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ENGINEERING · MANAGEMENT · LAW · SCIENCES · HUMANITIES · EDUCATION

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THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

OOG - ORDER ON GO

Design Thinking Project

Submitted by

Nivedhitha K Harini P

Manjusha PVNDS Simran Satapathy

Singa Ruhi Raju

Submitted to

Dr. V. VIDYA
Assistant Professor II, SASHE,
SASTRA Deemed-to-be University
Thanjavur 613401.

Declaration

I hereby declare that the following project is a joint initiative and a qualitative outcome of our perseverance, application of design thinking skills and team spirit. This work was not published elsewhere and does not bear traces of plagiarism.

Signatures of the Team Members

Nivedhitha K _____

Harini P _____

Manjusha PVNDS _____

Simran Satapathy _____

Singa Ruhi Raju _____

Signature of the Project Guide

Signature of the External Examiner

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SCENARIO

Every college/university is facilitated by canteens or food courts. Due to many reasons like greater distance from mess to classrooms, being bored of eating the same food everyday etc., many groups of people (students, professors, staff workers, visitors) prefer eating food in the campus canteen than going all the way to the hostel mess, especially during breaks. However, this system also has drawbacks: uncontrollable crowds in peak hour, shorter lunch breaks to go to the canteen and get back, mixed up ordering system. Because of these reasons people often find themselves in a hurry to grab a bite. More often than not students and professors want a quick snack in between classes during short breaks but they don't do so simply because even the smallest of the order takes a lot of time and effort.

ABSTRACT

This project aims at a new food pre-ordering system for the university based on inspiration from some existing commercial food ordering applications. A Design Thinking approach has been inculcated in the process of shaping the idea into action. The phases of Design Thinking embark on the establishment of a new system to reduce the traffic for ordering food in busy and bustling places like college campuses with a unique and creative selling point. To further elaborate, a detailed empathising phase was carried to understand the existing problems faced by the canteens as well as the customers. Noting this, a model has been projected in the further pages of the project. This model will not only benefit the canteens but will surely be an attractive point to turn the heads of the customers because of the features making it easy to place orders on the go. In other words, this project aims at proposing a model for the food pre-ordering system in the university based on the Design Thinking approach.

DESIGN THINKING APPROACH

WHAT IS DESIGN THINKING?

“Design Thinking is a human-centred approach to innovation that draws from the designer’s toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.”

It is a method for creative problem solving and is a solution-based approach to the problems. Design thinking is a process for solving problems by prioritising the consumer’s needs above all else.

It relies on observing, with empathy, how people interact with their environments, and employs an iterative, hands-on approach to creating innovative solutions.

In contrast to traditional problem-solving, which is a linear process of identifying a problem and then brainstorming solutions, design thinking only works if it is iterative. It is less of a means to get to a single solution, and more of a way to continuously evolve your thinking and respond to consumer needs.

WHY IS DESIGN THINKING IMPORTANT?

It brings together the desirability from the customer’s perspective with what is technologically feasible and economically viable. It also provides various opportunities for people who aren’t trained as designers to utilise creative tools so that they can tackle a vast range of problems/challenges.

The Dynamic world demands the need for design thinking as ideas can be easily replicated. Design thinking comes to the rescue, to provide a remedy as to find a creative way to find solutions to the problems.

Here, in this work, it has been tried to view and understand the problems from the customer’s perspective that they face in the present restaurants. Further, the problems are dealt with in detail to come up with creative solutions to tackle the present problems faced by the customers.

Design Thinking plays a very important role as it provides a systematic way for tackling real-life problems. As far as this work is concerned, Designing Thinking plays a crucial role in understanding and modelling a customer-centric food pre-ordering system. Design Thinking can be applied anywhere in this dynamic world. This work helps us in understanding the importance of design thinking, giving us another angle to apply design thinking not only to any defined problem but also in building or starting a new business in any field.

HOW IS DESIGN THINKING CARRIED OUT?

There are five phases in design thinking. They are:

1. Empathise – with your users. The observations must happen with empathy, which means withholding judgement and not imparting preconceived notions of what the consumer needs. It uncovers issues the consumer didn't even know they had or that they could not themselves verbalise. From this point, it is easier to understand the human need for which you are designing.

2. Define – your users' needs, their problems, and your insights. Think about the difficulties consumers are brushing up against, what they repeatedly struggle with, and what you've gleaned from how they're affected by the issue. Once findings are synthesised, you are able to define the problem they face.

3. Ideate – by challenging assumptions and creating ideas for innovative solutions. These ideation sessions could be in a group, where your team gathers in an office space that encourages creativity and collaboration, an innovation lab, or can be done solo. The important part is to generate a bunch of different ideas. At the end of this process, you'll come up with a few ideas with which to move forward.

4. Prototype – to start creating solutions. The point of a prototype is to come out quickly with a concrete version of the idea to see how it is accepted by consumers. This is the stage that turns ideas into an actual solution. Prototypes are not meant to be perfect.

5. Test – solutions. how customers interact with it should be observed. This testing stage is the one in which you collect feedback on your work. observed. This testing stage is the one in which you collect feedback on your work.

At the end of the fifth stage, you'll likely have to go back to one or several of the other stages. Perhaps the testing has shown you need to develop another prototype, for which you'd return to the fourth stage.

This work elaborates the phases of design thinking and helps in understanding carrying the phases of design thinking. It has been dealt with in-depth throughout the work demonstrating the various phases of design thinking in modelling a food pre-ordering system.

EMPATHISING

Customers' experience with College Canteens

Empathy is the first step in design thinking because it is a skill that allows us to understand and share the same feelings that others feel. Through empathy, we are able to put ourselves in other people's shoes and connect with how they might be feeling about their problem, circumstance, or situation.

Empathising is necessary as it provides a guide as to what our target audience's needs and wants are. With this insight, it becomes convenient to come up with the finest solutions that benefit the management by satisfying its customers and the customers themselves as their requirements and expectations are met. Nevertheless, eminent solutions only arise in the context when we better understand and empathise with our customers in the best way possible.

Keeping the above points in mind, a survey was taken to know the opinions, expectations and issues faced by the customers who regularly order food in the canteen. While the process was carried out to know the customers' point of view and empathise with them, which will further assist us in bringing out the best solutions for the problems.

The survey was conducted in the form of strata consisting of a sum of 25 individuals and further this can be projected for the rest of the target audience. It includes viewpoints from the age group between 18-60 i.e., students, professors, workers and canteen Owners. The questions were focused to know more about the problems faced by the customers and their preferences which in turn will guide us in coming up with preferable and finer solutions for the same.

In the process of empathising various issues and problems faced by the customers were realised. This aided and assisted in identifying the problems in an unbiased manner. As empathising being the first phase, this formed the base for exploring further phases significantly.

Survey: Experience with Canteens

The following feedback form was circulated to the individuals to know the viewpoints which in turn helped us to empathise for the same.



EXPERIENCE WITH COLLEGE CANTEEN FEEDBACK

WHAT MODE OF DELIVERY DO YOU PREFER?

- Go and collect the parcel near canteen
- Delivery to the classroom
- Deliver to nearby pickup point

HOW OFTEN DO YOU ORDER FOOD IN CANTEEN?

- Always
- Rarely
- Sometimes
- Not at all

HOW LONG WILL YOU WAIT FOR FOOD IF ORDERED ONLINE?

DO YOU PREFER GETTING NOTIFIED ABOUT FOOD SUGGESTIONS FROM US?

- Yes
- No

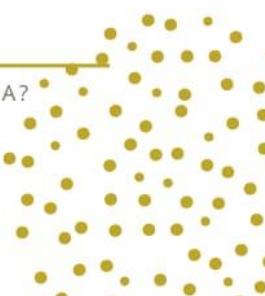
WHAT ARE THE DIFFICULTIES THAT YOU FACE WHILE ORDERING FOOD IN THE TRADITIONAL WAY?

WHICH TYPE OF ORDERING SYSTEM DO YOU PREFER?

- OOG(Order On Go) way
- Traditional way

HOW WOULD YOU RATE OUR IDEA?

- Good
- Very good
- Bad
- Very bad





IN WHICH CANTEEN DO YOU ORDER THE MOST?

WHEN DO YOU LIKE TO PAY FOR THE FOOD?

- While ordering
 - After receiving the parcel
-

WHAT DO YOU PREFER?

- Doing mixed canteen food ordering
 - Ordering from one particular canteen
-

DO YOU LIKE TO INCLUDE PAYMENT CANCELLATION IN THE SERVICE?

DO YOU WANT US TO COLLABORATE WITH OUTSIDE RESTAURANT (VEGETARIANS)

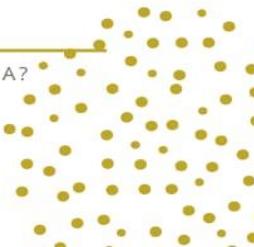
- Yes
 - No
-

WHAT ARE THE DIFFICULTIES THAT YOU FACE WHILE ORDERING FOOD IN THE TRADITIONAL WAY?

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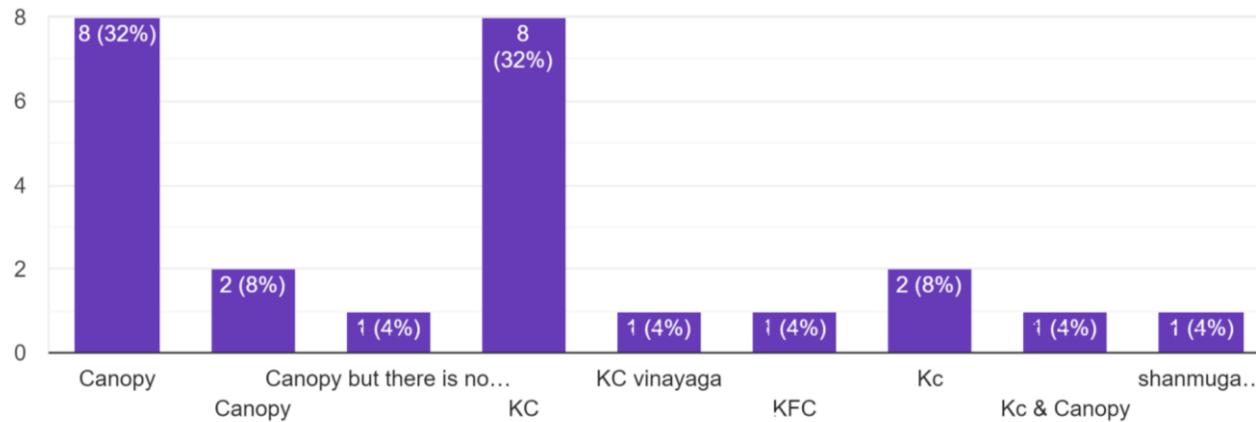
- OOG(Order On Go) way
 - Traditional way
-

HOW WOULD YOU RATE OUR IDEA?



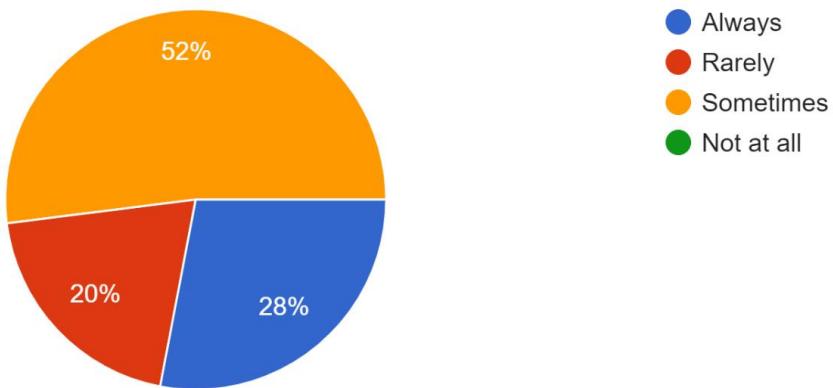
Responses from the survey

1. Which canteen do you order the most? (Eg: KC, Canopy etc.)

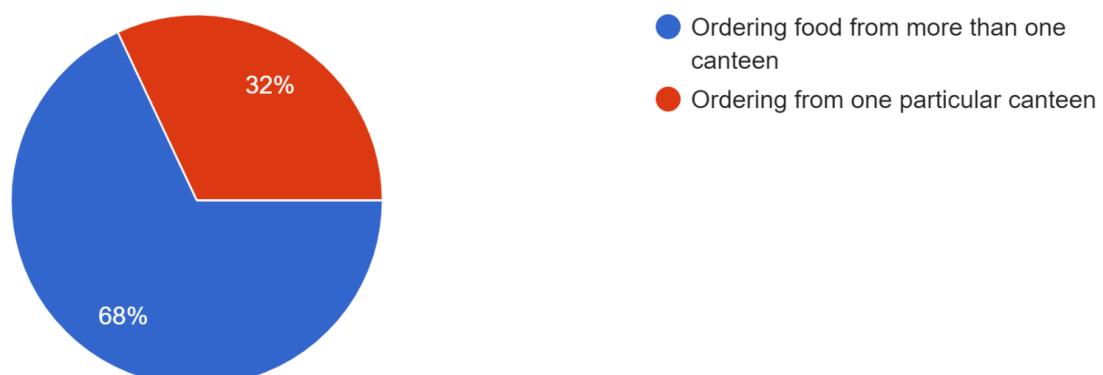


The survey indicates that almost half of the people order food sometimes from the canteen.

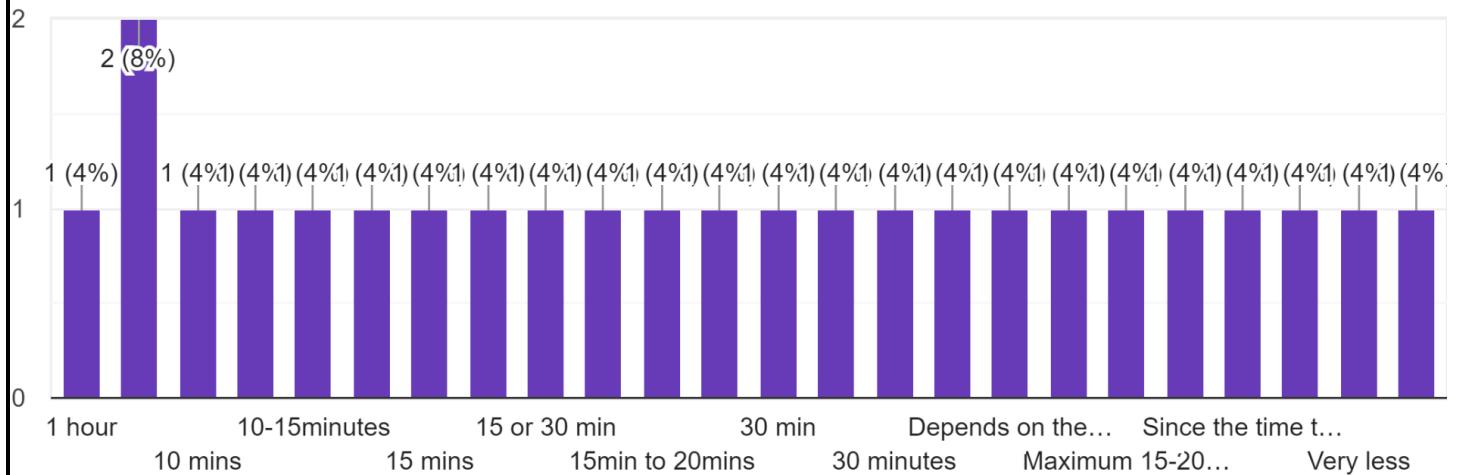
2. How often do you order food from the canteen?



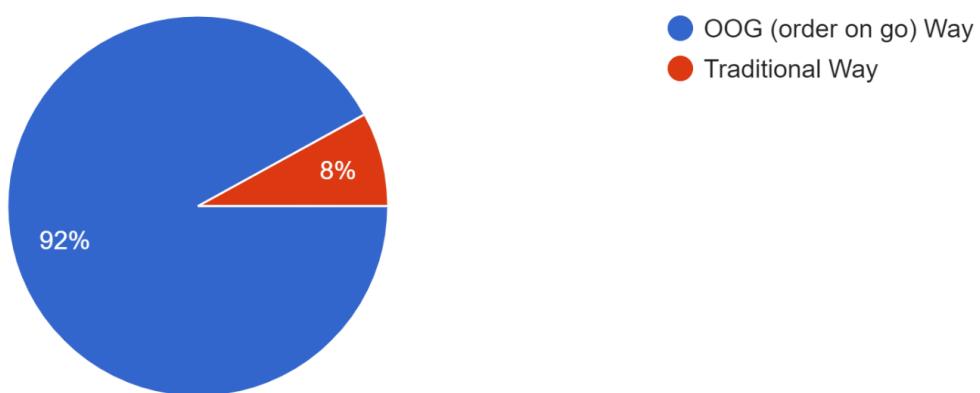
3. What do you prefer?



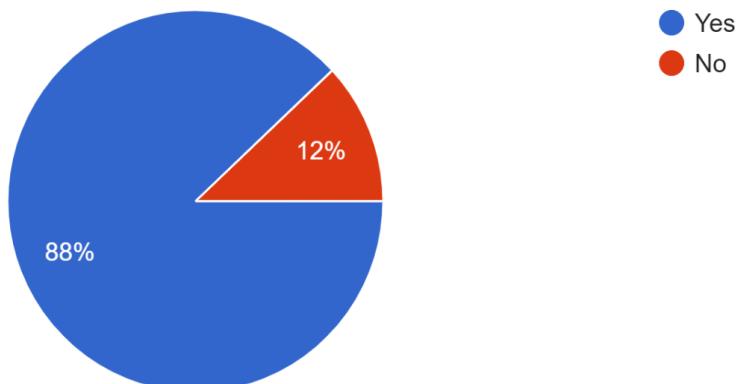
4. How long would you wait for food if it was ordered online?



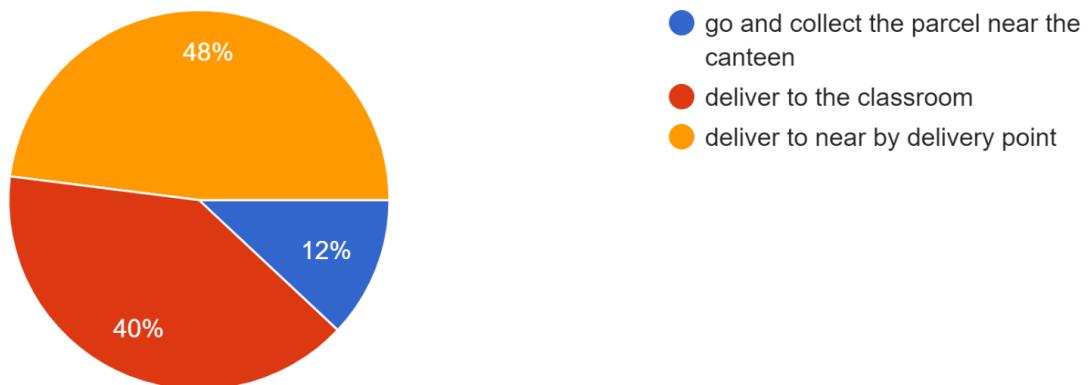
5. Which type of food ordering system do you prefer?



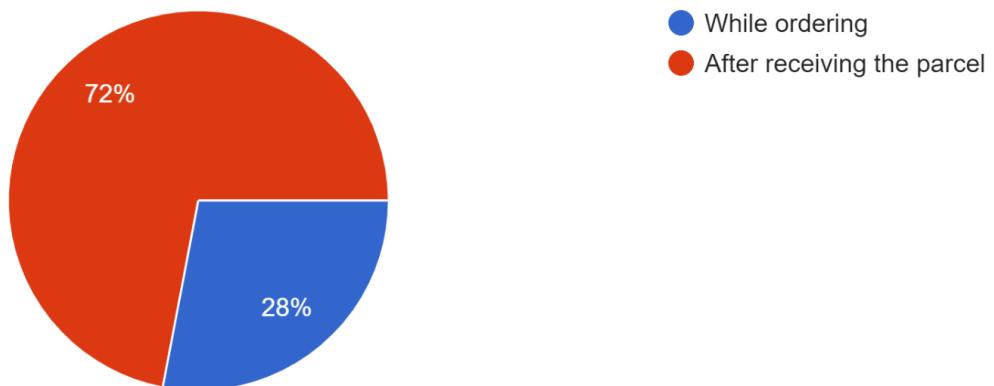
6. Do you prefer getting notified about food suggestions from us?



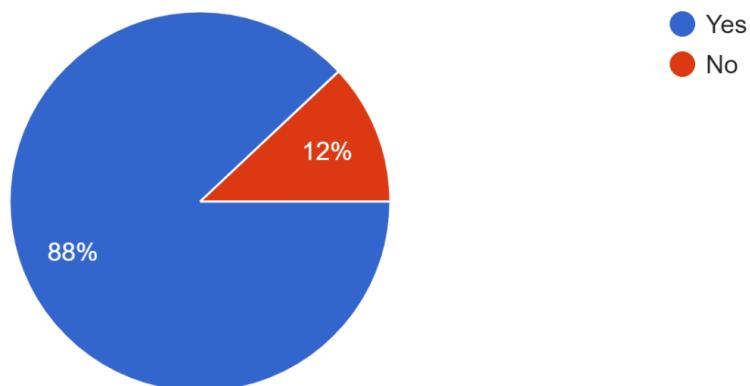
7. What mode of delivery do you prefer?



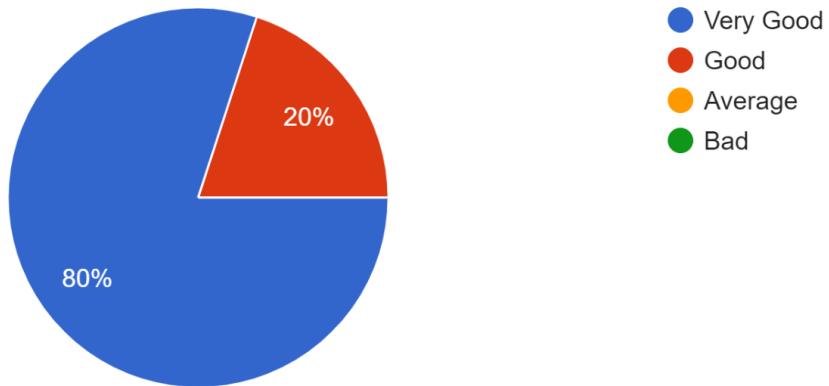
8. When would you like to pay for the food?



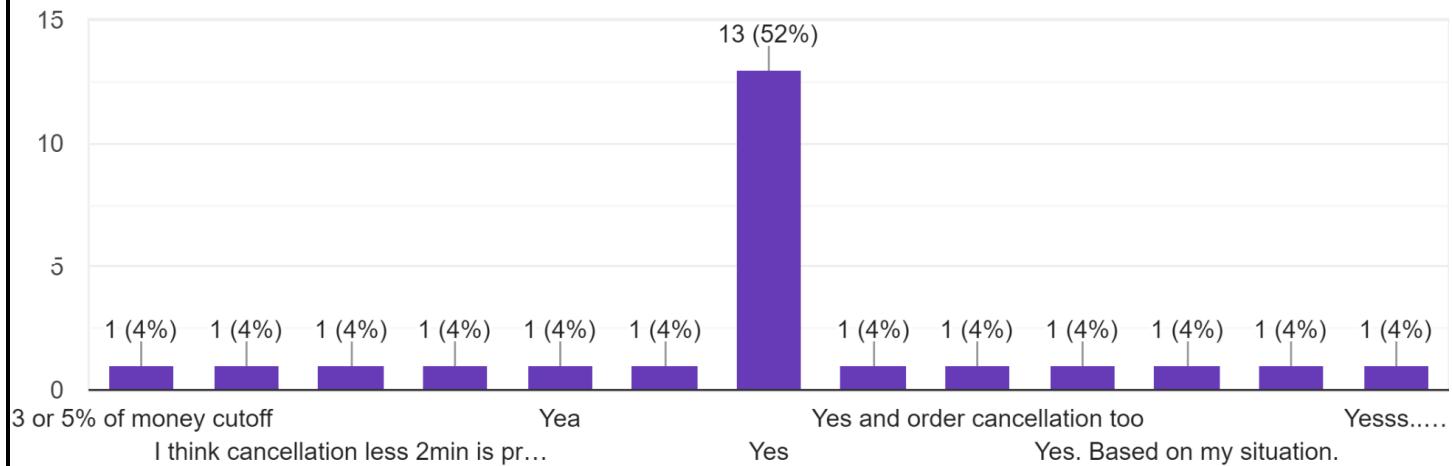
9. Do you want us to collaborate with outside restaurants (vegetarian)?



10. How would you rate our idea?



11. Would you like to include payment cancellation in the service?



12. What kind of service do you expect in this food ordering system?

- Quick delivery of food
- Easy ordering system, inclusion of new items to the menu
- Delivery to wherever we want
- Pre order foods to avoid long time waiting near canteen
- Convenient user interface

13. What are the difficulties you face in the traditional way of ordering food?

- Long waiting hours
- Billing system is so random there is no FCFS.
- Long waiting in queue, failed transactions
- Waiting for food and payments
- Queue and confusions and chaos

INSIGHT CAPTURE GRIDS

ARJUN
(HOSTELLER)

KRISHNA
(CAANTEEN OWNER)

Say

- Even the person who came before me also received his order but I am still waiting in the line
- We can't even go to the canteen in that short intervals.

Think

- Why can't they serve orders in a first come first serve manner?
- Why can't management provide longer breaks?

Say

- We should improve our services
- Many people are receiving food without making payment
- We should ensure them proper hygiene and cleanliness

Think

- Why can't we collect feedback from students to improve services?
- How should we serve food on the bill basis?

Do

- Tries to manage break hours.
- Avoid going to canteen in peak hours.

Feel

- Irritated to wait.
- Stressed to manage break hours.

Do

- Maintain separate bill for each item.
- Check hygiene carefully.
- Thinks of new ideas to improve services.

Feel

- Stressed about improving services
- Worried about hygiene
- Confused about payment system

SUMATHI
(WORKER)

SANTHOSH
(WORKER)

Say

- The working environment is tiring.
- It is difficult to manage so many bills at a time.
- Customers get frustrated with workers when food doesn't arrive on time.

Think

- Why can't the system of giving food get more organized?
- Why can't the counters be divided according to food type?

Say

- I don't get enough time for my studies.
- It is very tiring to study after so much work.
- I have to support my family by earning more.

Think

- Why am I forced to work instead of studying?
- Why is it difficult to manage both studies and work together?
- Why don't I get a day off to prepare for my exam?

Do

- Organise bills to handover food quickly.
- Get limited rest time.
- Get help from other workers to handover food.

Feel

- Frustrated because of the huge rush.
- Exhausted due to heavy workload.

Do

- Work for extra hours to support his family.
- Study at night after working in the canteen for the whole day.

Feel

- Worried about studies.
- Worried if he can continue working in this condition.

SELVAKUMAR (CANTEEN OWNER)

KARNA (DAY SCHOLAR)

Say

- Management tries to manage rush hours in the canteen.
- Hostellers get bored of the same monotonous food.

Think

- Why don't customers wait patiently for the food to arrive?
- Why don't students get longer breaks for eating?

Say

- Day scholar life is the best.
- I can go home whenever i want.

Think

- Why won't they give me a room in a hostel?
- I feel tired after roaming college the whole day

Do

- Deploy more workers for easy management.
- Bear extra costs due to heavy rush.

Feel

- Tensed because of increasing rush day by day.
- Sympathised for students who pay for the bill but are unable to get food under stipulated time.

Do

- Mostly bunks classes and takes frequent absences
- Before leaving for home, eat snacks in the canteen.

Feel

- Wishes he was a hosteler as well.
- Irritated by the long wait for a bus.

ANANYA (DAY SCHOLAR)

Say

- Home food is the best.
- Ah ,the same dish again.

Think

- Why do I have to eat the same food again?
- Why not try a new food?

Say

- My mom couldn't prepare lunch today
- I am going to eat in canteen today.

Think

- Which food item should I buy today?
- I need to reach class on time after eating lunch

Do

- Does not consume the food brought from home
- Instead of finishing the lunch box ,eats snacks in the canteen .

Feel

- Tired of eating the same food variety.
- Excited to eat canteen food.

Do

- Buys a common food which will come in short time and ordered by most.
- Wastes food if there is not enough time to finish it.

Feel

- Irritated if there is no place to sit and eat.
- Disinterested in standing in long lines to place orders.

NEHA
(DAY SCHOLAR)

GURUNATH
(CAFFEE OWNER)

Say

- When will I get my order!
- How long do I have to wait this time.

Think

- Why is this place always so crowded?
- The person who ordered after me received food before me.

Say

- I love hotel management.
- The campus is very good.
- Need a good place for a canteen.
- Workers really work hard to provide the best food and services.

Think

- Why can't we get more spacious place for canteen.
- Why can't we change the college break hours.
- I would rather start a canteen outside the college than run in this hectic schedule.

Do

- Cancels order if it takes longer than expected.
- Instead, buy biscuits or chips

Feel

- Anxious about reaching bus on time
- Frustrated about long waiting time.

Do

- Prefer starting a restaurant outside college
- Prefer to spend time with family
- Use mobile a lot for work purpose
- Rather work as a manager in a family restaurant.

Feel

- Frustrated of workers' irresponsible behaviours.
- stressed about building a proper canteen
- irritated due to work pressure
- tired of managing all the work

P ARVATHI
(HOSTELLER)

SANJAY
(HOSTELLER)

Say

- I like North Indian food very much.
- The workers are very friendly.
- Canteens are more distant from hostel.
- There is no place in canteens to sit and eat.

Think

- Why can't they do a packing of food?
- Why can't they improve their delivery services?
- Why don't they improve seating arrangements?

Say

- The canteens in college are very good.
- Many varieties of foods are available
- There is only one menu card for all types of food.

Think

- Why can't they change our break timings?
- Why can't they allocate extra time for food ordering?
- Can't they provide discounts in food prices.

Do

- Tries all varieties of food.
- Enjoys spending time with friends while eating.

Feel

- Irritated about the college timings.
- Frustrated to find place near canteen to sit and eat.
- Not satisfied by the services provided by the canteen.

Do

- Enjoys eating food in canteen.
- Likes to spend time with friends in the canteen.
- Loves to try food in outside canteens.

Feel

- Worried about the hygiene in canteen food.
- Frustrated about break times provided for ordering food.
- Not satisfied by the food prices in the canteen.

SATISH (WORKER)

RAMESH (WORKER)

Say

- The owner is very friendly.
- Canteen is providing very less salary.
- They are stressing us to work almost 14 hours.

Think

- Why can't owner increase our salaries
- Why don't they provide an extra amount for extra working hours?
- Why don't they keep shift-wise?
- Why can't we get more holidays?

Say

- There will be more rush in the canteen during breaks and lunch intervals.
- It is very difficult to manage such huge orders especially at peak time.
- Students are leaving canteen without ordering due to that rush.

Think

- Why can't they expand the canteen surroundings?
- Why don't they employ more workers at least at peak hours?
- Why don't they think about reducing that rush?

Do

- Prefers to work in outside canteen as they are providing more salary.
- Search for part-time jobs to get more money

Feel

- Frustrated about the extra work.
- Not satisfied by the salary provided.
- Worried about children education.

Do

- Learn to manage rush and bring orders quickly.
- Ask the owner about alternatives to reduce rush

Feel

- Irritated to manage the rush.
- Frustrated as they can't serve all the orders quickly.
- Irritated about the packed break schedules.

VAISHNAVI (HOSTELLER)

Say

- I don't generally eat lunch in hostel mess, so I eat in canteens.
- Workers in the canteen are very friendly.
- I Don't find a place to sit after receiving food.

Think

- Why is that place always crowded?
- Why don't they serve food quickly?
- How can we eat amid noisy surroundings?

Do

- Prefer the canteen that serves food quickly.
- Search for quite place near canteen to sit and eat peacefully.

Feel

- Frustrated to wait for long time.
- Irritated due to noisy surroundings.
- Worried to find a canteen that serves food quickly.

PERSONAS

Personas are fictional characters created based on the research to represent different demographics that would use the product or services. Creating personas help in understanding the experience, behaviour, goals and motives of various users which adds to the empathising phase.

The following personas were created by talking to users and segmenting by various demographic and psychographic data. This helped to uncover the different ways people order food in canteens. This helped to focus on improving the experience for real people and use cases. People were asked about themselves, their goals, interests, happy moments and pain points. Along with this, they were also asked about their concerns when they visit canteen.

The personas were drafted by taking into consideration of various demographics such as the

- The first strata of people include canteen owners who will be using the application at the back end.
- The second strata include day scholar students who go home by out-bus or college bus.
- The third set includes hostellers who stay in college hostels.
- The final set consists of the workers who are working in the canteens.



PERSONA

GURUNATH. M

About me

- AGE:39
- OCCUPATION: canteen owner



Bio

Hello! I am GURUNATH, I'm a canteen owner in the sastra university. Previously I have worked as a Manager in Family restaurant (famous in chennai), so after 4 years experience ,I started my own canteen.



Goals

- To start a Big restaurant
- Build a house
- send kids to international school
- Start so many branches across the country.



Motivations

- *To increase the number of food varieties in the canteen.
- *Should develop a alluring infrastructure.
- *bulid more branches across the campus.



Pain points and happy moments

Pain points

- Long working hours
- high salary for workers.
- Maintenance of all the works.
- Transaction problems
- Paying more rent for place

Happy moments

- Spending time with my family
- cooking
- I enjoy listening to music



Frustrations

- Workers not coming on time.
- Wastage of ingredients.
- Hectic college timings
- traveling
- Very less space for canteen



PERSONA

Riya

About me

- AGE: 19
- OCCUPATION: student,
SASTRA deemed university.



Bio

Hello! I'm riya, a dayscholar coming from kumbakonam daily through college bus. I'm pursuing B.tech CSE. I have worked really hard to get admission here. I'll work even harder to get placed in a good company



Goals

- secure CGPA above 8
- learn new technical skills
- to get placed in a well known company
- lead a healthy life



Pain points and happy moments

Pain points

- travelling daily to reach campus
- Having difficulty in studying after reaching home
- feeling exhausted from travelling
- waking up early
- feeling sleepy during class hours

Happy moments

- talking with friends in bus
- eating home food daily
- celebrating special occasions with family



Motivations

"to settle in abroad"
"pursue her passion"
"travel around different countries"
"eats healthy, balanced food to stay fit"



Opportunities, Needs, Wants

- wants to be a hosteler
- needs to study regularly to secure good marks
- wants to stay energetic all day



Bio

Hello! I am Manjusha. I am a hosteller student. I am from Andhra Pradesh. I am pursuing B.Tech CSBS. Hostel environment is encouraging. And the students are so friendly.



Goals

- To secure 70% or above CGPA
- To taste all varieties of food in the canteen
- To secure a job in well-known company
- To stay disciplined



Motivations

"Tasty food in Canteen"
"Friendly hostel environment"
"cheerful peers and teachers"

PERSONA

VAISHNAVI.M

About me

- AGE: 20
- OCCUPATION: Student (Hosteller)

Pain points and happy moments



Pain points

- Living away from parents
- Tasteless mess food
- Feeling sleepy during class hours
- Distant canteens
- No Canteen food delivery

Happy moments

- Hangout with friends
- Tasty mess food
- reasonable interval hours

opportunities, Needs, wants



- Wants to be successful programmer
- encouraging teachers
- supportive friends
- friendly environment



PERSONA

Gowri Lakshmi

About me

- AGE: 51
- OCCUPATION: Staff, New Krishna Canteen.



Bio

Hello! I am Gowri Lakshmi. I work in New Krishna Canteen. I have three children and my husband is a clerk. I have been working in the canteen for more than 7 years. The workplace is like my second home.



Pain points and happy moments

Pain points

- Customers are not happy with food service.
- Food takes a lot of time to be prepared

Happy moments

- Food counter gets cleared quickly.
- Rest in non rush hours.



Goals

- Earn enough money to support my family.
- Service food to customers as soon as possible.
- Provide customers with extra side dish when asked for



Motivations

Encouraging environment at home. Patient customers who are ready to wait till good arrives.



Opportunities, Needs,Wants

- Able to repay loans taken for children's education.
- Need a less hectic workload.
- Want to perform better at my work.

DEFINING

People's Issues with College Canteen

As the second step in the Design Thinking process, the define stage is dedicated to defining the problem. The defined stage is preceded by the empathise phase. Once perceived, a good idea of who the users are and, most importantly, their wants, needs, and pain points, has to be noted to turn this empathy into an actionable problem statement.

The defined stage ensures to fully understand the goal of the design project. It helps to articulate the design problem and provides a fine objective to work towards. This gives a meaningful and actionable problem statement, which the design thinker will focus on solving. Defining the problem brings about clarity and focus to the design space.

In this phase, the customers were empathised and noted briefly what the problems or issues were faced by the customer due to their experience with Canteens. The Problems are stated below and will be a guiding tool to come up with the fine solutions to resolve the same.

The Problems faced by the target customers in regards to the experience with the canteen:

From the survey being conducted the major problems which individuals face are:

- Getting confused as where to order**

Synopsis: The majority of the people in the university stated that due to varied dishes and rush in the break hours in all the canteens, it is very difficult to choose which one to pick and which canteen serves quickly.

- **Prolonged wait time**

Synopsis: Almost all the people do not prefer to wait in long lines and hold up until the food arrives amid the huge rush. According to the survey, the students find this as the major issue while they go to the canteen, this, in turn, demotivates them and makes them lose appetite and interest.

- **Affirmation of hygiene and cleanliness**

Synopsis: Most of the students are concerned about the cleanliness and level of hygiene maintained in the canteen.

- **Can't find proper place/table to sit**

Synopsis: Most of the students complained that there is no proper arrangement inside the canteen to sit and eat. Especially in peak times like lunch and intervals, students and staff have to go around with their food to find a place.

- **Noisy surroundings**

Synopsis: Owing to the noisy environment, most of the students stated that it distracts them and creates a disturbance that doesn't please them.

- **Improper billing system**

Synopsis: There is no separate billing queue for students and professors. So professors avoid going to the canteen because of this system, since they are required to wait longer compared to students.

- **Mode of delivery**

Synopsis: Workers feel stressed especially in peak hours as they cannot deliver all the orders they get at minimal time. So they feel it is difficult to manage the traditional way of delivery when there are so many orders at a time.

- **Messy food receiving system**

Synopsis: Many people feel intimidated during the order time while the server is waiting which creates an awkwardness, an existence of anxiety to order soon and not make them wait for too long.

- **No proper provision for feedback**

Synopsis: People in the survey claim that the canteens do not specifically have a provision to drop their valuable feedback.

- **Complex payment system**

Synopsis: Canteen owners acclaimed that most of the people came and received orders without making payment. Also, most of them left as there is no proper internet while making online payments.

- **Inappropriate serving**

Synopsis: The people feel irritated when they again have to stand in line for supplementary like chutney, sauce even after receiving their food.

- **No information about updated menu**

Synopsis: Many customers feel they need to be updated when there are extra varieties added in the menu according to their taste preferences.

- **Long distance between classes and canteen**

Synopsis: Many of the people's major concern turns out to be the walking time indulged while going to the canteen. Students feel most of their energy is spent on walking and they fee; tired of ordering.

- **Only one menu card**

Synopsis: Students feel it is confusing and hard to search for the food as there is only one menu card. They have to go through all the menu to choose the proper food which is suitable for their taste preferences.

- **Monotonous process for additional food requirements**

Synopsis: They have to go through all the process again if they want to order any additional foods like desserts.

- **Short interval time**

Synopsis: Students and professors felt that the interval time provided is challenging to go to the canteen, order food and get back to class on time.

IDEATING

Resolving the Customers' Issues

In this phase, designers challenge assumptions and come up with ideas to resolve problems defined in the previous stage i.e., defining stage. It is a creative process where designers generate creative solutions for defined problems. The ideation phase is about thinking from several perspectives to find new angles for generating solutions. It's challenging to gain perspectives to find design solutions. Ideation can be done in groups, where the team gathers and brainstorms with innovative ideas, or ideation can also be done solo. It's important to encourage creativity and come up with a bunch of innovative ideas.

For this project, the team gathered to have brainstorming sessions for resolving the problems defined in the defining stage, in creative ways. Below are the ideas generated for the various problems defined in the previous stage.

• GETTING CONFUSED AS WHERE TO ORDER

1. How might we assist people who are confused?
2. How might we suggest foods based on the customer preferences?
3. How might we choose which canteen is best for the customer?
4. How might we make people believe that this solution is best?
5. How might we know which solution is suitable for the customer?
6. How might we keep track of canteens which are free at a particular time?

• PROLONGED WAIT TIME

1. How might we reduce long waiting times?
2. How might we entertain people who are waiting in the queue?
3. How might we utilise the available time efficiently so that customers don't have to wait longer?
4. How might we handle the people who don't want to wait a long time?

5. How might we keep people who want to leave because they don't want to wait?
6. How might we know how long a customer has been waiting?
7. How might we prioritise the customer based on their waiting time?

- **AFFIRMATION OF HYGIENE AND CLEANLINESS**

1. How might we provide hygienic food?
2. How might we ensure proper hygiene is maintained in the whole process of making food?
3. How might we keep the places clean which are frequently used?
4. How might we test the level of hygiene in all these places?
5. How might we make people believe that hygiene is maintained properly?
6. How might we verify that proper cleaning measures are taken?

- **CAN'T FIND PROPER PLACE/TABLE TO SIT**

1. How might we allocate more space for sitting and eating rather than standing and eating?
2. How might we arrange separate seating for students and teachers?
3. How might we change the infrastructure of the canteen in such a way that people feel comfortable while eating?
4. How might we increase the number of tables and chairs in the canteen so that students can eat in peace?
5. How might we occupy entire surroundings for our canteen and arrange seating everywhere so everybody finds a place to sit and eat?
6. How might we adjust seats for students and teachers at the peak time like lunch?

- **NOISY SURROUNDINGS**

1. How might we decrease the surrounding noise, so that students won't be distracted?
2. How might we create a peaceful environment, so students can eat in peace without distraction?
3. How might we keep the environment clean and hygienic?

4. How might we arrange a separate place for eating so that the students don't feel irritated by noise?
5. How might we introduce a new rule of not making noise and display it on screens, so the environment would be peaceful?
6. How might we play soft music so students feel calm and stay cool without being distracted by the surroundings?

● **IMPROPER BILLING SYSTEM**

1. How might we introduce a separate payment system for students and teachers?
2. How might we increase more payment counters so that there won't be more rush near the payment counter?
3. How might we provide good Wi-Fi so that there won't be any network issues while paying the bill?
4. How might we keep separate counters for liquid cash and digital payment so there won't be any confusion for employees near the billing counter?
5. How might we give first priority to teachers so that they need not to wait longer?
6. How might we increase employee count in the payment receiving counter so that waiting time decreases for both students and teachers?

● **MODE OF DELIVERY**

1. How might we change the mode of delivery so that waiting time decreases for students to receive their orders?
2. How might we increase the break hours so that there won't be more rush for students to collect food and reach class on time?
3. How might we increase the number of workers for delivery purposes, so that workers' stress decreases?
4. How might we make separate food receiving points for different kinds of food (eg: North Indian, South Indian) So that food will be delivered on time?
5. How might we introduce pre-payment so that the delivery boy/girl won't wait for payment and go for another order delivery without delay?

6. How might we limit food dishes availability at a particular time (eg: only rice items in the afternoon) so that it will be easy to prepare food and deliver food on time?

- **MESSY FOOD RECEIVAL**

1. How might we avoid messiness in food receival?
2. How might we serve food quickly so that customers won't feel awkward to wait?
3. How might we quickly deliver food without much waiting time?
4. How might we satisfy all customers by making serving faster?
5. How might we improve our services such that customers don't feel bored while waiting?
6. How might we increase customer satisfaction amid waiting time?

- **NO PROPER PROVISION FOR FEEDBACK**

1. How might we collect customer's opinions on our services?
2. How might we collect feedback from customers?
3. How might we arrange feedback system so that everyone will give their feedback/
4. How might we improve to match customer's feedback?
5. How might we encourage customers to give feedback?
6. How might we use their valuable feedback to improve our services?
7. How might we collect feedback from all the types of customers?

- **COMPLEX PAYMENT SYSTEM**

1. How might we make our payment easier?
2. How might we change the current payment system to make payments feasible for customers while paying?
3. How might we ensure that all the customers who receive orders made the payment?
4. How might we arrange the payment system so that it will be easier for our customers?
5. How might we provide Wi-Fi services to avoid network problems during payment?
6. How might we improve the payment system so that it makes billing easier?

- **INAPPROPRIATE DELIVERY**

1. How might we make our delivery system easier?
2. How might we make a poll for which point to deliver the food?
3. How might we increase the number of employees delivering food?
4. How might we allocate a certain number of employees for one particular block so waiting time will decrease?
5. How might we add the name of the dish on the order cover so no confusion of food getting replaced?
6. How might we deliver certain types of food at some particular time?

- **NO INFO ABOUT UPDATED MENU**

1. How might we update the menu daily so that there is no confusion on the updated menu?
2. How might we send notifications on the updated menu?
3. How might we introduce a feature of refreshing the page and getting an updated menu?
4. How might we get information about food which is available and which is not?
5. How might we have a separate button of the updated menu just click on that and get the update?
6. How might we send a notification to people if we add a special dish?

- **LONG DISTANCE BETWEEN CLASSES AND CANTEEN**

1. How might we place delivery points nearer to the canteen so that employees feel less stress?
2. How might we ask students to wait near certain points before the delivery boy comes?
3. How might we deliver food near one point for one particular block?
4. How might we place employees for 1 block so they can manage the distance by giving slots among themselves?
5. How might we provide separate employees for collecting orders and giving the order to students?
6. How might we help employees so that there won't be any walking and wasting energy?

- **ONLY ONE MENU CARD**

1. How might we provide ways for all the customers to view the menu?
2. How might we make it less hectic for people to use the menu?
3. How might we categorise food to make the menu easy to use?
4. How might we make it simpler to order food from the menu?
5. How might we include everyday specials in the menu?
6. How might we display the menu in a place where everyone can access it?

- **MONOTONOUS PROCESS FOR ADDITIONAL FOOD REQUIREMENTS**

1. How might we provide additional food to customers quickly?
2. How might we create a way to add food in a single bill?
3. How might we make the waiting time of customers as little as possible?
4. How might we give customers access to order food again?
5. How might we attach the new bill with the previous one?
6. How might we avoid wastage due to reordering food?

- **SHORT INTERVAL TIME**

1. How might we give orders as quickly as possible?
2. How might we allocate staff to clear orders quickly?
3. How might we make the billing process faster?
4. How might we make food available beforehand?
5. How might we avoid excess crowds in the canteen?
6. How might we estimate frequently ordered food for preparing them in advance?

IMPORTANT PROBLEMS GATHERED

Some important HMW questions gathered from previous phase

- How might we suggest foods based on the customer preferences?
- How might we change the mode of delivery so that waiting time decreases for students to receive their orders?
- How might we send a notification to people if we add a special dish ?
- How might we categorise food to make the menu easy to use?
- How might we create a way to add food in a single bill?

The majority of the people in the university stated that due to varied dishes and rush in the break hours in all the canteens, it is very difficult to choose which one to pick and which canteen serves quickly. So, we will provide a separate interface for each canteen's menu to avoid confusion.

Almost all the people do not prefer to wait in long lines and hold up until the food arrives amid the huge rush. So, we include delivery to the class or nearby delivery point feature so that they can collect whenever they are free.

Especially in peak times like lunch and intervals, students and staff have to go around with their food to find a place. With our application, customers can collect their order and eat wherever they want

There is no separate billing queue for students and professors. So, professors avoid going to the canteen because of this system, since they are required to wait longer compared to students. Our application reduces the stress of standing in a billing queue by providing a pre-ordering feature.

Workers feel stressed especially in peak hours as they cannot deliver all the orders they get at minimal time. So, they feel it is difficult to manage the traditional way of delivery when there are so many orders at a time. In our application, delivery boys will take care of food delivery to the delivery points preferred by the customer.

Many customers feel they need to be updated when there are extra varieties added in the menu according to their taste preferences. Our application notifies users whenever the menu is updated and suggests food varieties based on their food preferences.

Most of the people's major concern turns out to be the walking time indulged while going to the canteen. Students feel most of their energy is spent on walking and they feel tired of ordering. Delivery to the classroom or nearby delivery point feature reduces the effort to go to the canteen from classes/hostel.

Students feel it is confusing and hard to search for the food as there is only one menu card. They have to go through all the menu to choose the proper food which is suitable for their taste preferences. We will provide a separate menu card for each canteen and each food category.

PROTOTYPING:

Modelling the developed ideas

Prototyping is a simple experimental model of the proposed solution to test and validate the ideas. Prototyping is an essential phase of design thinking as users are directly involved in using the product/service offered. This helps the design team gain more insights and further refine the design/model according to the users' feedback. In this phase, a static design/model of the solution is proposed, and users are exposed to these prototypes. Users' experiences are captured, and further refinements are made based on the users' feedback to adapt a relatively better product/service.

Prototype for the delivery point

Since the orders will be delivered to the customer to their respective building or to the other place which they selected during ordering. The delivery boy will keep the orders for which the payment is done on a delivery box that is installed at the entrance of each building. Customers can collect it from there. For the people who selected cash on delivery as a mode of payment, they need to wait before the building to pay through cash to the delivery partner assigned to them. The picture of this idea is provided below.



PROTOTYPE OF THE APPLICATION

As discussed in the above empathising phase - a digital communication is better, easier, more efficient than a generic face to face ordering system. From some of the problem statements collected from persona, major problems are identified and the application is designed to overcome these issues.

Once an order is placed through an application, the cashier in the canteen will be notified about the order and other details of the customer like delivery point. After that a regular process will take place and the canteen itself will have delivery boys to deliver the order to the respective customer. At the delivery point the delivery boy will wait to get cash, if the order is placed through cash on delivery.

Through this app, orders can be placed on all canteens that are mentioned in the application. Different food varieties available in each canteen is also displayed. The menu will be updated daily including the new item introduced on that particular day. So, the customers can be aware of new items available. One item can be ordered at one time on this basic prototype, which will be changed in subsequent update to avail multiple order placing at one time. Details like building, delivery point are collected for delivery purposes. Two modes of payment if provided to the customer. and as far as customers who are struggling with the internet for online payment can pay in cash to the delivery partner. Option for cancelling the order is also provided.

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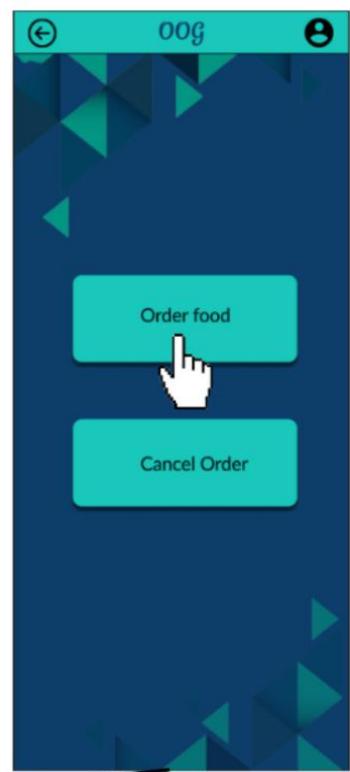
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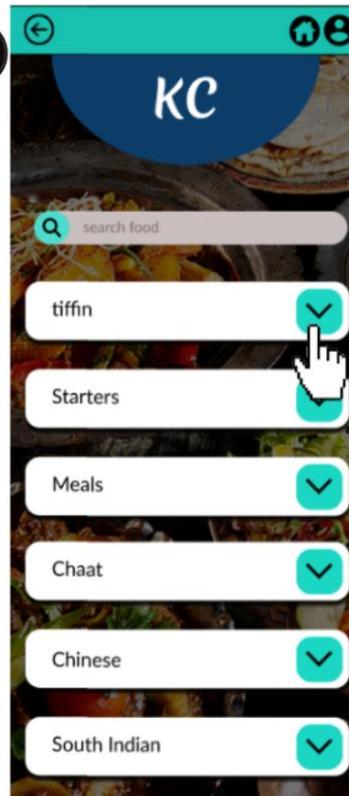
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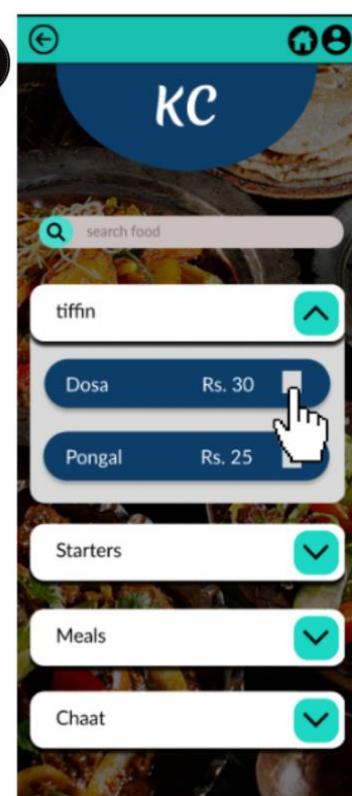
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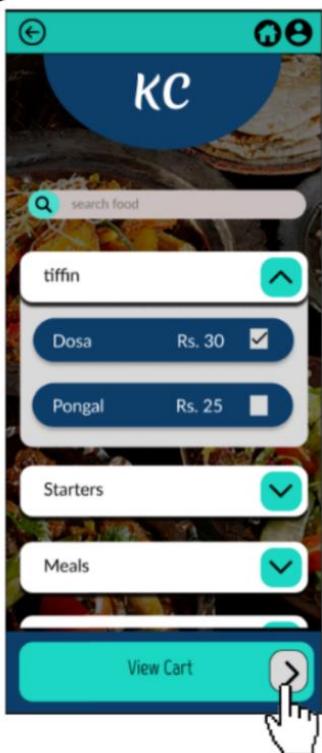
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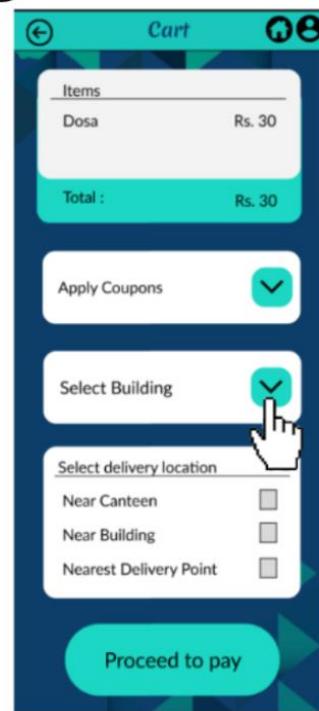
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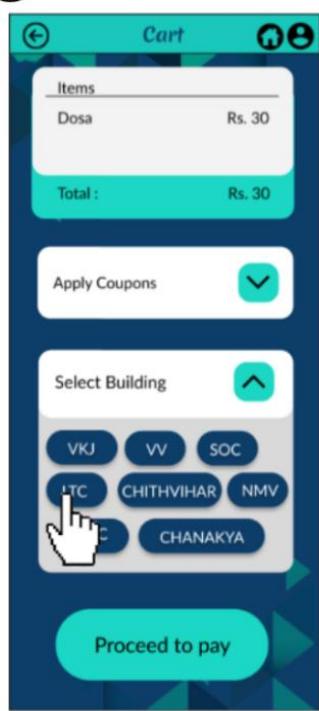
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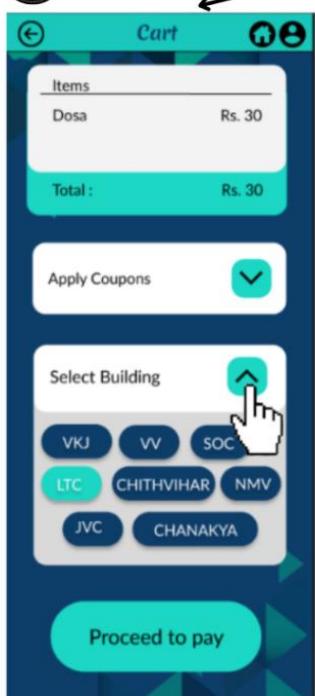
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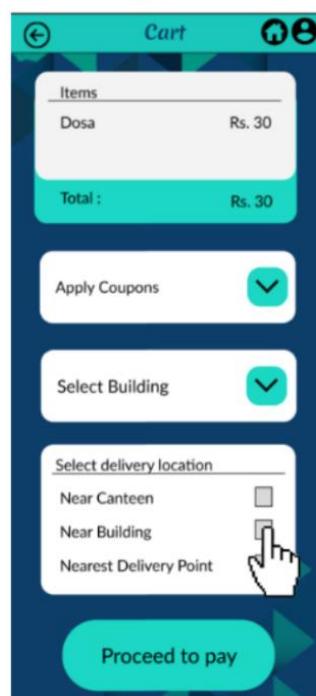
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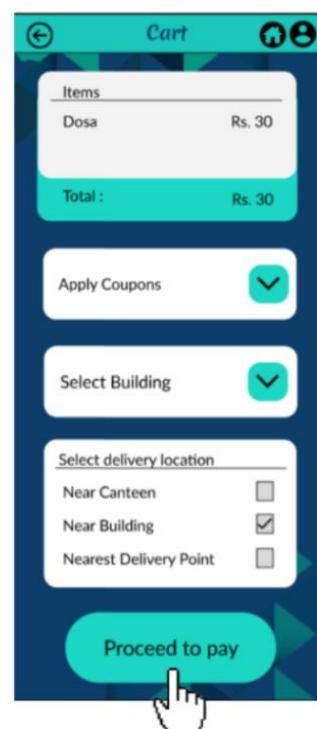
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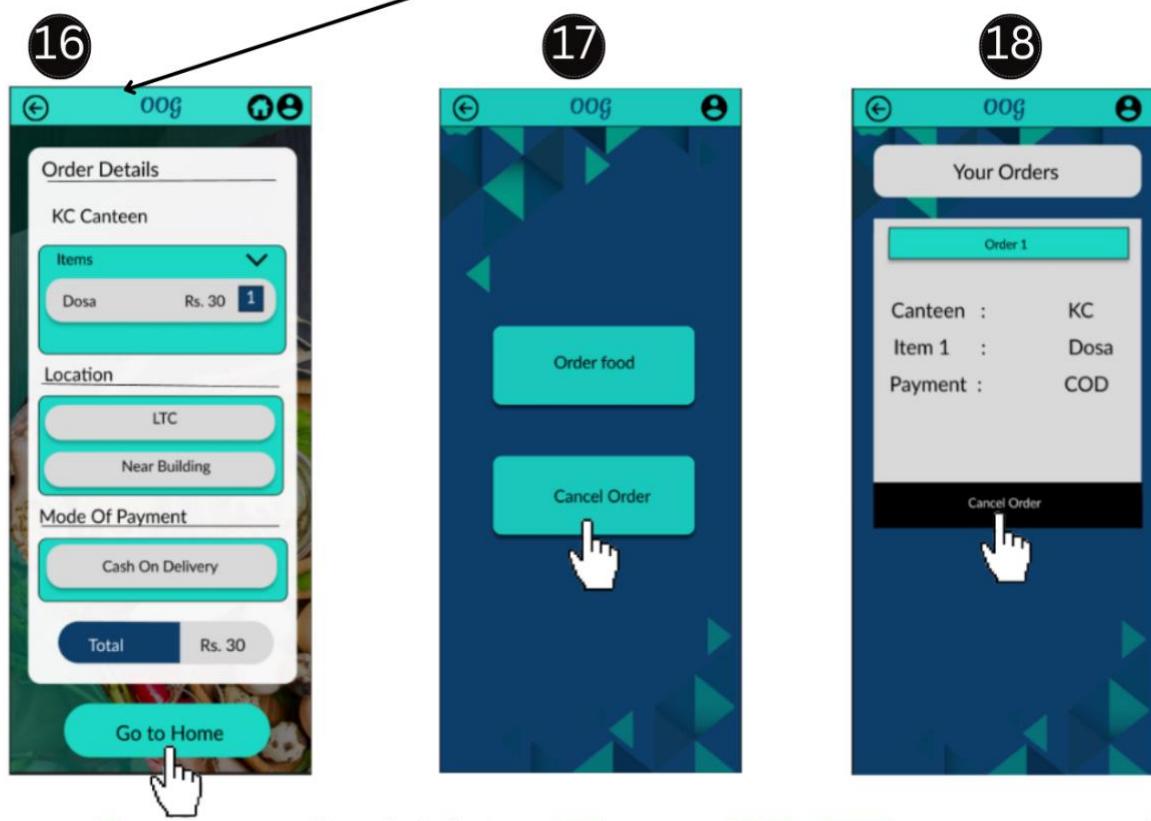
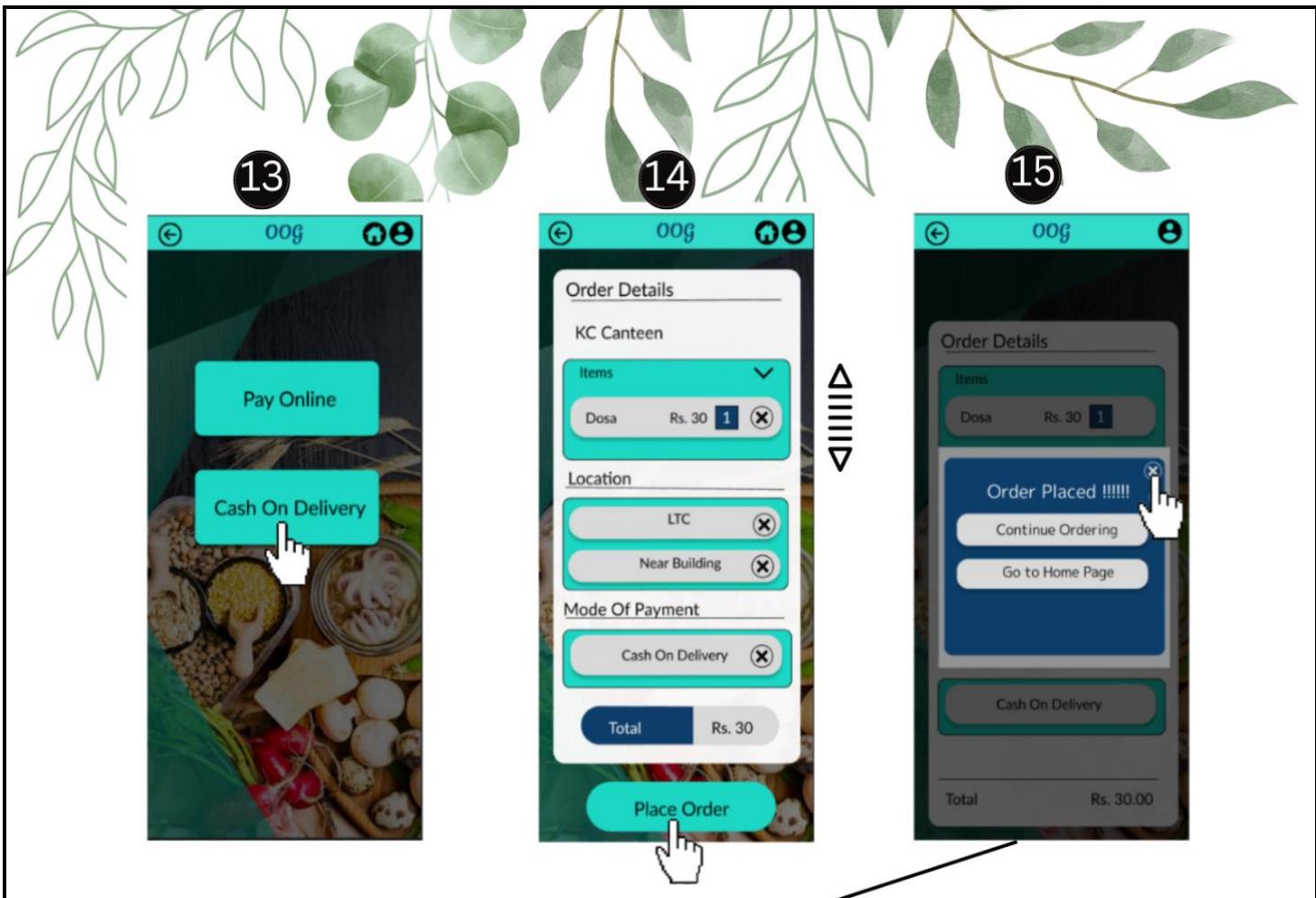


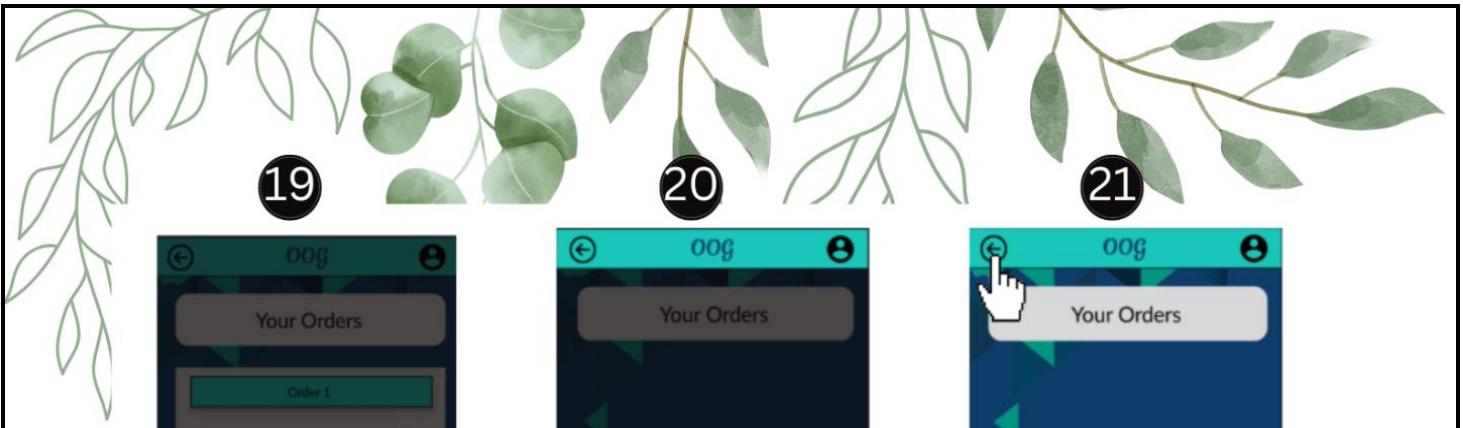
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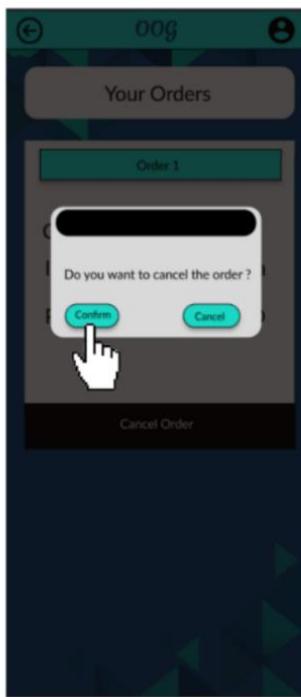
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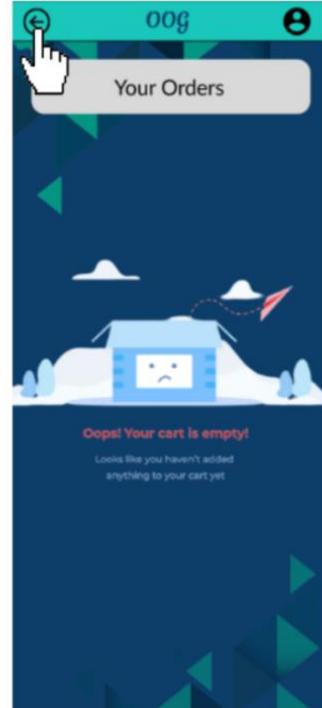
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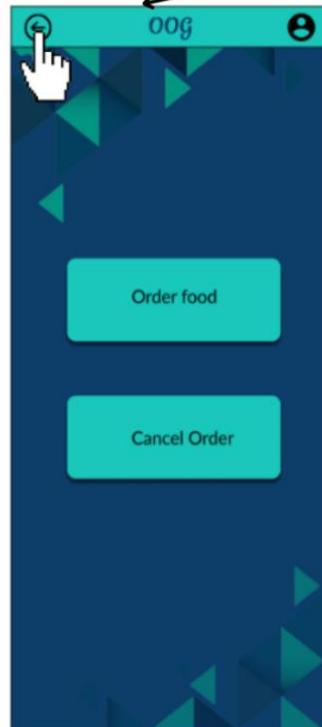
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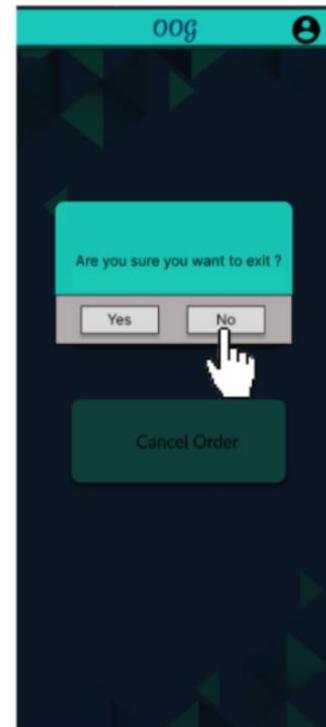
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TESTING

Evaluating the generated ideas

Testing involves getting feedback from the users related to the ideas/prototypes developed by the design team. Testing is an essential stage of design thinking and can be applied after any stage. It helps us in gaining a deeper understanding of the advantages, disadvantages, and various consequences of the ideas generated. Negative feedback is an essential part of testing as it paves way for learning and further refining the ideas developed and help in moving towards a better product/service.

Though there are several ways of testing, the method of *feedback capture grid* was adopted. To further elaborate, a feedback capture grid is developed to get an insight into users' likes, criticisms, questions, and ideas pertaining to the ideas developed by the design team. *Likes* help us in knowing the ideas that are appreciated from the users' perspective. *Criticisms* are the building blocks for refining the existing ideas. It is required to consider all the criticisms to move towards a better solution. *Questions* further help in discovering the loopholes in the existing solutions. *Ideas* from the users again help the design thinking to reconsider some of the ideas and view them from a different perspective.

Testing was done by collecting a few people's feedback. All the ideas that were generated were clearly explained to them. It was made sure they understood everything precisely, so that honest feedback could be received. Each and every word was considered to be important and valuable. Keen observation was carried throughout the process. It was done with an open mindset which resulted in procuring optimal results.

Testing phase is the most important phase. It reflects how the user feels while using the application. Being a prototype, it makes it easier to make any changes suggested by the users. Some of the feedbacks are:

USER 1:

I am impressed by the idea of delivering food directly near the delivery points so students/teachers' time will be saved from going all through the rush and waiting for

food, searching a place to eat in the provided short break time only so it will be very helpful for saving their time. The website is really dynamic enough to be used from different devices.

USER 2:

The application is very easy to use and simple. It displays all canteen which are available in the canteen, and it contains all the cuisine offered in that canteen. placing order, cancelling order is also not complicated and easily understandable. The UI is also user friendly.

USER 3:

I am elated with ORDER ON GO as it helps to get rid of the failed payment transactions, I am amazed by the feature of cancellation of food option, even Though cancelling order is a drawback for the canteen.it might cause wastage of food, but I hope they canteen do find some way to manage these cancelled orders.

USER 4:

The user interface of the website was good. All the options are placed at the usual places which is a plus point. The text is visible even without zooming. This helps teachers and students to interact very easily. I cannot wait to see how successful this service is and want to experience the new future of ordering food online and making payment online. I also feel that the mobile application consumes very less space which is a major plus point in one's app development.

USER 5:

I like how each and all kinds/varieties of food are placed in order and we can click on one type of food variety and we get all the dishes available in that type of food. All these dishes are very awesome. I can't wait to try them. So, it is a good thing that people can order online. Overall, I am satisfied with the application and looking forward to order more foods daily.

TESTING: The prototype of application

The prototypes created for the tablets were tested. The users were allowed to freely use the wireframes created and a *feedback capture grid* was drafted based on the users' feedback.

FEEDBACK CAPTURE GRID

Likes



The idea of delivering food near delivery points is a very delightful idea and people will not hesitate in ordering the items they like, because no waiting time.

All ideas regarding dealing with the waiting times and food ordering are great and seem to be practically possible to implement.

I like the idea of sending notification suggestions of food they are interested in makes them order more

I liked the idea of providing breaks for ordering food because student cant order food during lecture hours but now they can order in peace.



criticism

The solutions when implemented should consider the category factor. All the timings provided are not flexible for everyone. The breaks provided should be flexible for workers too ,because they have to cook every order and deliver on time without any delay.

Delivery points should be allocated based on interests of students ,conduct a poll and make delivery point on majority request.

Providing more employees for delivery purpose increases burden on owner because owner needs to pay money more to them.

Food ordering might not work well as people might always choose to order the same dishes of their choice and would not show their interest in trying new or special dishes available .

The idea of payment after delivery may cause owner trouble because what will they do with the prepared food.



Questions

What if the food which the customer is searching for is not available in one canteen and available in another. are they supposed to go and check each canteen?

what about the delivery partners? will they be hired by the canteen themselves?

Do you provide all types of payment modes(cash on order delivery/online payment)?

what if i want to gpay the amount to the delivery partner ?

how long the delivery partner will wait , for a customer outside the building? won't it affect the delivery of other items ?

Do people get to choose more items after they order one food item? can I order from multiple canteen at the sametime?



Ideas

new way of delivery system can be introduced where if a student want to deliver the food to a place which is on their way , we can give them some special points which can later be used to get discounts

once the customer selected item , they can go back to the menu to add additional item through <- key at the top left corner

a special add , minus key can be provided along with the amount selected .To help people directly add item without going back to the menu



FEEDBACK CAPTURE GRID

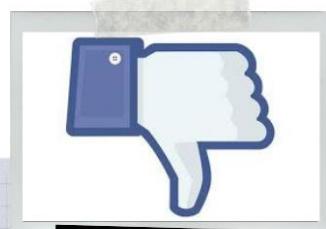
<p>What's working?</p> <p>1.Idea of delivering food near delivery points. 2.Idea of online payment . 3.Features of the app.</p>	<p>What could be working?</p> <p>1.Delayed servers. 2.More specifications in the app. 3. Selecting more items at a time.</p>
<p>Questions?</p> <p>1.About payment cancellation 2.About returning of food order after receiving. 3.About handling of app.</p>	<p>New ideas</p> <p>1.Surprising people with extra food. 2.Promotion for installing app 3.Giving coupons for regular customers.</p>

I LIKE, I WISH, WHAT IF

*I Like
I Wish
What If*



I like



I wish



What If

- The new initiative
- improved canteen traditional system.
- delivering orders nearer
- online payment and cancellation

- Quick delivery
- Long break hours for ordering food
- More coupons provided by canteen
- Complimentary food for regular ordering people.

- Payment fails
- Account details get leaked
- Received orders are replaced by another food order
- Not getting money back after cancellation of payment

TESTING PARAMETERS

- **Is the application reliable?**

Yes, the application works properly but some lagging is found on peak time when everyone is using it.

- **Does it render the same way in different mobile phones and different screen resolutions?**

Yes, it's the same. The application works properly.

- **Are the items under each cuisine easy to find?**

Yes, the search bar is so useful since there is food under many cuisines.

- **Are Emails/Messages generated as soon as the order is placed?**

As soon as the order is placed, confirmation mail is generated to the linked mail id.

- **Are you able to track the order before delivery?**

Yes, Order tracking is available, but due to delayed servers there are disturbances at times.

- **What are the other features you wish to see on our application?**

A special FYP page which suggests food based on my taste preferences and previous order history.

- **Do you find any bugs in our application?**

The website is safe and secured with no bugs.

- **How user friendly is our UI?**

Had a good experience visiting your application. Making it clear where they need to click, tap or swipe is like plotting a smooth journey from menu to the payment and cancellation. The transition time is minimal.

- **Does the menu get updated in your profile after adding the new dishes?**

Yes, the menu will be updated as soon as possible.

- **Is the Payment cancellation feature useful?**

Yes, it is very useful on cancelling orders and the money is credited back within 5 minutes of cancellation.

- **Is it easy to add additional food during placement of order?**

Yes, the newly introduced add item feature is more useful. since we can add it on the place order page itself and there is no need to visit the menu again.

REFINING

Once we completely analysed the feedback of each and every person, we made changes to our version 1 of our website and to idea, After the process of testing, the areas were identified where a bit of ideation could be inculcated. The feedback forms were collected to know the views and opinions of the customers and subsequently the refining and reiterating process is carried out.

The changes we have made:

- Added more servers to reduce traffic to our websites.
- Tried different web development technologies to load the website even faster.
- Made the mobile application even lighter so that it consumes a lot less space than before.
- Added a lot more pickup points so that collectors do not have to travel a long distance.
- We decided to give the collectors a bit more coupons so that the enthusiasm to order more food won't go down.
- We have deployed meme creators to handle our social media to stay on the current trend and constantly remind people of our service.
- We have made sure to have used new technologies like recommendation/suggestion systems in our website so that people are more engaged and feel like they spend a lot less time on our website because everything they are looking for will be available in suggestions, so less time for ordering food.

REFINING: The designs

The criticisms, questions and ideas from the testing phase of prototypes for mobile phones were reviewed and addressed to make certain changes in the designs.

Criticism: *there need to be a cancel order in the return home dialogue box*

The above criticism is about placing a cancel order button at the dialogue box which is displayed after placing the order. Since sometimes people want to cancel the order which they just ordered due to personal reasons. So, placing the button helps in immediate cancellation which is useful for both customers and canteen owners.

Question: *is there a way to order item directly from place order page*

Placing a +, - button in the template of the item in the ordered item list will be the solution for it. so that the customer doesn't have to go back to the menu to select the same item. They can just enter from there.

Criticism: *need a new way to add another item to the cart*

Once an order is placed the view cart box will pop. if it is selected it will redirect to cart. <- icon is placed at the top left corner, through which they can get back to the menu page and add item.

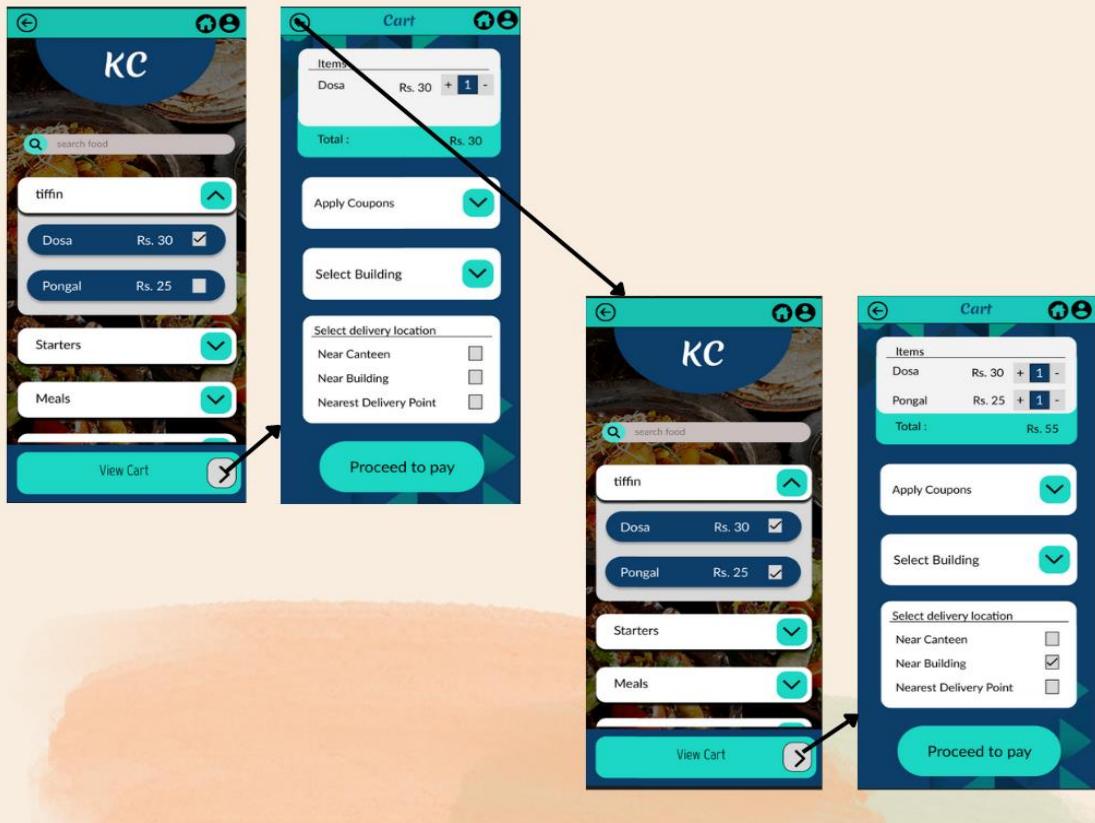
REFINING DESIGNS

OOOG

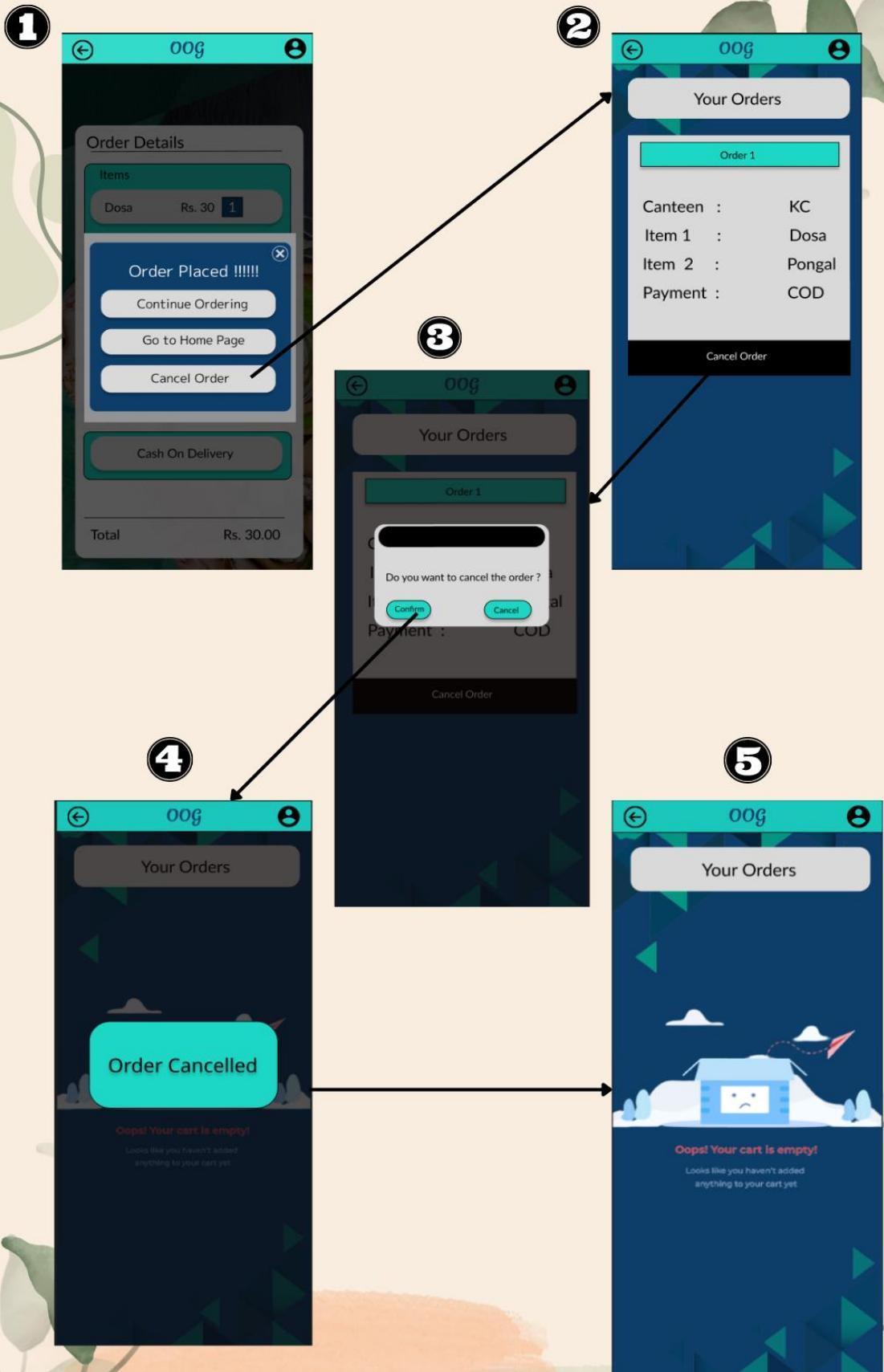
1. ADD ITEM OPTION



2. ORDER ADDITIONAL ITEM



3. CANCELING ORDER OPTION



CONCLUSION

The project as a whole describes our design thinking approach to improvise canteens. The problem statement was chosen on the basis that it was relatable and many had also experienced the same. The five phases of design thinking which includes empathising, defining, ideating, prototyping and testing were done.

The first phase, empathising the customers, is important and it was a guide to understand the target audience's needs and wants. Conducting a survey through a Google form and understanding the issues faced by the customers in the canteens and their ideas was collected and thoroughly empathised.

The second phase, defining phase, gave a full understanding of the goal of the project. At the end of this phase, a list of problems faced at canteens was found with the assistance of the information collected in the empathising phase.

Ideating phase emphasised on bringing out the creativity and aided in coming up with practical solutions for the problems stated earlier. A thorough understanding followed by brainstorming was done.

Testing was done after ideating to see the feasibility of the generated ideas. It helped in analysing the ideas that impressed people, criticisms they had, questions about the ideas that made them wonder and more suggestions they could give. This was done in two phases; one was done before prototyping to analyse the views of the customers and the changes were projected in the prototyping phase. The second testing phase was done for the prototyping, and criticism, questions and ideas were taken into consideration in the process of refining.

Prototyping made the ideas into actual solutions. It provided a concrete version of the developed ideas. Finally, the criticisms and questions were thoroughly analysed and reiterated with much improvised ideas in the refining phase. The output of the project is to create an enjoyable, hassle-free and friendly experience for ordering food online and nearer delivery.

The project also helps in understanding that design thinking is a systematic and effective way of solving problems. Moreover, this project helps in understanding that design thinking can be applied anywhere, even to start businesses in any field in a more effective and customer centric way, as seen throughout this document.

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