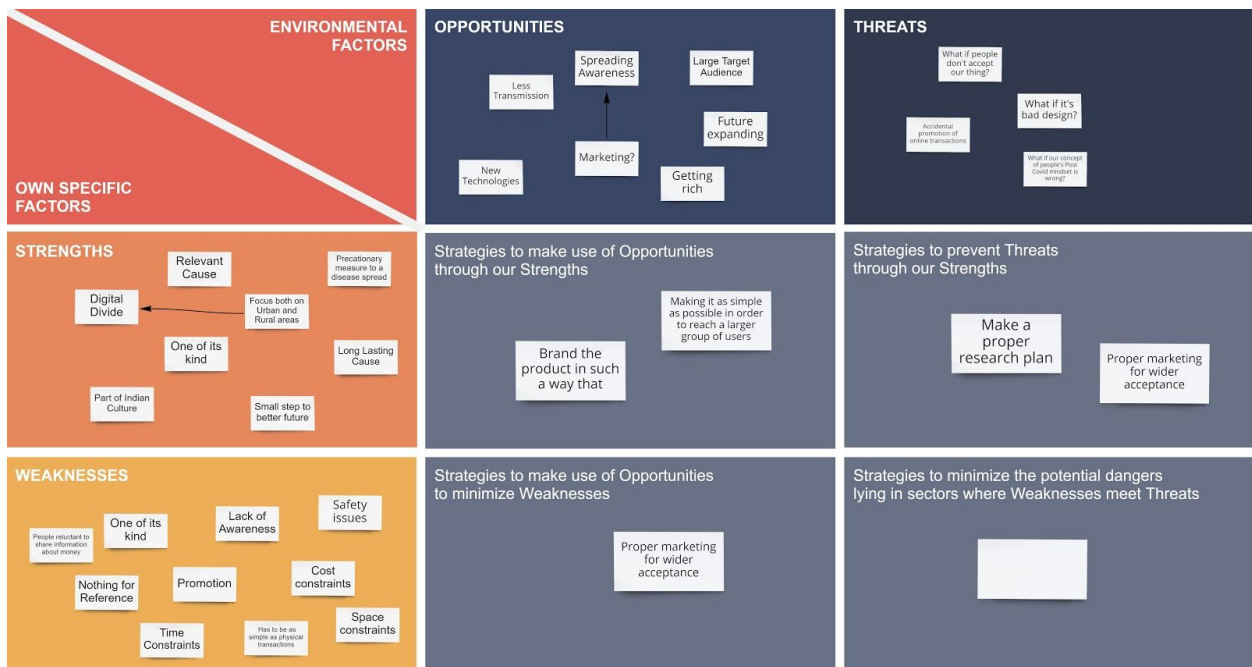
Cash Transactions are responsible for disease spreads (not just corona but million more existing diseases) and making physical cash transactions contactless would keep a check on hygiene to a certain extent.

Analysis of Our Problem

The feedback we received after our Week One Presentation was affirmative and we decided to go ahead with our problem statement. We started with a further analysis of our problem to make sure that we wouldn't miss any important detail. We conducted a SWOT analysis of our problem before we moved ahead.

SWOT Analysis

By Conducting our SWOT Analysis we identified our strengths, weaknesses, opportunities, and threats. In some cases, we even realized that some of our strengths and opportunities were also part of our weaknesses and threats. Once we were done identifying, we thought of strategies to put our opportunities in action, making use of our, and strategies to overcome our threats, and so on. Once we were done with it, we got a basic understanding of which areas we should focus on to



attain wide acceptance of our product and similarly, which areas could be a reason for failure. Our Analysis Sheet is as follows.

Idea Box

We created an Idea Box after all the analysis and all the keywords that we could think of, regarding our final product were put in there. We mainly divided and color-coded them into four main groups, namely - Physical features, Other features, Values, and Looks. We kept on adding more on the go.



Bonus!

We realised late that Vanshaj's Dad was a cashier and that we could have gotten good cash handling insights from him. But then its never too late!

- There are two cash counting machines - one, black and the other, white, out of which, the white ones detect fake notes.
- Real notes have a green strip shows blue color when tilted against the light
- In normal cases he uses touch as real notes are usually crisp or see through

- Regardless of how old the notes are, you can identify real ones even though they might not be accepted in market
- If the note is wrinkled keeping it between some weight helps or even a little tape in slightly torn note works

Understanding the user

First we'll look into where all does the shop owner comes in contact with money:

- a) in the beginning of the day;
- b) during all the money/cash transactions;
- c) at the end of the day

Understanding the whole process and the issues faced in the current process + when a particular contactless thing is incorporated. The basic point is to avoid the mutual contact with money

Persona

Since we had already conducted eight interviews from three different cities, we kind of had an idea of the characteristics of our personas. We decided to make a Primary Persona and a Secondary Persona, the former being a shopkeeper and the latter a customer. We picked out the details that most interviews had in common and created our Primary Persona.

Primary Persona :



Name : Bittu Chandra

Age : 27

Education : Grade X

User Group : Stall Owner, Cook

Bittu has been selling Vada Pav in the heart of Haridwar for the past five years. He is well known for the food he prepares as he is said to be the most hygienic stall in the area and all classes of people enjoy his food. His stall is part of a food gully where other fast food is also available. He knows basic money calculations and is very quick at what he does. He has no helper and has to manage food preparation and money transactions at the same time. He keeps cash in a box that is either at the center of the deck or in his sling bag. On his deck, he has a bunch of bottles, each having a different chutney, and a small stove that he uses for most of his cooking. The cooked food is kept in trays and served on disposable plates. He also has parking facilities available. His working hours are usually from 07:00 to 09:00 in the morning and 04:00 to 09:00 in the afternoon. The peak hours are usually between 06:00 pm and 07:00 pm. The average amount earned per person is usually Rs. 25. He used to earn around Rs. 600 a day before Covid, but now it has come down to Rs 250 a day. The highest frequency of currency at the end of the day is that of Rs. 100.

Secondary Persona :



Name : Vjay Rane
Age : 54
Profession : govt. Clerk
User Group : Customer

Vijay is a Middle Class Government Clerk who loves paani puri and vada pav. Before the Pandemic he used to visit fast food stalls almost every day on his way back home from work. Sometimes he would even get some packed for his wife and children. But after the lockdown, he is very skeptical of the hygiene at such stores and is very scared of catching the virus. He barely goes out once a week to get groceries and other necessities for the household. He really misses Vada Paav. Even though he is scared of catching viruses from anywhere outside, he is unaware of the fact that viruses can spread through cash. Even though he knows how to use UPI payments, he finds the process too confusing. So he prefers to pay such stalls in cash. He was never really concerned about hygiene factors before the Pandemic, but now he pays attention to detail.

Scenario : Right after the Pandemic

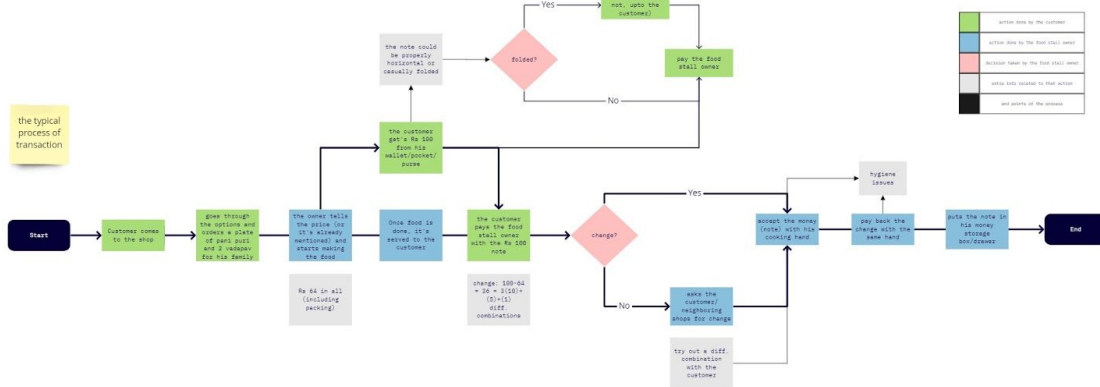


People have almost become used to the whole 'pandemic situation'. Not everyone pays attention to precautions. Traffic is back to normal and there are no restrictions on crowded places anymore. Rajesh is on his way back home from his office and is planning to stop by a fast food stall after a year of being skeptical about such places. He wants to have Paani Puri at the shop and wants to take Vada Pav home for his wife and children. He visits Vijay's shop. As usual, Rajesh orders Paani Puri and tells Vijay to pack four Vada Pavs for his family. Vijay packs the Pavs while Rajesh is

having his Puri and tells him that the total amount for the food was 64 including the parcel. Rajesh pays Vijay with a Rs. 100 note from his wallet. Vijay accepts the note and searches for change with his right hand. He finds Rs. 36 in notes and coins and returns them to Rajesh. Rajesh thanks Vijay and walks back home.

Workflow diagram

Assuming it's the typical process (is it post corona, our ideal situation)



okay so now that the process is determined, we look at the areas where our product/idea could be influenced (which is mostly the main cash transaction area):

How the customer handles and hands the money to the stall owner (the way he holds the notes; condition of the notes (folded, straight); how he pays with coins)

how money is stored with the owner (and how can it be further implemented, if necessary) (the owner coming in contact with money)

how can we incorporate a new product in the actual transaction to make it completely contactless (along with old and new issues catering to that)

	action done by the customer
	action done by the food stall owner
	decision taken by the food stall owner
	extra info related to that action
	end points of the process

Design Goals

As this is going to be a completely new product, so as of now we didn't go overboard with too many design goals. Instead we went with very basic needs that will be very critical for this contactless transaction to happen.

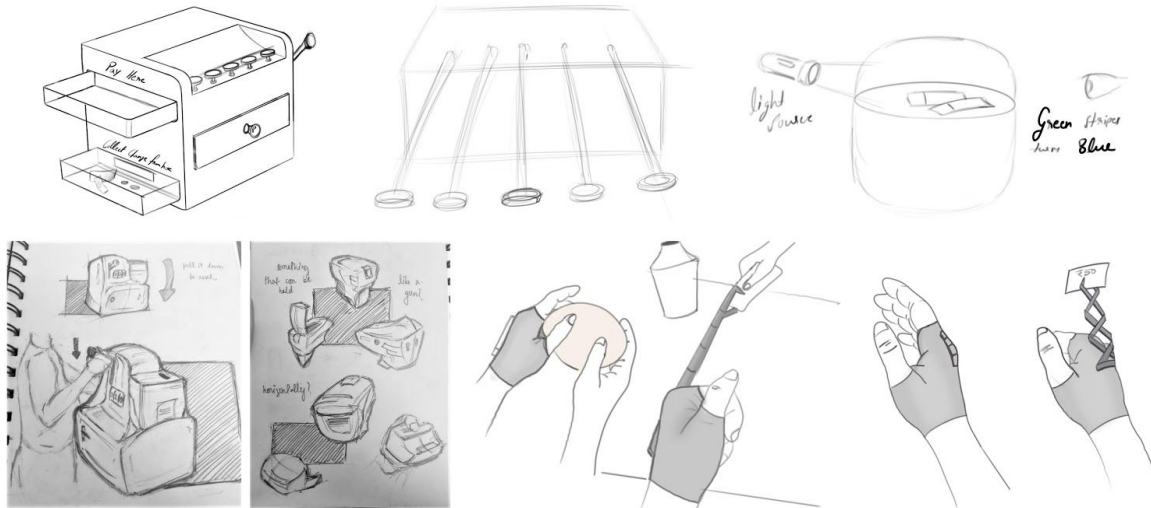
- Quick, easy **money sorting, transaction** - Sorting of money and transaction should be a quick and easy process so it does not hinder cooking.
- **Confirmation** before returning chutta - There should be some sort of confirmation before the shopkeeper returns chutta to the customer. For example in case of a mechanical box with multiple buttons for different notes and coins there are chances of accidentally pressing a button more than required while returning the chutta. So in order to assure the exact amount, that money should go in a transparent chamber where the shopkeeper can look and confirm before sending it forward.
- **Fake money** detection/confirmation - we figured out that this contactless transaction can also give rise to fake money usage. so the product should let the user use the visuals to confirm the real money.
- Considering the condition of the notes - the notes can be super old and wrinkled, they can also be slightly torn and can have some tape hiding that torn. And what we have noticed is, there is a certain level of acceptance for such notes and the public in general usually rejects very old and slightly torned notes.

Ideation

Before this ideation process we looked over the internet and found some very interesting methods and mechanisms of coins sorting in cash dispensers.

In our ideation process we created a few basic ideas of our non-existing product, which included a money box that has two different chambers for accepting and returning money and also specific buttons for different values of notes and coins. We also thought of a few portable ideas like a retractable Glove that can grab money on your behalf, but it also came with many flaws like no proper retractable mechanism, and also lack of control. We also thought of reflecting light through notes so that you will be able to see the green metal strip of notes change to colour blue, but this also came with flaws like that metal strip being present only on one side of the note. Then we also thought of having a glowing base on the money chamber so that we will be able to use

see-through money confirmation technique and this will also help us detect a few torn cracks if present.



Additional Research

Before rushing into the Ideation Process, we thought of conducting a little extra research on existing mechanisms. We looked at a wide range of mechanisms; from automated high-end machines to DIY crafts.

- We discovered denomination sorting machines which cost around Rs. 2lakhs. This gave us a little inspiration on the segregation of notes in our product.
- Cash counting machines gave us the idea of a feedback mechanism which keeps the users well aware of the transactions.
- Money guns were something we laughed off in the beginning, but later we realised that the note releasing mechanism could be manualized and incorporated into our product.
- We discovered a wide range of DIY crafts out of which, the most important one was a coin sorting technique based on the diameter of the coins.

But then we realised that in India, different generations of the same coin have different diameters.



- We also came across a coin counting technique which quickly counts money using a small DC motor.
- Number gears were used in a few cases for counting. All the mechanisms were very simple and regular everyday items were used to create them.

Thank you,