

Hostel Mess Experience Design at IIT Bombay

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Declaration

I declare that this written document represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.



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Approval Sheet

The project titled 'Hostel Mess Experience Design at IIT Bombay' by Piyush Churad, is approved for partial fulfilment of the requirement for the degree of 'Master of Design' in Interaction Design.

For Pramod Khambhate
Guide

Chairperson 

Internal Examiner 

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Piyush Churad

Abstract

The IIT Bombay Hostels cater to nearly 8,000 students. Food is the fuel that these students need to stay focused and learn in the classroom. Students have to maintain good physical as well as mental health with daily exams, quizzes, and projects. Considering the individual taste and interest in food, in almost every institute students have complaints regarding food.

The newly built hostels provide common mess facility to large number of students where service providers are failing to provide satisfactory food service to the students most of the times. A lack of communication between the student's body and the Mess catering staff was observed in most of the hostel messes. The problems are escalated catering to student's dissatisfaction towards food service and mess caterer's business every year.

The project aims to provide alternative ways to better the food service, quality and improve students experience in the IITB hostel messes. The outcome of this project is a system comprising of a mobile application, a web based feedback page and a feedback kiosk, which helps to provide an alternate and easy way of communication between the users. It provides an easy access to information related to mess and student's opinions.

During evaluation, users could use the system successfully with most of them being able to provide feedback. Future work lies in implementing the system and to make the system usable and enhance users experience.

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Introduction

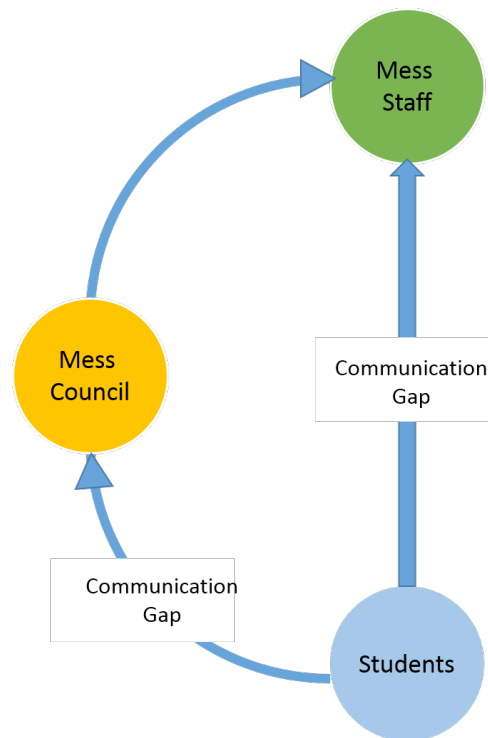
With the inception of common mess for H 12-13, IITB hostel messes started getting privatized one by one after the other. The newly built bigger messes provide food facilities for more than thousand and small messes for 500 or less students every day. Most of the students come from different parts of the country and some of them from different parts of the globe. These students have their individual taste and interests in food. Most of them face problems related to food facilities and food quality before, during and after the meal. Most of the students don't get necessary information related to hostel mess. They try to convey their suggestions and complaints to the service providers. Students feedback is paramount when determining their individual needs, tastes and interest for the mess caterers. With the available resources, systems and their limitations, most of the complaints, feedback or suggestions go unnoticed.

The mess caterer has to provide food facilities according to the rules and regulations decided by the institute and students in the hostel. Failure to do so, causes them to bear heavy fines. Serving to the huge number of students and considering all the rules and regulations,

is a difficult task for the service provider. The service provider also has to look at his own business considering the rates of raw materials and resources throughout his tenure. If the service is unsatisfactory, it leads to number of problems, complaints

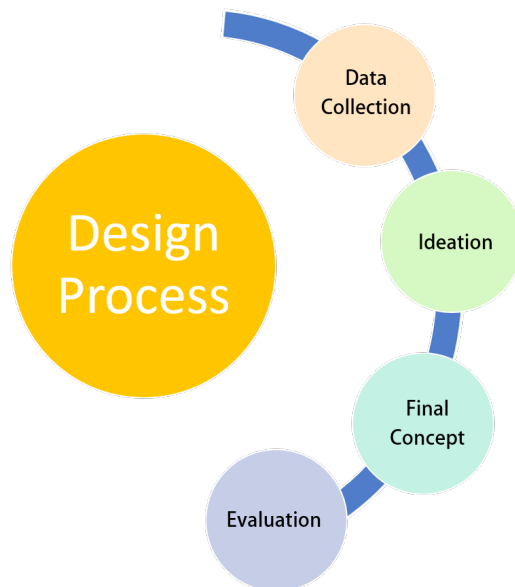
and feedbacks for the service provider to improve food facilities and food quality. The Lack of communication between the huge number students and the mess staff results in escalation of problems and complaints.

The motivation behind this project is to provide a better and alternate ways to solve problems faced by the hostel students of IIT Bombay. To improve student's daily experience in the hostel mess, the project caters to take actionable measures to enhance the food facilities and ease out the communication between students and the caterer. As a design student, motivation behind this project is to learn service design and user experience related problems and to provide a design plus technology based solution.



Design Process

The Project report gives a brief idea about the design process followed throughout the project. To come up with an alternate solution for the user's needs and to enhance user's experience in the IITB hostel mess, a User centric design approach was followed. The User-centered design process includes following step which were followed.



Data Collection

Literature review was done before the user studies. The background information gave a brief understanding about the problems faced by IITB hostel students and the service providers in the past. The User studies was done to collect data from users to understand the needs through their perspective inside IITB campus in different Hostels. Based on the initial data collected, various analysis were done. Findings and need gaps were consolidated. Problem areas to focus were defined.

With channelised problem areas to focus on, detailed user studies were carried out followed by analysis and mapping. The Problem statement was then defined.

Ideation

Based on the problems identified and inferences, insights were translated in terms of design solutions. Around 6 design ideas were generated and validated with the users to make a final concept.

Final Concept

The final concept was detailed out to get an overall idea about how the system would work at any given point time.

Evaluation

The prototype was evaluated with the users and the findings were used to improve the concept and the final prototype. Multiple iterations of the design and prototype were used during the evaluation process.

Data Collection

The purpose behind doing the data collection was to understand the overall structure of hostel messes at IITB. Who all stockholders are involved, what structure do they follow, what is the role of institution in hostel mess affairs, what are the pros and cons of having a common mess, why are the students unsatisfied with the food facilities, is there any provision for solving students problems, how does it work, Does it solve the purpose, if it fails what are the reasons behind. The data collected addressed most of the questions mentioned above.

The secondary research gave a brief idea about the existing IITB hostel messes and helped in accessing the already present information. The primary research included user studies to understand the user's needs. Different types of users and their point of views towards the IITB hostel mess were found out.

Background Information

There are more than 8000 students stay inside the campus. To accommodate them IIT Bombay has 16 hostels. Each hostel has its own mess. The new built hostels have more capacity of accommodating students than the older ones. The new hostels have bigger mess catering to huge number of students. The bigger mess provides food facilities to more than 1500 students daily. The older hostels provide food facilities to more than 300 students. The hostel mess runs four times a day.

Mess runs for 4 times a day. The timings of the hostel mess are decided by the institute and the mess council. Students have to pay 15000-16000 per semester compulsorily to have hostel mess facilities.

A Structure of Hostel Council which has a cluster of Mess Council in it. Mess council is run by students body. The members of the mess council are selected by hostel students through elections for a period of one year. Students play a measure role in Mess selection and extrusion of the mess council members.

Till 2003, all hostels were run by Government, now only Hostel 15-16 have

Government Hostel Mess. The other hostel messes are run by private catering companies which are selected through a tendering process. There are certain rules and regulations that these private catering companies have to follow. The appointment of caterers, even for a short term, is through a well chalked out process.

From the inception, Hostel 12-13-14, 8 times caterers have been changed in last 11 year. IIT Bombay was in news because of the food poisoning incident[1] in the hostel 12-13-14 common mess. Around 300 students reportedly fell sick after consuming the Chinese dinner at the hostel mess. Smarting after the incident the institute has laid down strict rules for the new contractor to be appointed.

The mess contractor must pay heavy fines if he didn't follow the conditions laid down in the tender that is floated. The tender, which runs into 12 pages, has additional clauses on strict compliance of hygiene and food quality. While charging penalty is a regular feature, the fine amounts have been increased to ensure strict adherence of norms laid down in the contract. Most of the clauses have been prepared by the students on the campus and the hostel.

Artefacts

The artefacts shown below were found during the research. These artefacts act as touch points for Students and Mess council and Mess staff. These are created and used by the institute, mess council and mess staff for the students. Some of them are digital artefacts with active links and others are tangible artefacts.

Most of these artefacts in the IITB hostel messes are used by the students on regular basis. Some of them are not easily accessible at any given point of time.

Hostel - Semester Mess Fees Payment Receipt

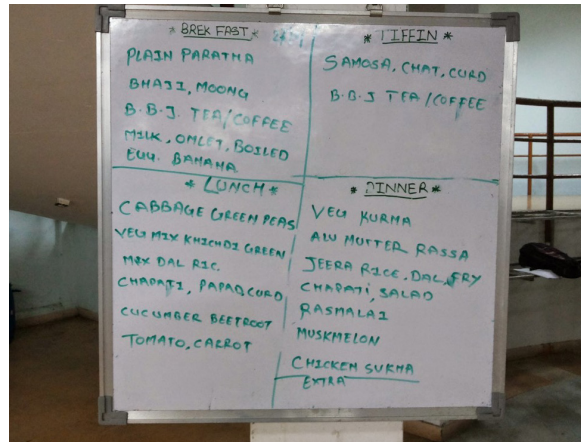
To use mess facilities in IITB hostel students must need to register by paying fees to the institute through bank. A Challan is used for the registration and payment process. Unlike the online auto debiting process, payment process through cash/DD does not give any kind of confirmation to student. Students get a student's copy of challan. Students get to know about the amount for payment only by asking fellow students or the bank staff. The cash payment process takes a lot of time as compared to the online auto debit process.

Mess ID card

A Mess card is created by the mess staff and is allotted to individual student. This is student's only authentication card to access mess facilities on regular basis.

The mess cards are kept at the entrance of hostel mess in a rack. Students have to take their cards and submit to the card counter before getting their food plates.

The cards are only for authentication purpose. Students don't get charged according to the number of times they have their meal. Unless the students ask for rebate, they are charged for every meal being served in the hostel mess irrespective of student's presence.



Food Menu Display Board

The food menu display board shows daily food menu written on it. The Display board is updated regularly on daily basis. If there is a pre-decided or last minute change in the food menu it is updated in the display board on the spot. The display board is kept at a position which is visible to all students to get a clear idea about today's food menu.

It only shows single day's food menu. Students don't get to know tomorrow's food menu. The menu is shown for Breakfast, Lunch, Tiffin and Dinner. Most of the times the display board is over crowded with food menu items and becomes difficult to scan through.

MENU 2 NO WEEK						
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1						
2						
3						
4	ONION PARATHA	IDLI	MILK VEG PARATHA	TOMATO UTTARA	PORNA SHEERA	SARFADANA KITCHEN
5	CHITNI	SAMBER CHITNI	CHITNI	CHITNI	CHITNI	CHITNI
6	GRONMONT	BLACK CHANNA	MILK CHITNI	CHITNI	BLACK CHANNA	GRONMONT
7	BHUTAL COFFEE	BHUTAL COFFEE	BHUTAL COFFEE	BHUTAL COFFEE	BHUTAL COFFEE	BHUTAL COFFEE
8	MILK BOILED EGG BITE	MILK BOILED EGG BITE	MILK BOILED EGG BITE	MILK BOILED EGG BITE	MILK BOILED EGG BITE	MILK BOILED EGG BITE
9	BANANA	BANANA	BANANA	BANANA	BANANA	BANANA
10						
11	LATHI DRY	ALU DHOTI	ALU DHOTI	CABBAGE GREEN PEAS	BANANA DRY	BANANA DRY
12	BAJIAN PUNJABI	KADI PAKODA	GREEN CHANNA	DAL KITCHEN	CHITNI KITCHEN	CHITNI KITCHEN
13	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL
14	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD
15	ROASTED RICE	BITTER MILK	CHITNI	CHITNI	LASSI	CHITNI
16	ROASTED RICE	FRY RICE	FRY RICE	FRY RICE	ROASTED RICE	ROASTED RICE
17						
18						
19						
20						
21						
22	ALU CHITNI	STEAM TOMATO	TAWA VEG	SOYABAN CHITNI	BANANA DRY	ALU KURMA
23	CORN FALAK	PANAD DRY	VEG SAMBER	DHALLI	PANAD DRY	ALU KURMA
24	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL	STEAM RICE DAL
25	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD	CHAPATI SALAD
26	ICE CREAM	MOTCHER LADDU	CHITNI	CHITNI	CHITNI	CHITNI
27	FRUIT	FRUIT	FRUIT	FRUIT	FRUIT	FRUIT
28	FRUIT	FRUIT	FRUIT	FRUIT	FRUIT	FRUIT

The Food Menu

The food menu shows all the food items to be available on a certain day. The food menu is a weekly food menu. Some hostel messes have a two weeks food menu. No food item is repeated on daily basis, variety of food items are available which are decided by the students through mess referendum.

In two weeks food menu with so many food items, students don't remember the food items and sometimes get surprised after entering the hostel mess.

WASTAGE OF HOSTEL NO:- 12, 13, 14				
DATE	BIF	LUNCH	TIFFIN	DINNER
19/8/14	37 kg	38 kg	23 kg	79 kg
20/8/14	41 kg	70 kg	25 kg	101 kg
21/08/14	38 kg	85 kg	26 kg	89 kg
22/08/14	35 kg	69 kg	30 kg	82 kg
23/08/14	30 kg	77 kg	32 kg	92 kg
24/8/14	27 kg	68 kg	37 kg	83 kg
25/8/14	23 kg	53 kg	28 kg	
26/8/14	31 kg			
27/8/14	13 kg			

Food Wastage Display Board

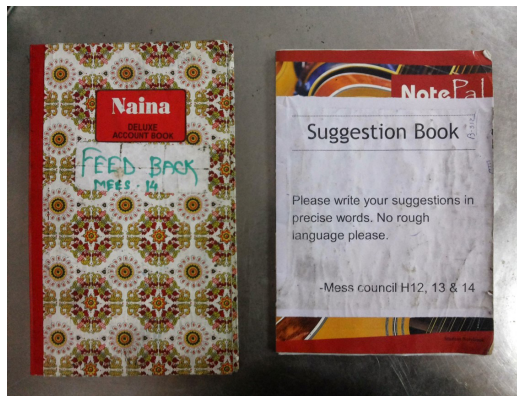
The wastage display board shows how much food is wasted on daily basis. The food wasted in four meals on daily basis is displayed. How much food in Kg wasted, gives an idea to the caterer whether the food was liked by the students or not. The boards are kept exactly above the Food wastage bins.

Unlike the single day's food menu displayed in the hostel mess, food wastage display board shows wastage amount of food for atleast 15 days' meals.



Food Wastage Bins

The wastage Display board is kept near the food leftover bins near the dining area. It shows students how much food they are wasting daily. The purpose of this is to trigger them to think before taking too much food at the start.



Feed Back and Suggestion Book

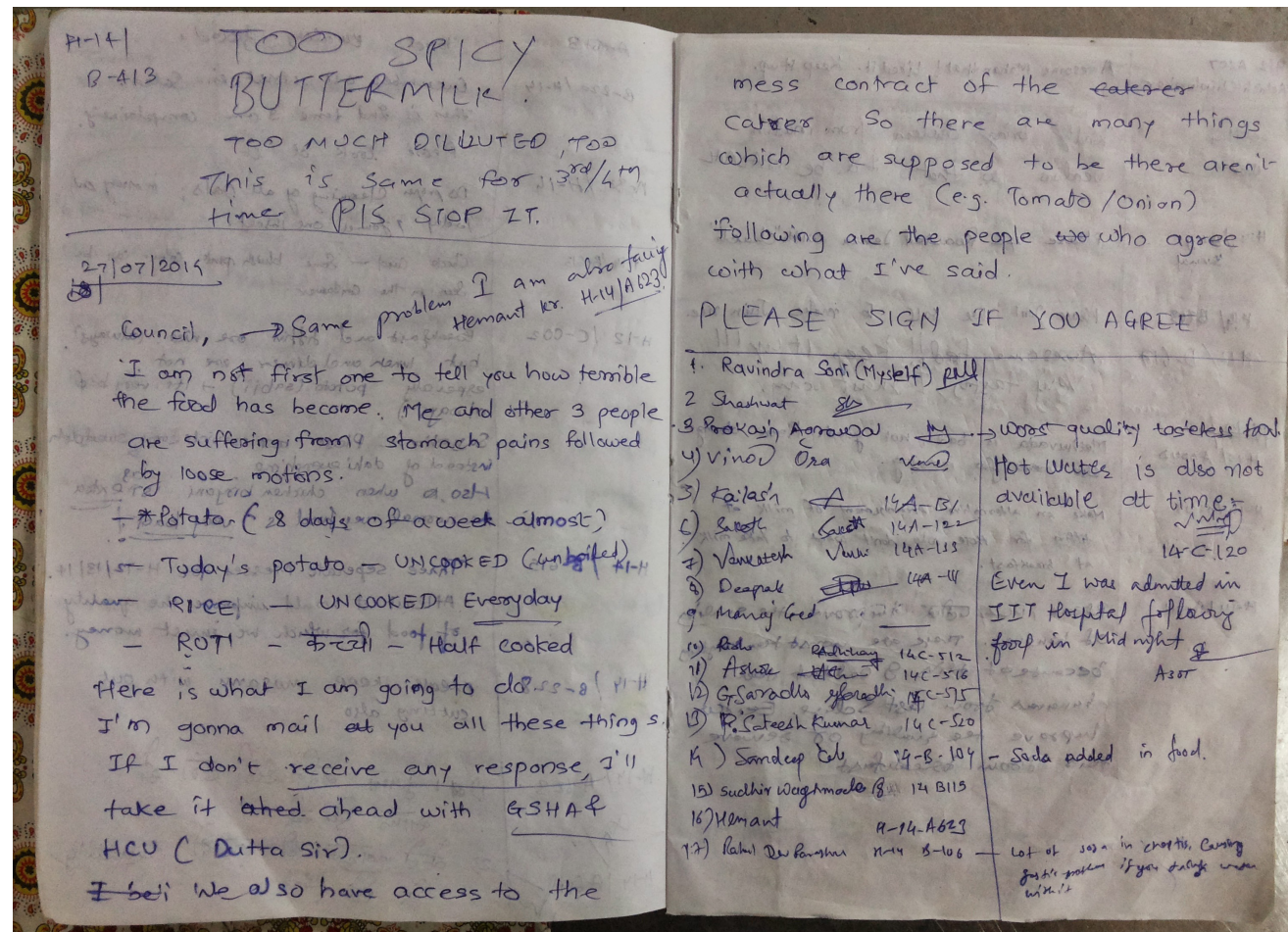
There are two registers kept in the hostel mess area, The Feedback register and The Suggestion register. According to the rules laid down by the institute for the mess caterers, there must one suggestion and one feedback register for each hostel.

Students can write their complaints in detail in the register. If they have any suggestion or if they want to complement the food they can write it in the suggestion register. Students use these registers because they are easy to access. They can write their complaints and suggestions on the spot without taking much efforts.



Complaints

The complaint written should be read and signed by the mess council and the Mess manager/supervisor with a clarification. This gives an idea of status of student's complaints whether they are solved or not. Irrespective of the relevancy or repetition of the complaints, sometimes they go unnoticed and unsigned.



Students highlighting their complaints to grab attention.

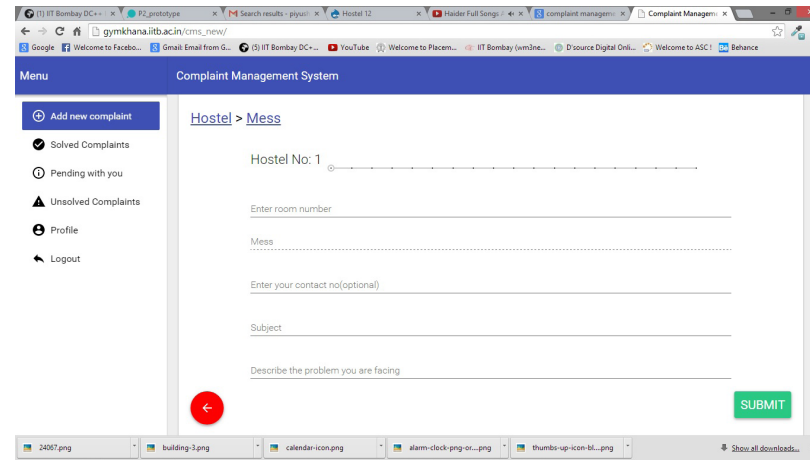
Students creating their own polling for getting support from the students who are facing the similar problems.



Hostel Website

Each hostel has a dedicated website [3]. This website gives information related to various hostel activities, students, mess, councils and daily food menu.

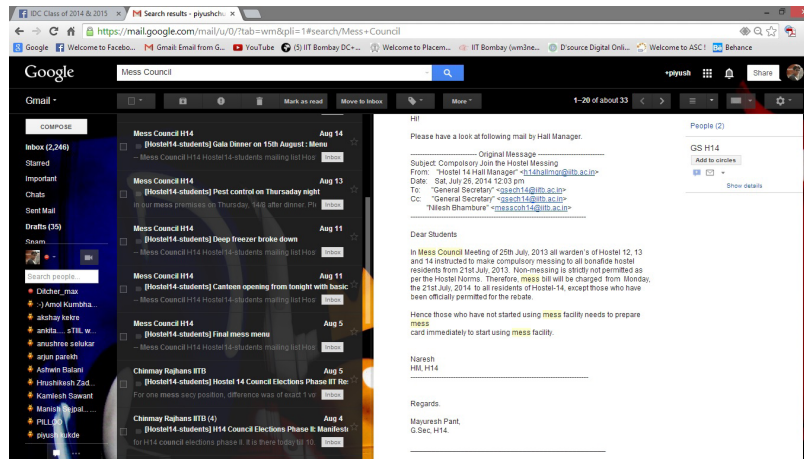
A hostel website provides active links for various other events. Students access these websites infrequently or occasionally.



IITB Gymkhana Complaint Management System

The institute has its own centralised complaint management system[3], where students from all hostels can register their complaints related hostel or institute.

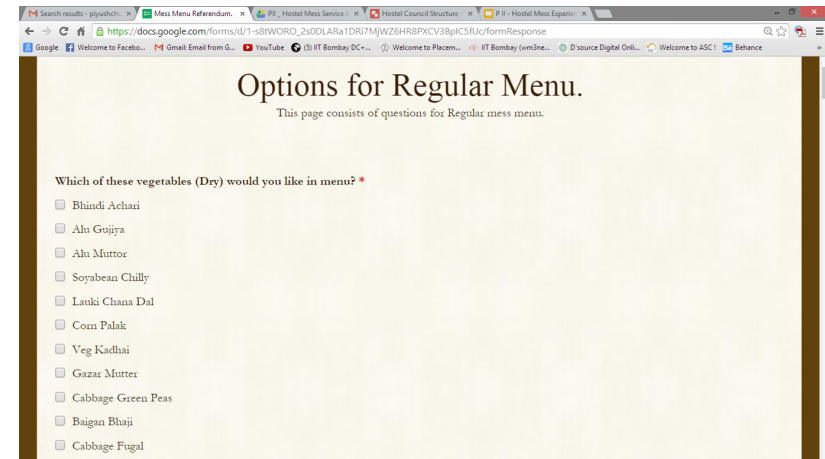
Students can register their complaints related to mess, sports, maintenance, tech, security, etc. These complaints are forwarded to respective hostels council heads. But there is no provision for the council heads to forward them to the concerned and responsible stakeholders. Students don't get in the feedback loops of their own registered complaints.



GPO / Mails

The Hostel Mess councillor and General Secretary sends mails related to hostel and mess on students IITB mail ids. These mails contain information related to mess updates, changes in food menu, general body meetings, changes in the food menu, food and timings on festivals, etc.

Due to so many incoming mails on a single day, students tend to ignore most of the mails. Last minute updates/mails are neglected during midnight, for example, Changes in the next day's menu. So students don't get to know about some important mails and updates related to hostel mess.



Mess Referendum

The Mess referendum gives different options of food items to students. It helps students to select and vote for the food they wish to eat in the hostel mess. The mess council and caterer gets an idea about the food menu to be decided till the next referendum is floated. The mess referendum is generally floated in two months or when needed.

Since students don't get to know about important mails, they tend to ignore mails containing information related to mess referendum. Some of them are unaware of the mess referendum, some of them don't participate in the mess referendum. Reaching out to all the students for filling up the mess referendum becomes difficult for the mess council.

Primary Research

User studies

All the users recruited were from IIT Bombay which included Students, Mess council members and Mess Staff. Students interviewed are residing in different IIT Bombay hostels. They are using the mess facilities and belong to different streams and departments. The mess council of a hostel includes students from the same hostel as its council members. Mess council members from five different hostels were interviewed. The mess staff which includes mess managers and the supervisors were interviewed.

The different users were observed and interviewed while using the mess facilities. Contextual inquiry were conducted, followed by a semi-structured interview. Few interviews were conducted outside the hostel mess. A Survey[4] was also conducted to get clear understanding of students' needs and problems.

User	Program	Role	Hostel	Duration of stay in hostel in Months	No. of meals/Per day
User01-15-F	M.Des	Student	15	14	4
User02-15-F	M.Tech	Student	15	20	1
User03-14-M	Phd	Student	14	40	4
User01-12-M	M.Tech	Student	12	14	2
User01-9-M	B.Tech	Student	9	30	3
User01-7-M	B.Tech	Student	7	32	3
User01-5-M	B.Tech	Student	5	30	2
User01-2-M	B.Tech	Student	2	30	3
User01-11-F	M.Tech	Student	11	20	3
User01-14-M	M.Tech	Mess. Councilor	14	14	4
User01-14-M	M.Tech	Warden nominee	14	14	4
User01-14-M		Mess Manager	14		

Initial User study

Total 12 users were interviewed. All of them were from the IITB campus and residing in hostel from atleast 12 months.

9 out them were students. 2 out them were members of the hostel mess council. Mess manager of the common hostel mess of hostel 12-13-14 was also interviewed.

User	Program	Role	Hostel	Duration of stay in Hostel in Months	No. of Meals / day
User15-14-M	Phd	Student	14	20	4
User16-15-F	M.Tech	Student	15	20	4
User17-1-M	Phd	Student	1	40	4
User18-QIP-F	Staff	Staff	QIP	16	2
User19-7-M	B.Tech	Mess. Councilor	7	30	4
User20-7-M		Mess Manager	7		
User01-5-M		Mess Staff	7		
User01-2-M	Phd	Mess Councilor	1		4

Detailed User study

In the second phase, the user study conducted was more focused considering specific needs and problems faced by the students of IITB Hostel mess.

In all 8 users were interviewed. 3 of them were students. 2 of them were mess councillors and 2 were from the mess staff.

A Google Survey was conducted in order to get maximum opinions and point of views from hostel students. In all 80 students from all over IITB campus filed up the survey[4].

//The Survey form is added in the annexure.

Persona



Tushar Joshi

Tushar is 24 years old. He is a M.Tech student at IIT Bombay in Computer Science Department. Currently he is a resident of Hostel 14 from last 4 months. His hometown is Nagpur, His parents are always worried about his health and the food he eats every day. He uses the mess facility 3 times a day, he prefers to work at nights and sleep in morning so he skips breakfast most of the times.

Tushar believes in hard work and doesn't want to waste his time. He is a generally surrounded by computers and mobile devices. He is a little bit satisfied with the food he eats in hostel mess everyday.

Implicit Needs:

- Health should be proper throughout the stay
- Food should be tastier every time

Explicit Needs:

- Should be more productive every day
- Should not spend much time in activities other than studies and work
- Why is it necessary to eat the whole day?



Gaurav Trivedi

Gaurav is 23 years old. He is a M.Tech student at IIT Bombay in Energy Science Department. Currently he is a resident of Hostel 14 from last 12 months. Gaurav is Mess councillor in Hostel 14. So he has to visit the hostel mess regularly. He does not skip any meals.

Gaurav is Hard-working and a shy student, who does not talk much but believes in working with a group of people. He has a refined interest in food and has no complaints regarding the Hostel Mess Food.

Implicit Needs:

- His work should be proper, appreciable and perfect.
- Students should not comment or criticize on his work.

Explicit Needs:

- Academics should not be affected with his position of responsibility
- Should provide all the promises mentioned in the election manifesto.
- Should contribute more and more to the hostel mess.



Ganesh Rajapurkar

Ganesh is 47 years old. He is a Mess Manager working for the Catering Company who provides a mess facility to Hostel 12-13-14. He lives in Dombivali. He has an office in the hostel mess area. He comes during breakfast and leaves after dinner.

Ganesh has been working in the food service industry from past 20 years. This time he is managing students at IIT Bombay hostel for the first time.

Implicit Needs:

- His work should be proper, appreciable and perfect.
- Students should not comment or criticize on his work.

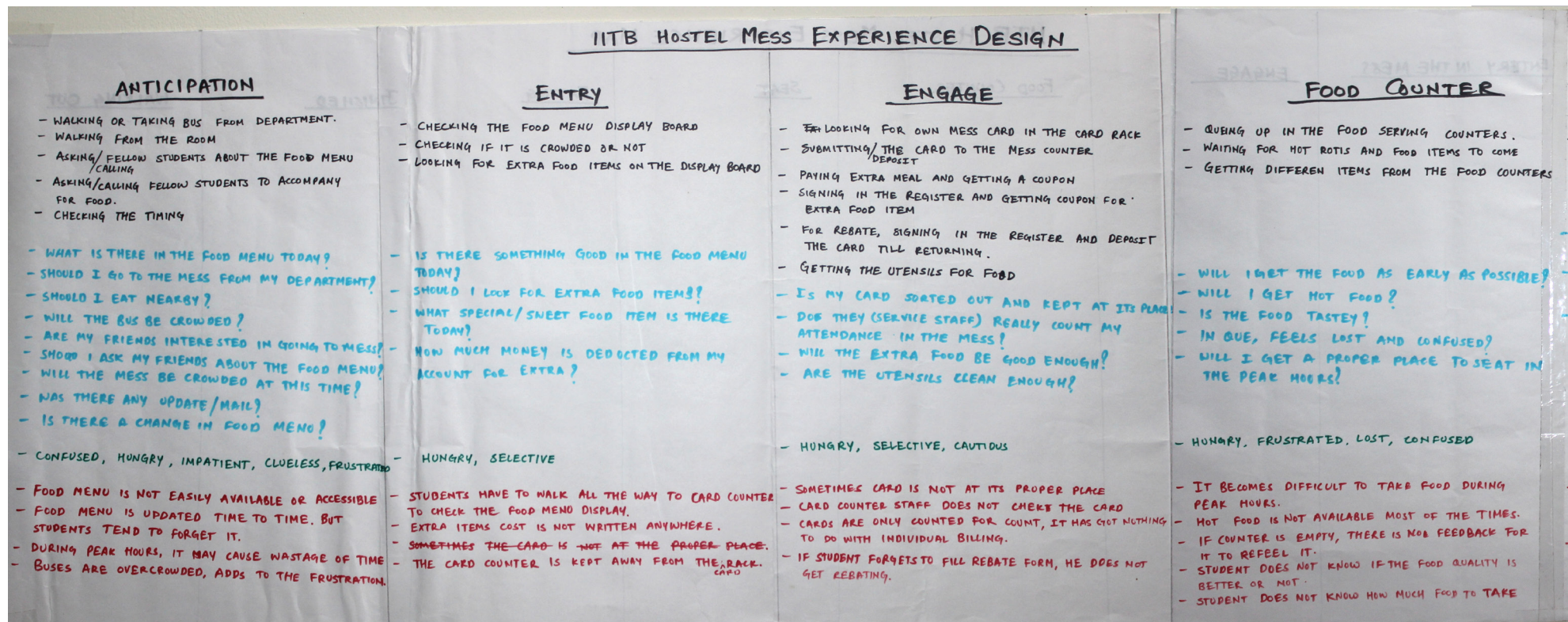
Explicit Needs:

- Should make maximum profit for his catering company
- Students should not face any problem under his management.
- Students and staff should be happy with the overall food service.

Experience Map

With the experience map, it became easy to record and visualize student's interactions and experience with the food service in the Hostel Mess of IIT Bombay. Student's feelings and activities throughout the service were captured through the experience map. It gave a clear idea about student's interactions with the

Mess Council and Mess Staff across different Time, Location and Channels used in the service. The holistic view helped in a better understanding of the student's problems and breakdowns, which then lead to opportunities for better and alternate design solutions and interactions.



SEATING

- SEARCHING FOR FRIENDS IN THE DINING AREA
- SEARCHING FOR EMPTY/TABLE AND CHAIRS VACANT
- CHECKING FOR THE PLACE TO BE CLEAN ENOUGH TO SEAT.

- WHO AMONGST MY FRIENDS ARE HERE EATING?
- IS THERE A VACANT PLACE FOR ME AND MY FRIEND TO SEAT?
- HAVE I TAKEN EVERYTHING IN MY PLATE?

- LOST, FEELS GOOD AFTER HAVING A PLACE TO SEAT

- DURING PEAK HOURS IT BECOMES DIFFICULT TO SEARCH FOR VACANT TABLE ESPECIALLY WHEN IN GROUP.

EATING

- NEED TO REFILL THE FOOD PLATE AS PER THE NEED
- SHARING FOOD WITH FRIENDS
- ASKING THE SERVICE STAFF TO REFILL THE WATER JUGS
- DISCUSSING/CHATTING WITH FRIENDS.

- SHOULD I GO FOR REFILLING MY PLATE?
- IS THE WATER COLD / ARE THE WATER JUGS FULL? HOW SHOULD I CALL THE STAFF?
- WHAT IF SOMETHING UNHYGINIC IS FOUND IN MY FOOD?
- WHERE SHOULD I GO FOR EXTRA FOOD?
- AM I TAKING TOO MUCH TIME IN EATING?
- WILL I GET LATE FOR MY CLASSES?
- MY FRIEND IS STILL EATING HOW MUCH TIME WILL HE TAKE?
- HAPPY FOR FOOD, CAUTIOUS ABOUT TIME.

- PLACE IS ONE CROWDED AND NOISY.
- CALLING STAFF FOR REFILLING BECOMES DIFFICULT
- STUDENTS TAKE TOO MUCH FOOD AND WASTE ALOT.

FINISHING

- DISPOSING OFF THE LEFTOVERS IN THE COLLECTING BIN/DRUM AS FAST AS POSSIBLE
- WALKING TOWARDS THE WASH BASIN FOR HAND WASH & GARBLE
- PROCEED TOWARDS-

- HOW MUCH FOOD IS WASTED TODAY?
- IS THE BIN/DRUM AREA CLEAN/HYGINIC?

- LAZY, SLEEPY
- THE WASTE BINS ARE KEPT IN BETWEEN DINING AREA
- STUDENTS FINISHED WITH THEIR MEALS OCCUPY THEIR SEATS FOR NO REASON- CHATTING WITH FRIENDS CAUSING OTHERS TO STAND.

WALKING OUT

- PROCEED TOWARDS THE SOUNF COUNTER
- IN CASE OF COMPLAINING ABOUT THE FOOD/ SERVICE, WE LOOKING FOR THE MESS STAFF
- LOOKING FOR THE MESS COUNCIL MEMBERS
- CHECKING FOR THE REGISTER & PBN
- WRITING THE COMPLAINT IN THE REGISTER

- IS THE SOUNF PLATE EMPTY?
- WHERE SHOULD I COMPLAIN? / OR NOT?
- WHAT MEDIUM SHOULD I USE FOR COMPLAINING?
- WHERE IS THE MESS STAFF/ MESS COUNCIL TO COMPLAIN?
- WHERE IS THE REGISTER?
- IS THERE ANY COMPLAINT ALREADY MADE?
- HOW MANY COMPLAINTS ARE THERE?
- IS THERE ANYONE LIKE ME FOR THE SAME COMPLAINT?

- NOT SO GOOD IF HAD BAD FOOD.
- THE COMPLAINT/REGISTERS ARE KEPT SAME. SUGGESTION
- STUDENTS WRITE BOTH IN SAME REGISTERS.
- MESS MANAGER/IS NOT EASILY LOCATED. MESS CO MEMBERS
- THE MEDIUM USED IS EITHER REGISTER/ FACE TO FACE TALK.

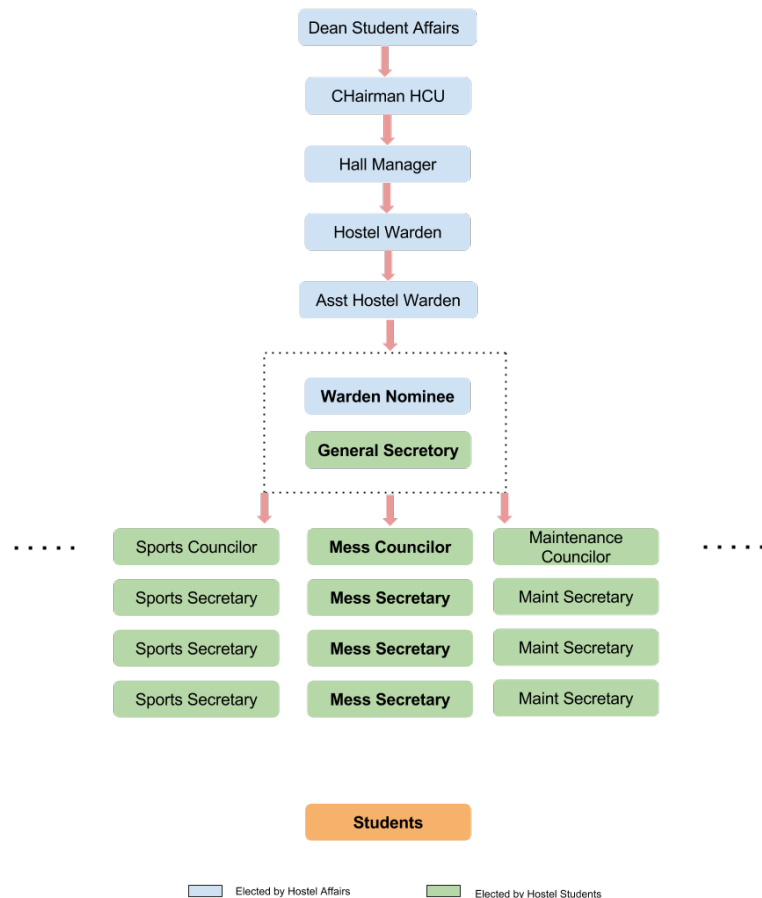
POST MEAL.

- ⑤ IN CASE IF THE COMPLAINT IS REGISTERED WAITING FOR THE STATUS OF THE COMPLAINT
- ⑥ WRITING THE MAIL TO MESS COUNCIL & HOSTEL WARDEN.
- CHECKING FOR MESS UPDATES / MAILS

- IS MY COMPLAINT REGISTERED?
- DID ANYBODY READ / SUPPORT MY COMPLAINT?
- DID THE MESS COUNCIL / MESS MANAGER SIGN MY COMPLAINT? CONSIDERED?
- WHAT IS THE STATUS OF MY COMPLAINT?
- AM I IN THE FEEDBACK LOOP?
- AM I GETTING REGULAR UPDATES?

- IMPATIENT, WAITING FOR COMPLAINT STATUS
- MOST OF THE COMPLAINTS ARE NOT IGNORED AND NOT CLOSED.
- THE PERSON INFORMING / FEEDBACK IS NOT REPLYED BACK
- STUDENTS GENERALLY TEND TO IGNORE MAILS FROM MESS CO.
- STUDENT IS NOT SURE IF THERE ARE OTHER STUDENTS SUPPORTING HIS COMPLAINT?

Analysis and Mapping

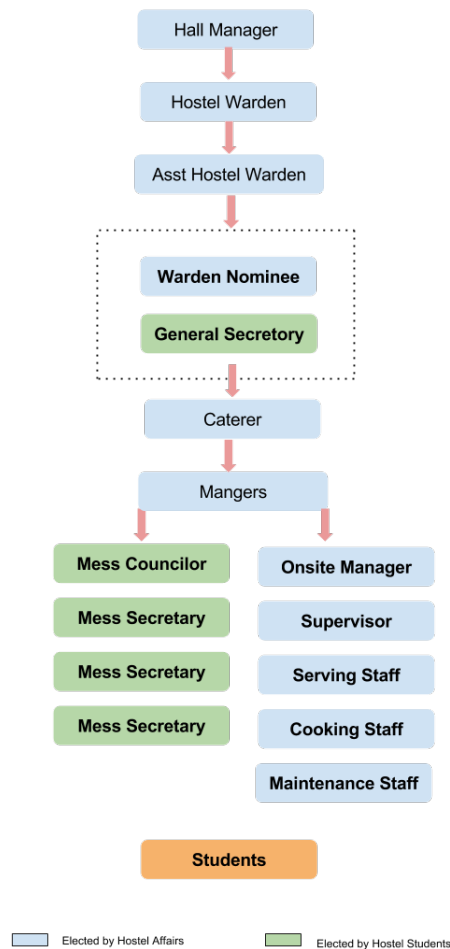


Hostel Council

Institute has a cluster of different structure of committees and members. The election committee plays an important role in electing these committee members for a period of one year. The students also have an equal right in the election as well as extrusion of the committee members.

The composition of the Hostel Council and their hierarchy is shown in the diagram.

A Hostel Council is a body of elected representatives of the Institute residing in the Hostel elected from amongst them. Except Dean SA, Chairman HCU, Hostel Manager, Hostel Warden and Asst. Hostel manager all the other council members are elected from amongst students residing in the respective hostels. The functions and responsibilities of the Hostel Council are given the Hostel Constitution[5][6].



Mess Council

Mess coordinators Committee consist of the representatives, one from each of all the Hostels. These representatives shall be one of the secretaries/Students Councillors who will be looking after the mess in the Hostel.

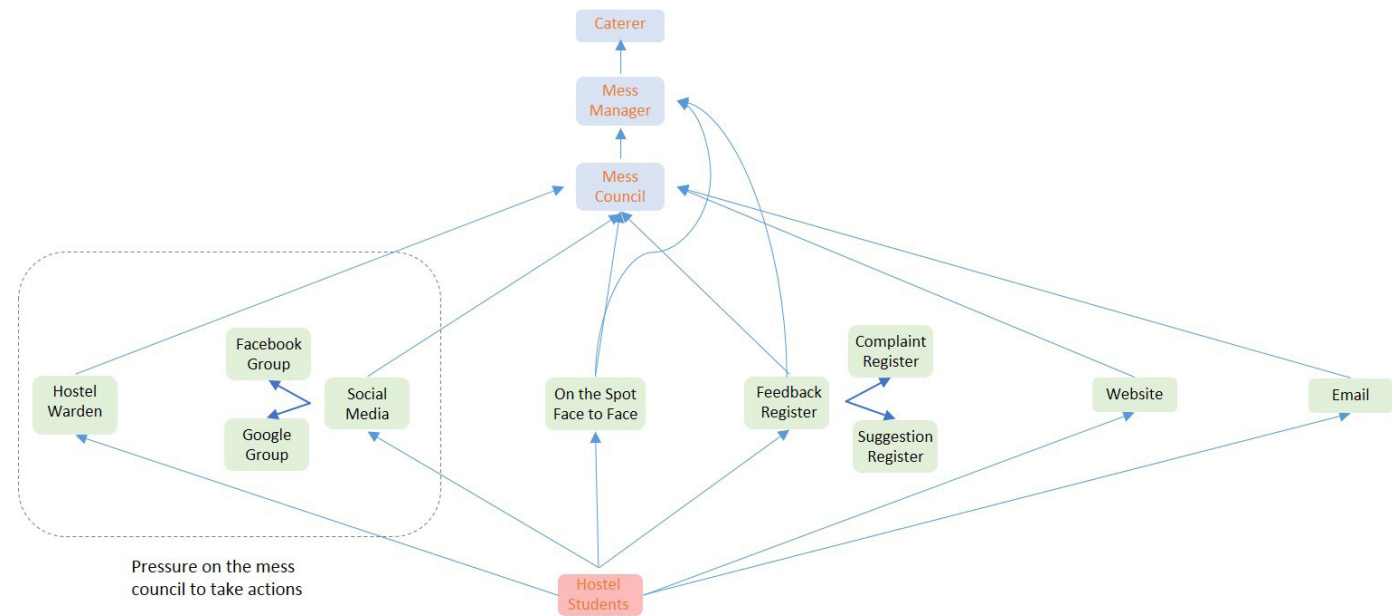
The Hostel Mess council has a structure which is shown in the diagram. The mess council is a student's body, having members as 1 general secretary, 1 warden nominee, 1 mess councillor and 3 mess secretaries.

The mess council is responsible for all the events and work related to hostel mess. The mess council plays an important role in communication between the students and the Mess staff.



Time-wise Analysis

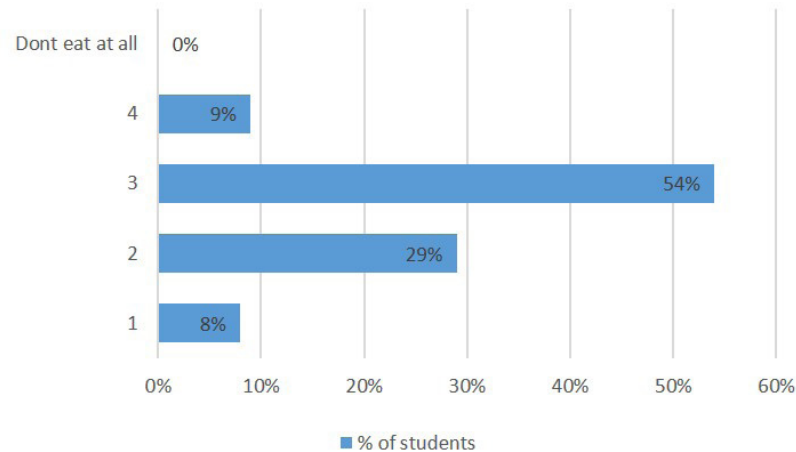
The institute class timings clash with mess timings very often. After the classes get over students have to walk to their hostels or catch bus, which then becomes over crowded during peak hours such as lunch. Low frequency of buses to H15-16 causes students to walk all the way to their hostel mess and which causes a waste of time. Students want to finish up lunch and get back to classes as early as possible.



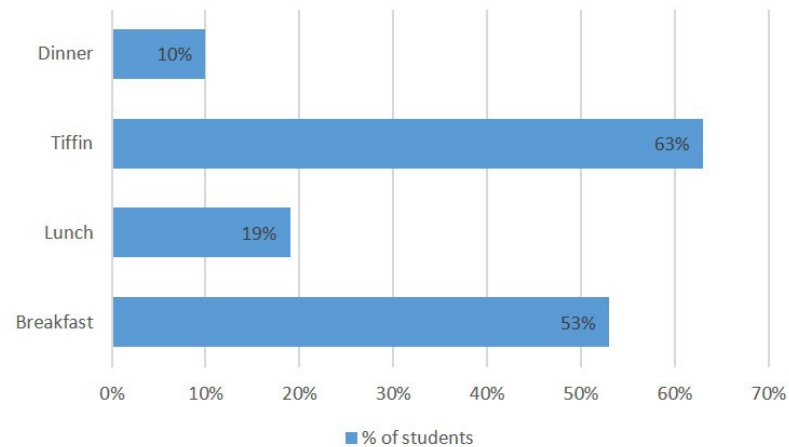
Complaint management at IITB Hostels

There are six ways through which students can register their complaint. If Mess Council doesn't take any action, Student go to Hostel Warden. Majority of students vote or support for major complaints. Action is taken only if Members of Mess council are present. Students write each complaint separately Most of them are read and ignored. Complaints from website doesn't reach Mess Manager/ caterer. Mess Council has to reply to these mails.

How many times a day, do you take meals in the Hostel Mess?



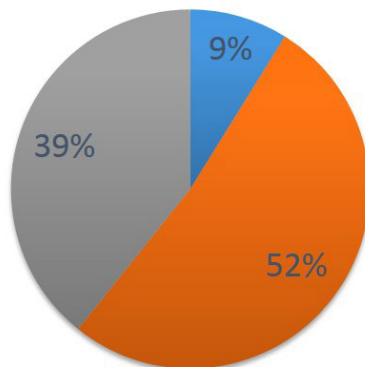
If you dont take meals for all 4 times a day, what meal do you miss?



Most number of students tend to eat only thrice a day. They either miss the breakfast or tiffin. The reason behind skipping Tiffin is students don't know the food menu, so it doesn't trigger them to walk or take bus from department or from any place inside or outside campus. Also the class timings clashing with the mess timings result in students skipping tiffin.

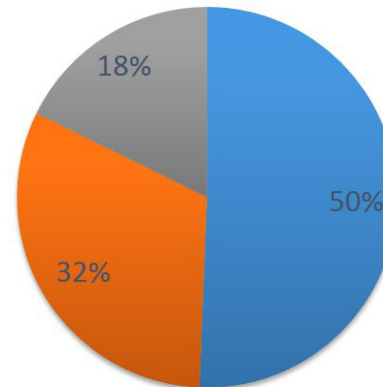
Students tend to skip Breakfast because they don't know next day's food menu. Students who also prefer working late in the night wake up late in the morning. So it doesn't trigger them to wake up and have breakfast in most of the cases.

Do you know / remember the weekly or daily the food menu?



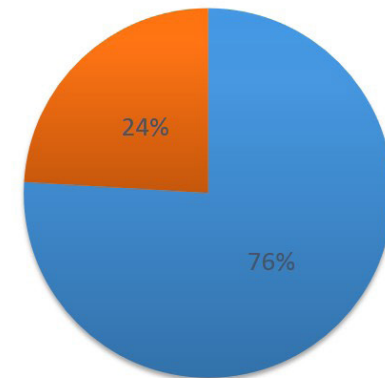
■ Yes ■ No ■ Partially

Do you follow the Mess Referendum?



■ Yes ■ No ■ Don't know what it is

Do you get to know about your Monthly Mess Bill?



■ Yes ■ No

The bigger messes like H12-13-14 have 2 weeks food menu including so many food items. Most of the student don't know the overall 'Food Menu'. Students remember the food menu subject to its taste and quality, if they like a certain food item or crave for it.

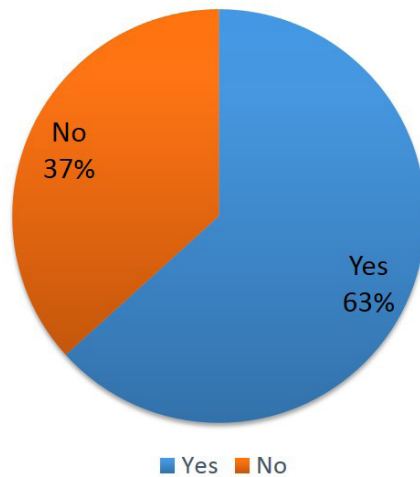
Mess referendum is not clear to most of the students. Some students participate in the mess referendum voluntarily and some tend to skip it or miss it because of the lack of access to mess information.

Many students don't get monthly bills. Some hostels send it through the mails, some display hard-copies of the mess bills on hostel notice board and some don't.

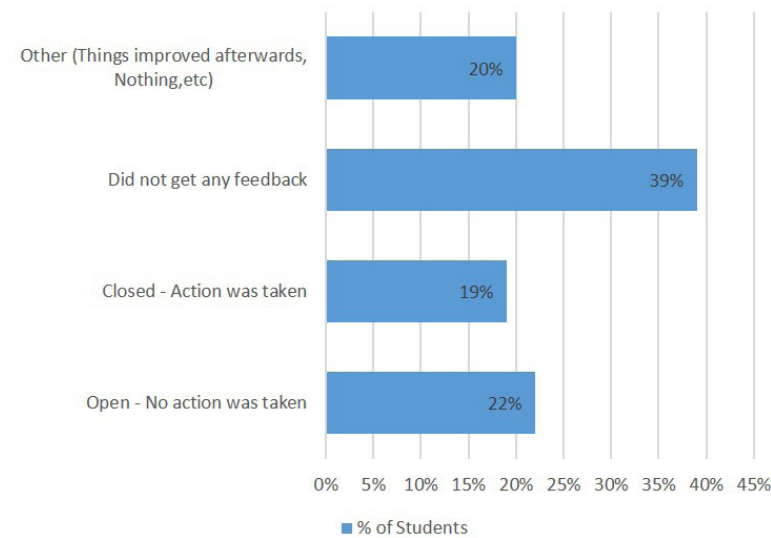
Students don't get the daily and important information easily such as last minute changes in the food menu or mess timings.

Very few students visit hostel websites to check for Food menu.

Have you ever complained before regarding the mess facility/food quality ?

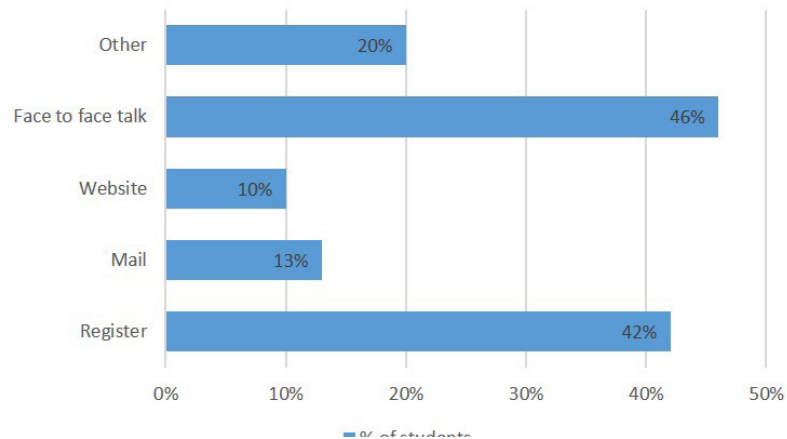


What was the status of your complaint?



At-least 2 3 complaints are registered daily. Most of them are related to food quality and the service being provided. Quite a few of these complaints are closed. Students are not included in any feedback loop of complaints. So there is no other way to check the status of students complaint, whether it has been solved or is still pending. There is no other means of complaining again if the status of previous complaint is Open. Some of them assume that things have changed after they complain. Some of the students don't bother complaining / giving feedback

What medium did you use to register your complaints?



Most of the students prefer registering the complaint on the spot or face to face with the mess council and the mess staff. There is a register kept inside the hostel mess some students prefer writing their complaints in that register. Very less number of people prefer to go to their rooms and register a complaint on the hostel website or even write a mail unless the issue is too serious.

Project Brief

After the user studies and research, the initial project brief and problem statement was redefined with the help of the insights that were obtained during the analysis.

Problem Statement

To Design a System which would bridge the communication gap between Mess Staff and Students for improving the students' experience in terms of 'Accessibility of Mess information' and 'Complaint management' in IITB Hostel Mess

Problem Identified

The Communication gap between the Students and Mess Staff

- The mess council and the mess contractors face difficulty in getting a collective feedback from students. Sometimes the academic commitments or ignorance from the students results in poor response or feedback.
- Last moment changes in the food menu / mess related updates does not reach to students. Most of the time students get to know these updates directly when they enter inside the hostel mess.
- Non availability of mess managers / staff in the hostel mess causes problems to students. Many a times it is observed the active mess staff for the shift is not all present. Students face difficulties in tracking them down and convey their message to the mess staff.

Ease of accessibility of information

- Daily / Weekly Food Menu, Referendum, Updates, Bills are not easily accessible to students
- There is no quick access to Mess information at any given point of time. Sometimes they are in class or hostel room or anywhere inside or outside campus. So it becomes difficult to access the information from anywhere.
- Students don't get to know the number of students inside the hostel mess in peak hours such as during Lunch or Dinner, to avoid wastage of time and their efforts.

Complaint Management System

- There is no feedback loop of complaints. Students don't get know about their complaints or which person to touch base with to solve their issues.
- Mess councillors don't get to forward these complaints directly to respective post-holders.
- There is no means to quantify all complaints with their actual status. Students and the mess staff don't get to know the status of the complaints that are registered. How many of them are solved, unsolved or still pending doesn't reach all the students.

Not much use of Websites or blogs

- Students only use the hostel websites to know about hostels before joining. They check it only once or twice a week for food menu.

Use of Social Media

- Mess Managers / Staff don't use Computers or Social Apps, Facebook groups, Google groups. So they don't have access to forums where students put their opinions and complaints. Everyone in the group gets to know about them and some even discuss them.

Objectives of the stakeholders are not clear

- There is a need to sensitize some of the Mess-Council members towards reaching the objective of improving the mess facility and some of the mess Staff to improve the quality of food.

Policy level changes

- Policy level changes in the Tendering process, Rules and regulations for Students and caterers are needed.

Possible Approaches

Improving Websites

Each hostel in IITB has its own website, that provides all the information related to the hostel. But students don't visit these websites often. It was found that they only visit the website once or twice a week to check for the food menu. Easy access to website anywhere at any point also makes students to ignore websites most of the time.

Change objectives of the Stakeholders

The objective of most of the students in IITB is get Position of responsibility in their resume. Many of them work sincerely, while some of them may have a different objectives all together. The Mess caterers have an objective of earning profit in the catering business as well as serving good food. So one of the approach could be to motivate these stakeholders to change their prime objectives.

Institute policy level changes

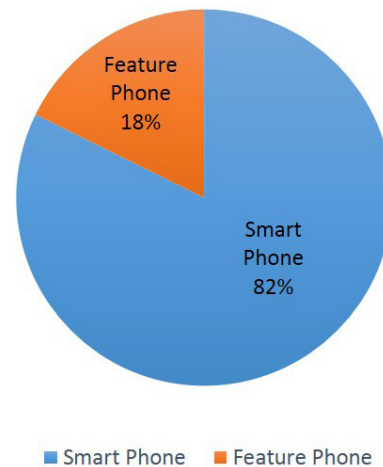
The institute has laid down some strict rules and regulations in the tenders[7][8] for the Mess caterers after the food poisoning incident [1]. There are huge fines that the caterers have to bear in case of failure to provide the required quality of food facilities. Sometimes it is very difficult for the mess contractors to handle such a huge crowd of students on regular basis with regular losses. Students also have to stick to the same mess throughout the year. So there is a possibility of making some policy level changes to bring some alternative ways of improving the food facilities at IITB.

Improving the communication

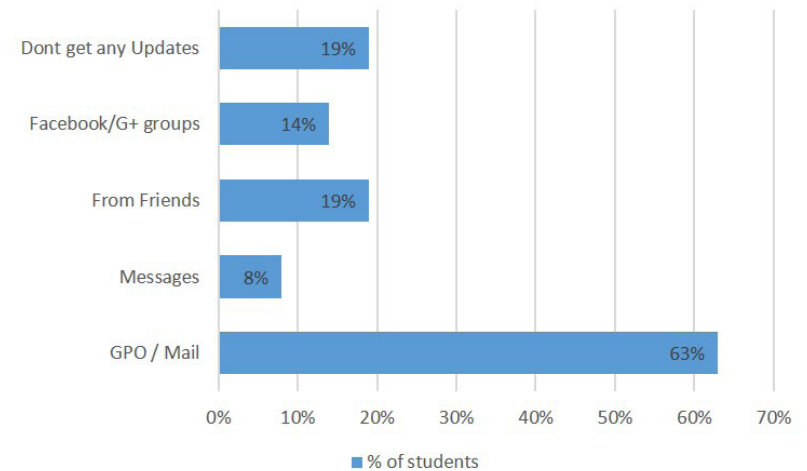
There are huge number of students inside IITB hostels. Therefore for the mess contractors it is very difficult to communicate with most of them or convey their message to individual student to provide a proper service. Also the council member change every year and there is no knowledge transfer between the new one and the older one. Whatever problems the previous council faced are not transferred to the new council resulting in facing the same problems again and again. So it is very important to have a proper communication between the students, the mess council and the mess staff.

Considering 82% students said to have smart phones and in each hostel TV room is a place for social interaction where students can gather and discuss things, the design ideas are based on use of Smart phones and TV or a Big digital Screen.

What kind of Phone do you use everyday?



How do you get to know about the mess updates?



In order to design concepts for the alternative design solutions, students were asked what kind of phone they have. What medium do they use to communicate with the mess council and the mess staff and how do they get to know about the mess updates.

Most of the students use smart phones and they get updates on GPO/ Mail which they cant access easily on their phones.

Design Ideas

1. Mess Display

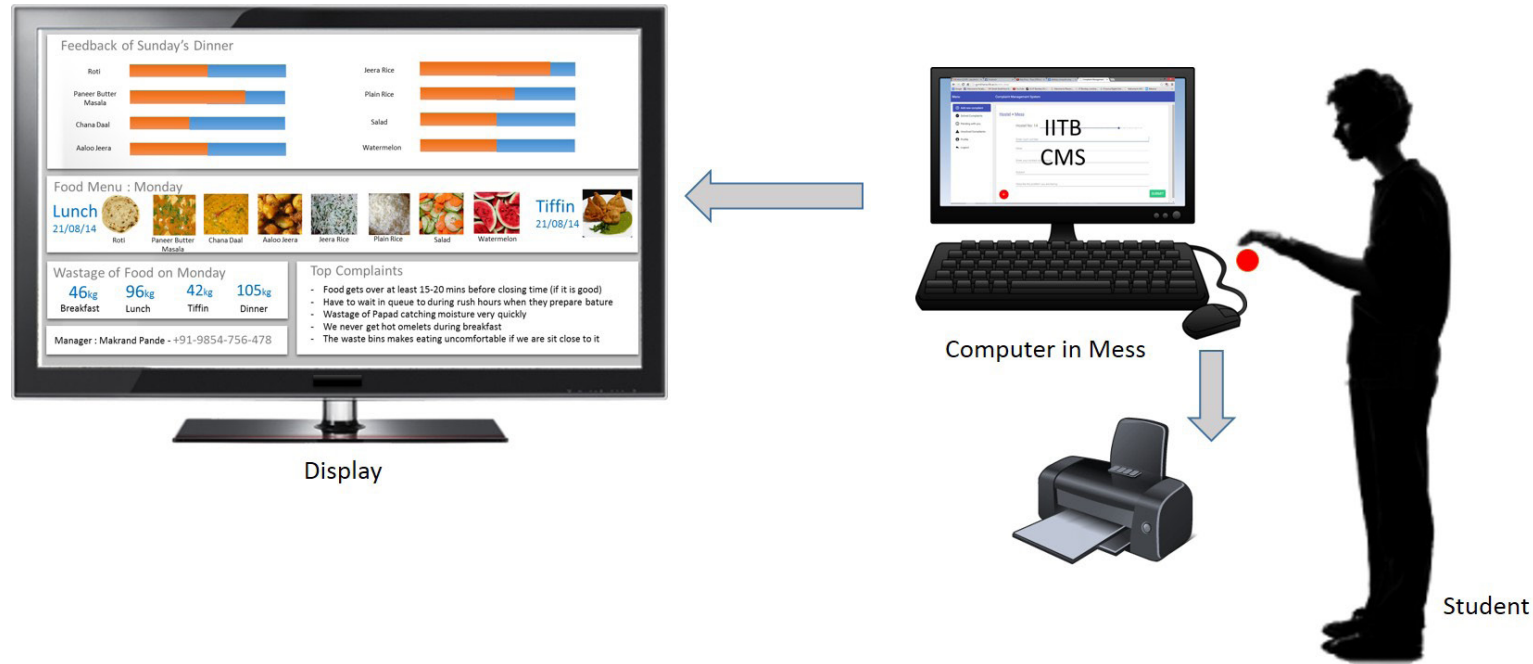


In order to have a proper communication between the Students, mess council and the mess staff, there is a display with which all of them can interact simultaneously at any point of time.

The Mess Display is setup at a location inside Hostel Mess area where every user can interact with it easily. There can be more than one Mess Displays set up in Public Areas where users can interact with the display and each other., for example, Lounge area, Lifts, Computer Centres, etc.

- This display shows students' feedback over previous meal in addition to overall food wastage and the number of students who had the meal. This would help the mess council and the mess staff to improve the food quality as well as quantity.
- The students can give their feedback or suggestions by using their mobiles through an application or messaging or calling, etc.
- The mess council can input important information related to hostel mess such as daily food menu, changes in the food menu and mess updates.
- The display also shows top unsolved or pending relevant complaints from the students or the mess staff, which would help in sensitizing individual stakeholders objectives.
- The display shows contacts of mess council and the mess staff to which students can easily contact and solve their issues at any given point of time.

2. Mess Kiosk

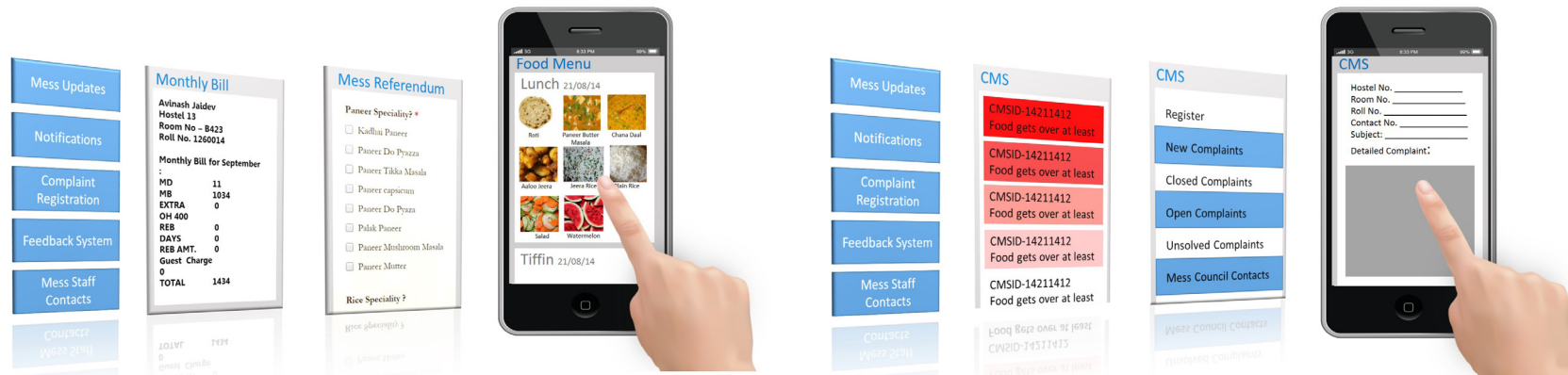


Other alternative means of giving the opinions or feedback from individual or a group of students is setting up a Mess Kiosk inside the Hostel mess. The Mess Kiosk is connected to the Display which would show all the information related to hostel mess and all the users can interact with it.

- The Mess Kiosk would help all the users to input their views, feedback or opinions through the system
- Students, mess staff can register their complaints through the Mess Kiosk.

- The mess council can update the mess related information and take print outs using the Kiosk.
- The mess council and the mess staff can give clarification on the registered complaints using the Kiosk.
- The rebate forms or hard-copies of the registered complaints and forms related to fines for the mess staff can be taken using the Mess Kiosk.

3. IITB Hostel Mess App



A dedicated mobile application only for hostel mess can help students to access mess related information anywhere at any given point of time. All the inputs is be shown on the display inside the hostel mess.

- Since most of the students have smart phones it would help then in getting all important updates and notifications such as monthly mess bills, mess referendum and mess council / mess staff contacts in their mobile.

- Students can get alarms and updates about the meal timings and the food menu for today and the next days easily.
- Students can give their feedback and comments over previous meals. It can be shown in real time on the mess display.
- Students can register their complaints from the mobiles and can get status of their complaints.

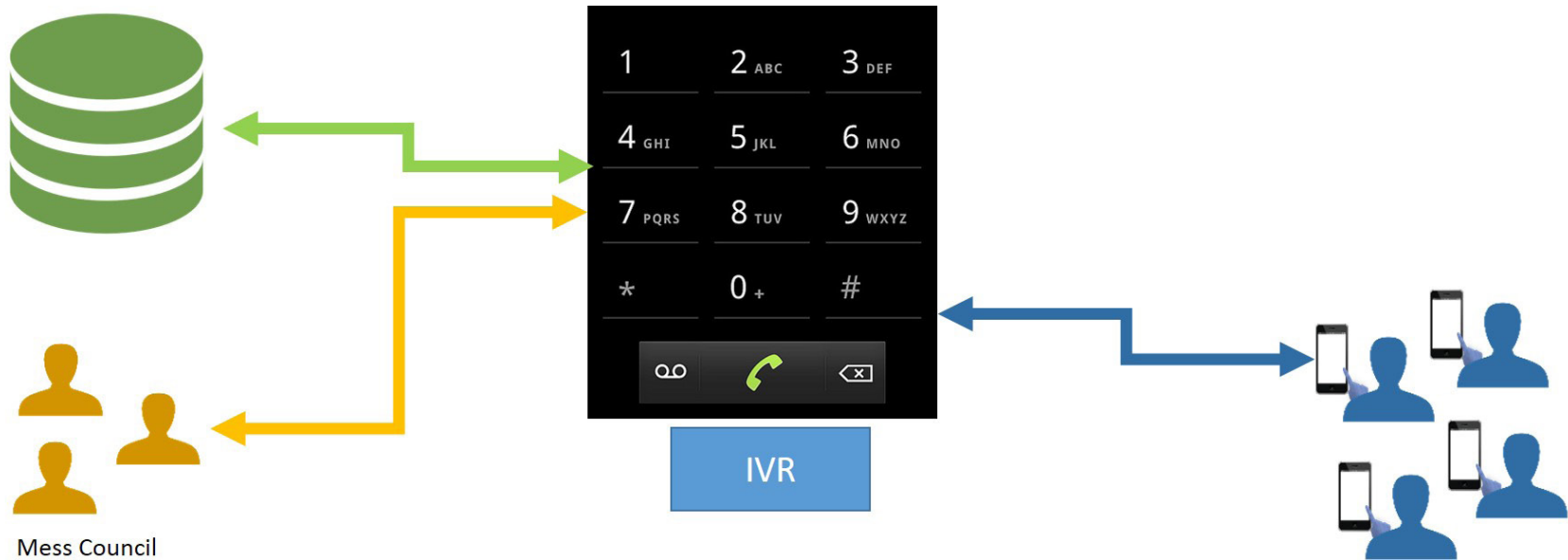
4. SMS / USSD code based Hostel Mess Information System



An alternative way of accessing Hostel mess related information would be using a messaging or calling over a Gsm network. The Gsm module is connected to the server, where all the information can be fetched from the data base.

- Users can send predefined sms codes or call on a predefined mobile number which in reply gives access to the needed information such as daily or weekly food menu.
- Through the SMS codes or USSD codes the users can register their complaints on the server.
- Mess council and mess staff can send clarification or status of their complaints through messages on students mobile.

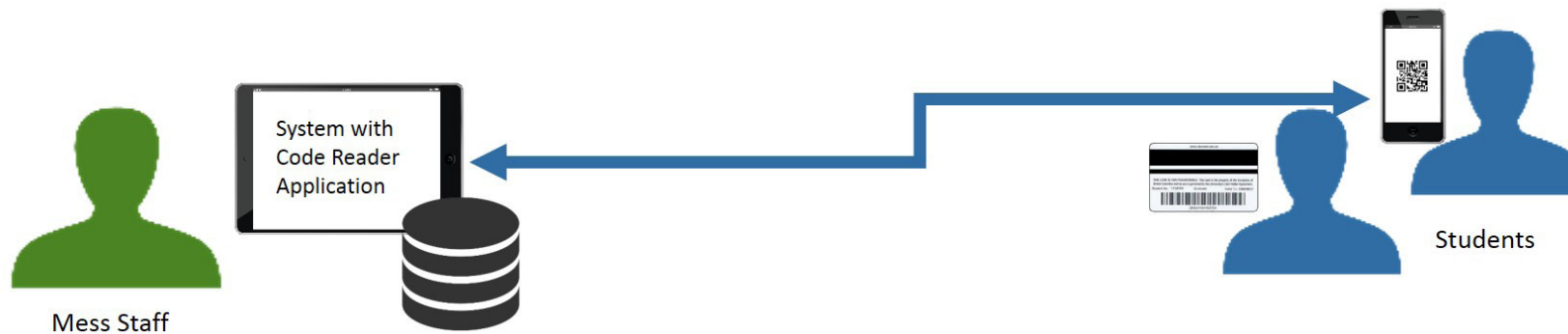
5. IVR Based Hostel Mess Information System



Similar to the previous concept in order to explore different mediums, an IVR based system can be useful in case of students and mess staff those who don't use smart phones. The IVR system has a data base from which information can be fetched.

- Users can call on a predefined number which in reply gives access to the needed hostel mess information.
- Students can contact the mess councillor or the mess staff through the IVR system.
- Thus they can have an on the spot clarification on their complaints in the hostel mess.

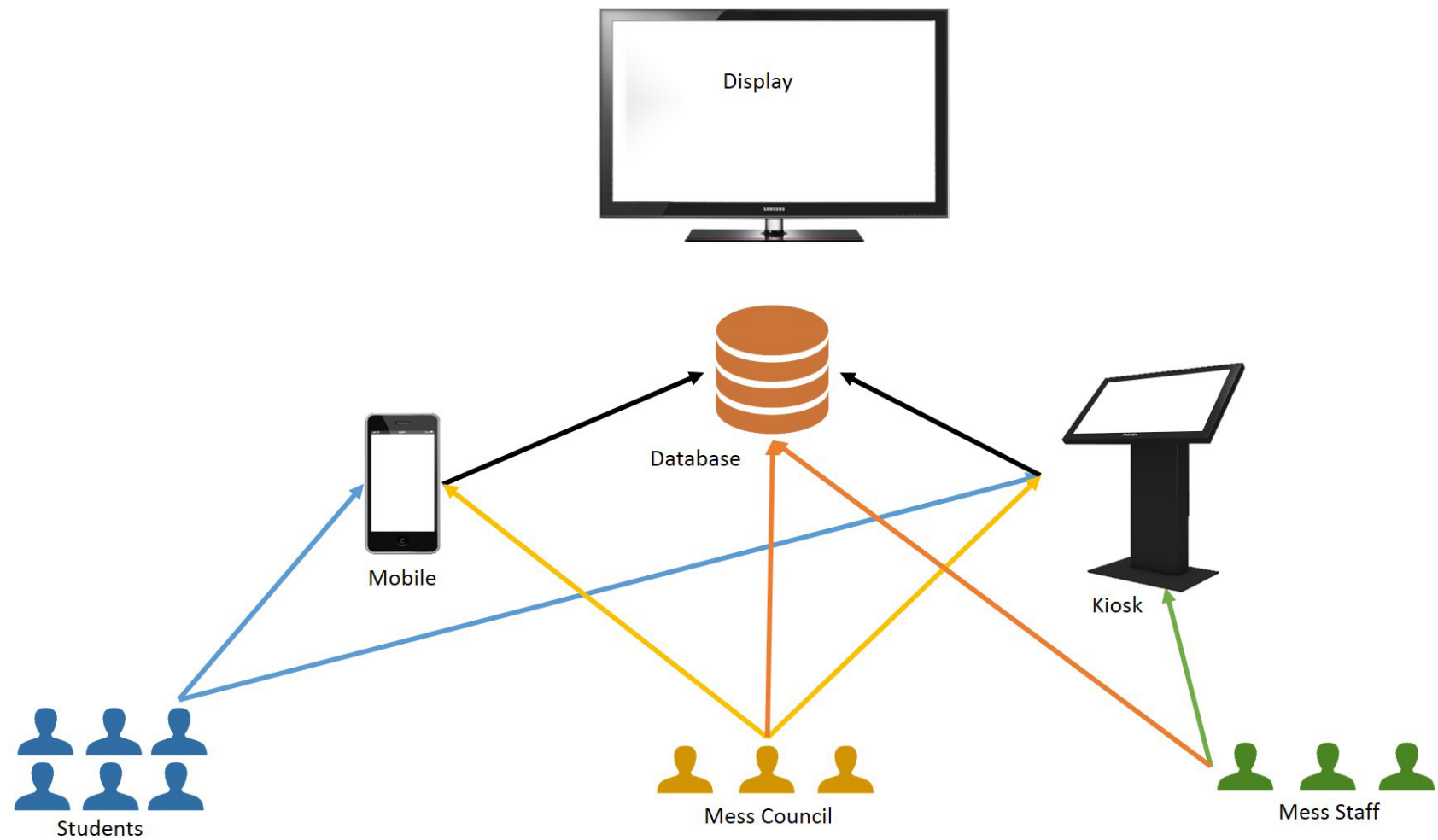
6. Centralised Card System



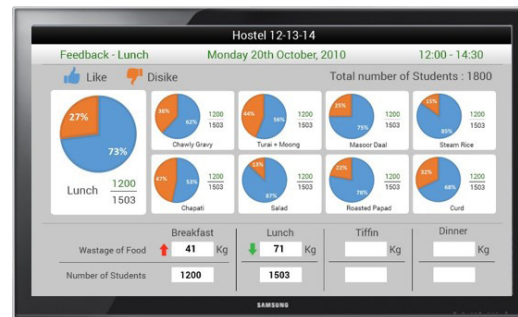
The Centralized card system, in which students can use their institute ID cards as for hostel mess as well. It uses a tablet or a computer with code readers. If the Student forgets to bring the ID card they can use their smart phone application with codes to access the mess facility.

- Students can know the Check in status of overall students in peak hours in hostel mess
- They can have access to the complaint management on the system.
- The possible rebating issues can be easily removed using the centralised card system.
- Billing can be done individually on per day per meal basis which will bring transparency in the service.
- Centralized card system may cater the users to have meals in other hostels without cash payment

Final Design Concept



The final concept comprises of combination of three of the design ideas discussed earlier in the report, which includes the individual advantages of each of those design ideas. As shown in the diagram the system has a Display, a mobile application, a Kiosk and a centralised database. The system is needs to be installed in the Hostel mess where all the users can have easy access to it.



Mess Display

The Mess display is a big LCD screen (at least 21”), which shows hostel mess related information. The Students, mess council members and the mess staff members can interact with the display and with one another simultaneously. The Display is connected to a centralised database.

The display shows students’ feedback over previous meal in addition to overall food wastage and the number of students who had the meal.

The display also shows top unsolved or pending relevant complaints from the students or the mess staff.

The display shows contacts of mess council and the mess staff to which students can easily contact and solve their issues.



IITB Hostel App

‘IITB Hostel App’ is a smart phone based mobile application to be used for hostel mess related information.

The users with smart phone with ‘IITB Hostel App’ can have access to the mess related information and can give inputs to the centralized database.

Students can get alarms and updates about the meal timings and the food menu for today and the next days easily.

Students can give their feedback and comments over previous meals. It can be shown in real time on the mess display.

Students can register their complaints from the mobiles and can get status of their complaints



Kiosk

Kiosk is fixed or mobile computer system setup in the hostel mess area. The users who don't use smart phones can give their inputs through the Mess Kiosk. The Mess Kiosk would help all the users to input their views, feedback or opinions through the system

Students, mess staff can register their complaints through the Mess Kiosk.

The mess council can update the mess related information and take print outs using the Kiosk.

The mess council and the mess staff can give clarification on the registered complaints using the Kiosk.

The rebate forms or hard-copies of the registered complaints and forms related to fines for the mess staff can be taken using the Mess Kiosk.

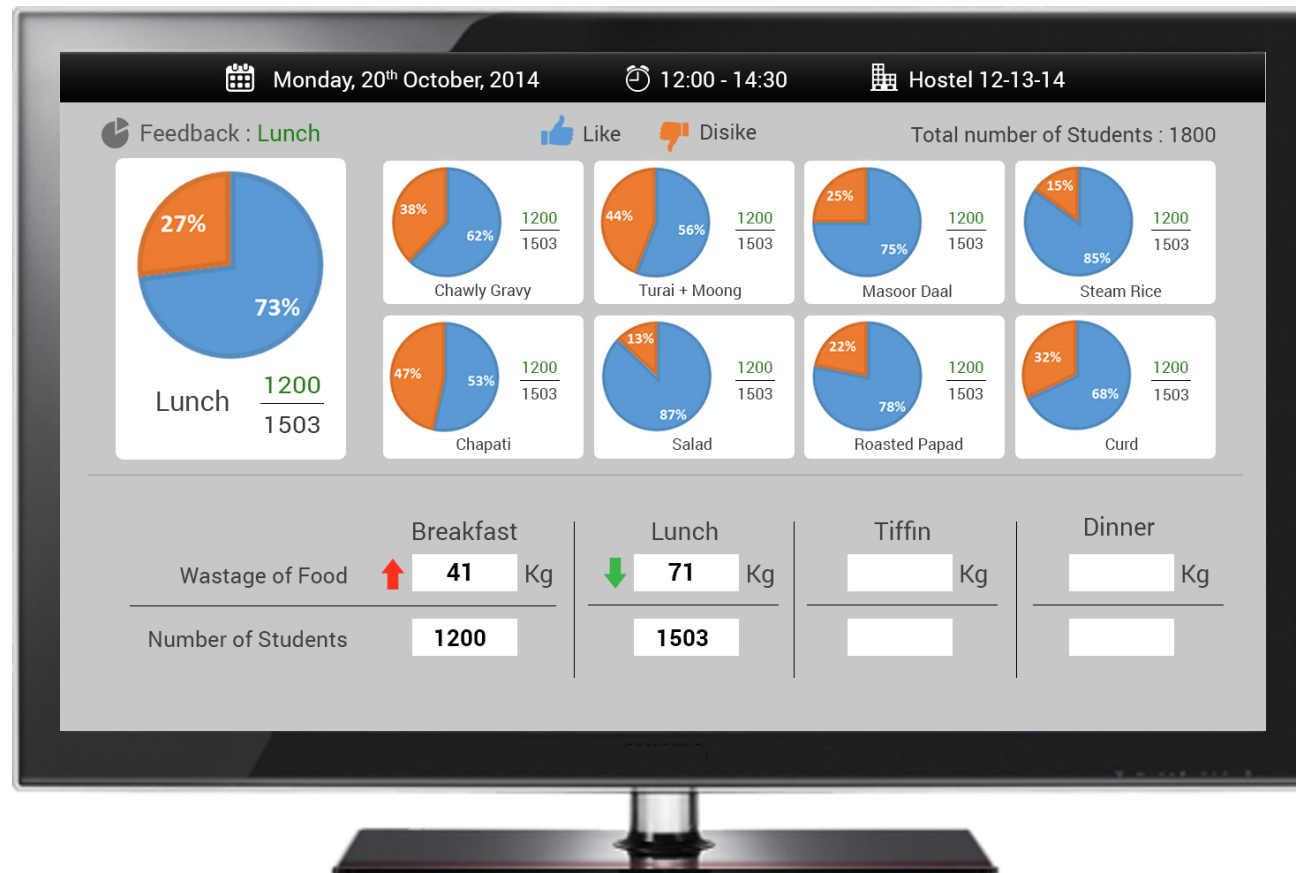


Database

It is a centralised database connected to the IITB Hostel App and Kiosk. The database gets input either from the mobile application or from the Kiosk setup in the hostel mess. Mess council and the mess managers can access the database. The Centralised database has all the information related to hostel mess such as food menu, students accounts, Complaints, Feedback polls, Mess contacts, updates, etc.

Students	Mess Council	Mess Staff
Feedback on previous meal individual (Mobile App) Group (kiosk)	Feedback on food + Daily Wastage	Improve Food <ul style="list-style-type: none"> • Quality • Quantity • Mess Referendum
Complaint Registration and its status	Feedback Loop of Complaints	<ul style="list-style-type: none"> • Clarification on complaints • Solving relevant complaints • Forwarding complaints to respective post holders
Access to daily Food Menu	Results of Referendum	
Mess Updates – <ul style="list-style-type: none"> • Mess Referendum, • Monthly Bills • Notifications / Alarms • Mails • Events – Advertisements 	Mess Updates	<ul style="list-style-type: none"> • Minutes of Meetings • Gala Dinner, Pest control • Changes in the Food Menu • Delay in Service
Contacts – <ul style="list-style-type: none"> • Mess Council • Mess Manager 	Notification about events	Number of daily users eating everyday
CMS – <ul style="list-style-type: none"> • IITB Gymkhana CMS Website • Hostel App CMS software 	Sense of Responsibility	
Print Outs (Kiosk) – <ul style="list-style-type: none"> • Hard copy of Complaint • Rebate forms • Fine forms 		Availability of food items
Social Interaction on dining table	Interaction with students	

Mess Display

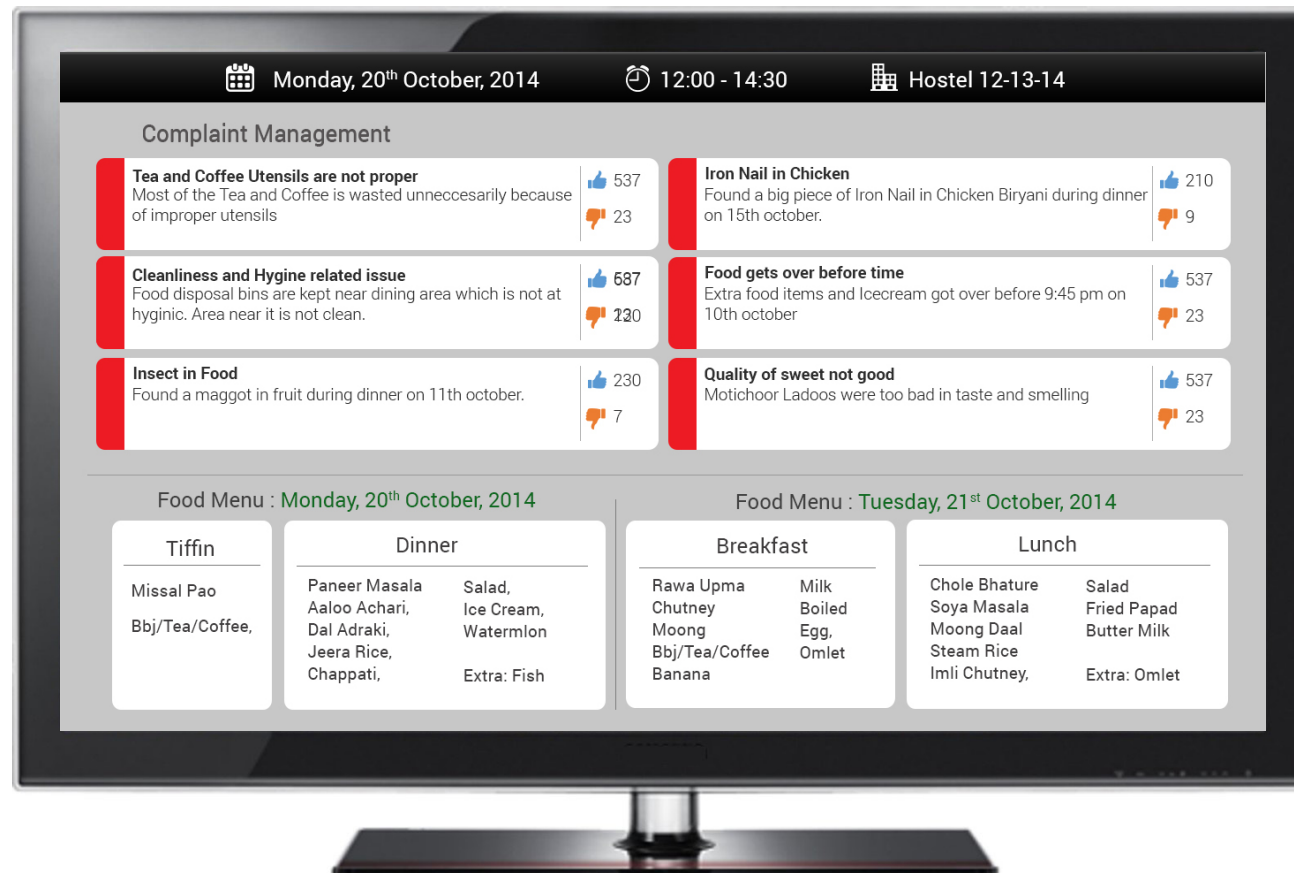


A group of students see Mess Display in the hostel Mess area. The Mess Display shows the feedback given by students on previous meal they had. It shows the total number of students who had food

in the mess and amount of food wasted and comparatively if it is greater or smaller than same food menu 2 weeks before.



It shows today's and tomorrow's food menu. It also shows if in case the menu has changed.



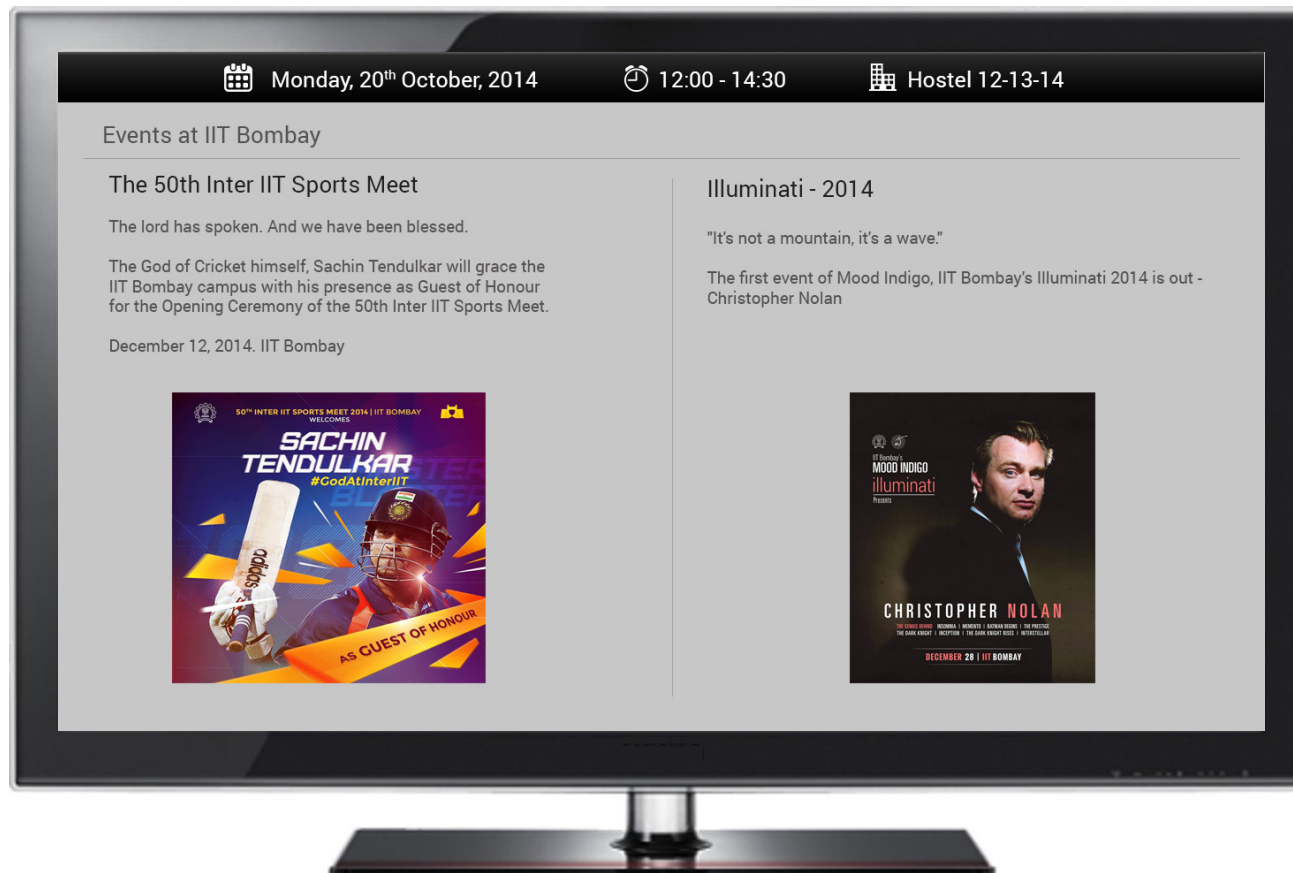
The display shows the top complaints which are not solved and how many students think that they are relevant enough to get solved.



To solve minor issues on the spot or for calling mess council and mess staff, the mess contacts are displayed on the screen.

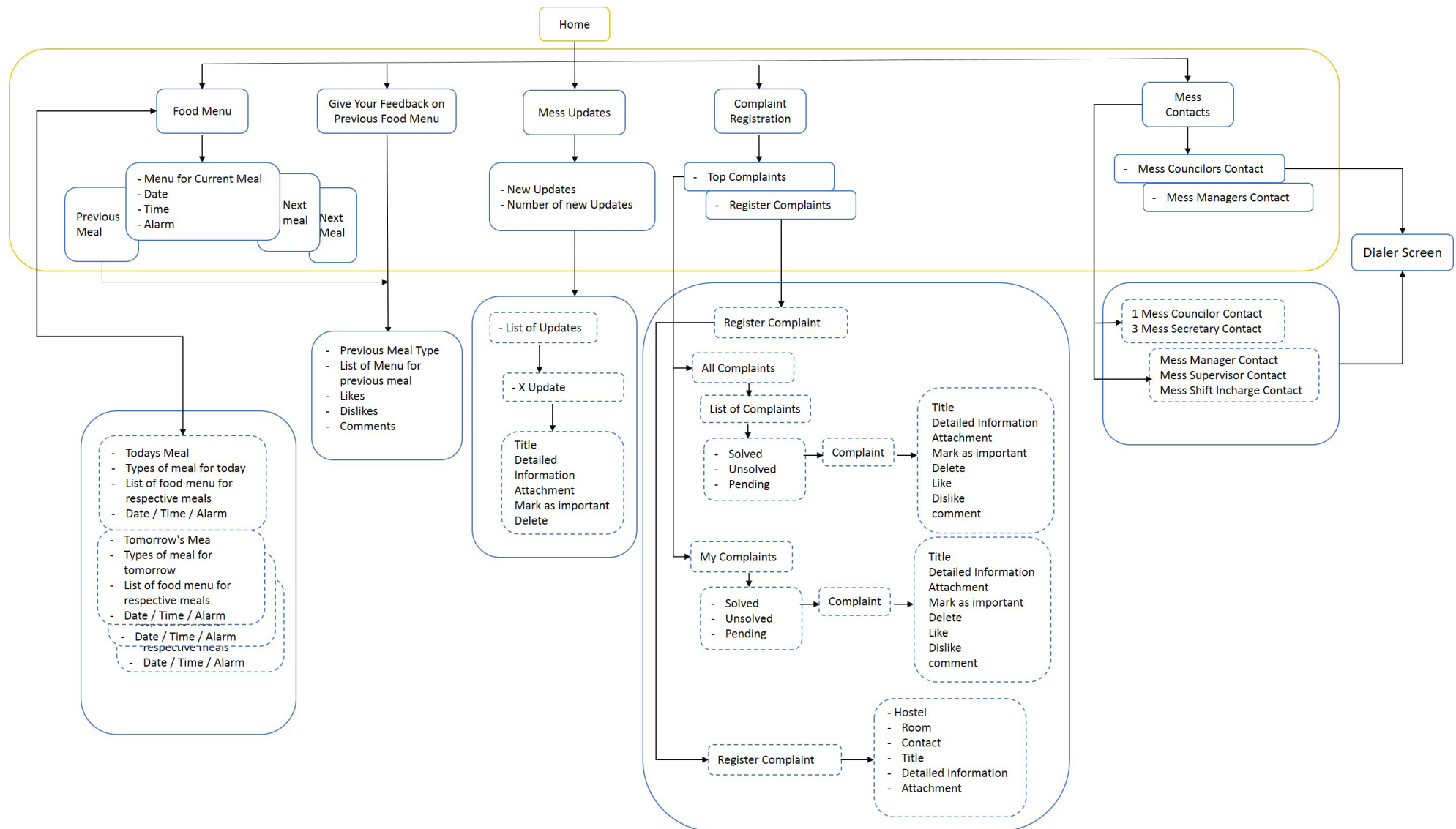


The new and important mess updates along with suggestions and complements are displayed on the screen.



The events occurring in hostel or at IIT Bombay campus are shown on the screen.

IITB Hostel Mess App



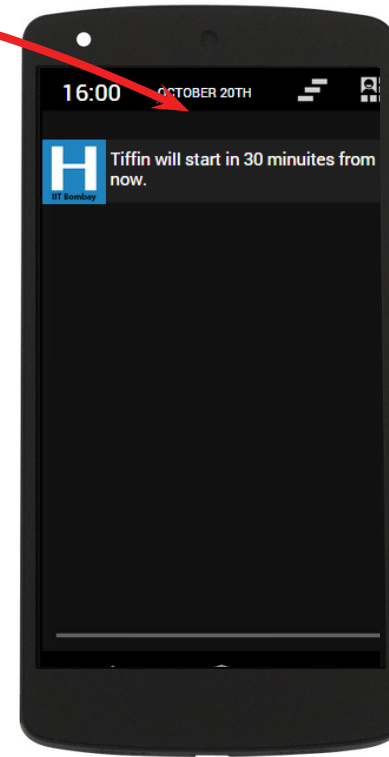
Navigation



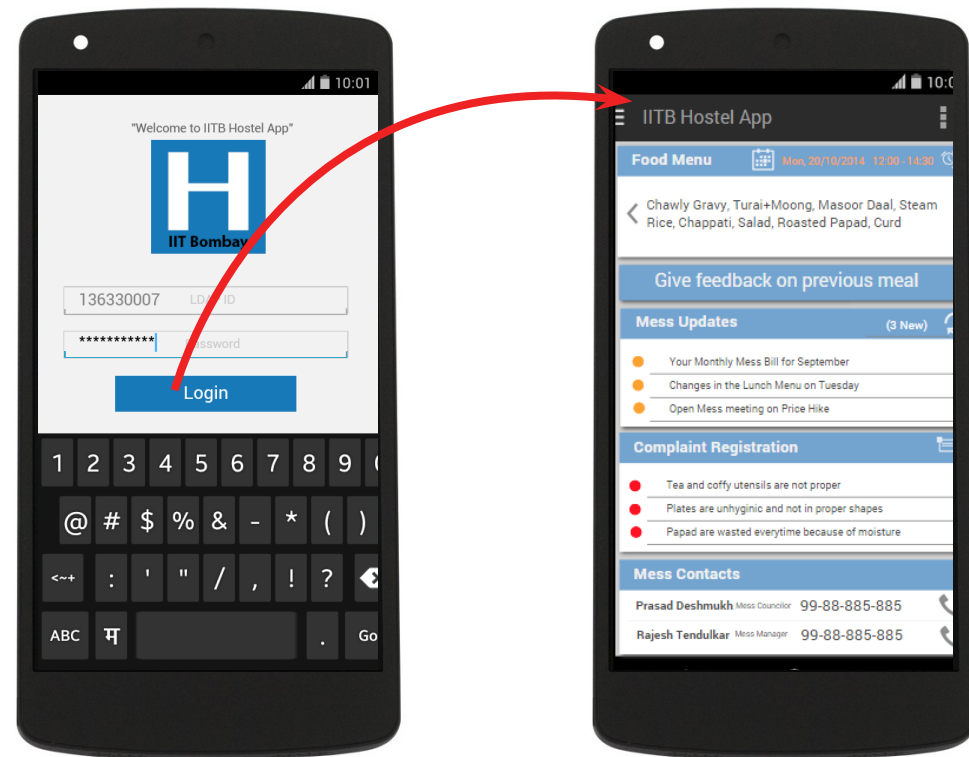
Home Page



Application Menu Page

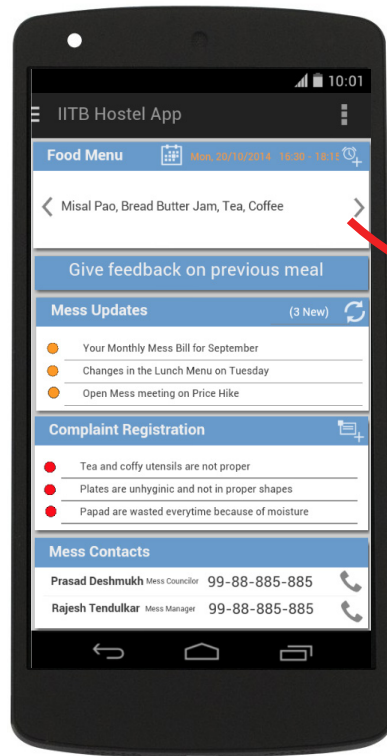


Alarm / Notification

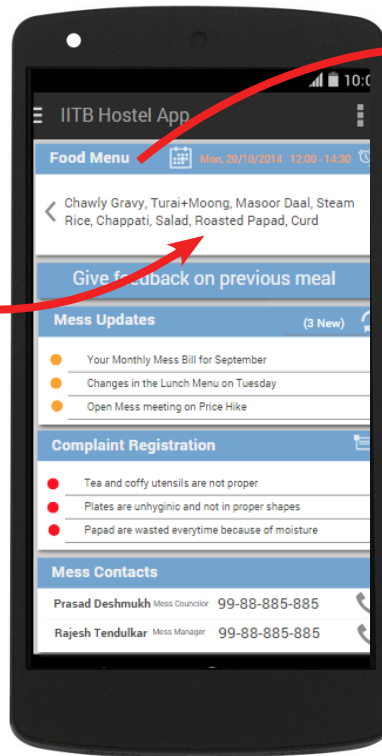


Login Page

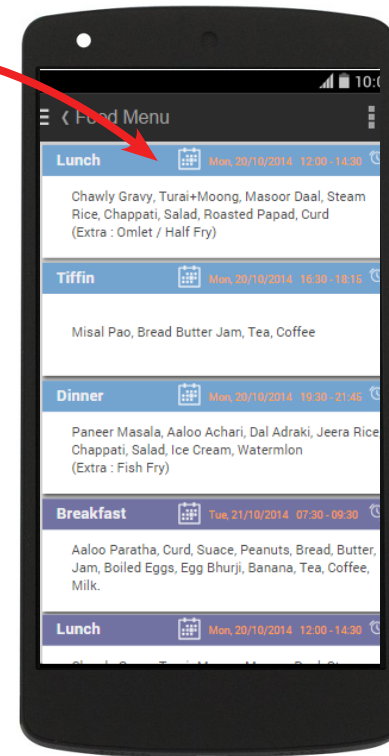
Landing Page



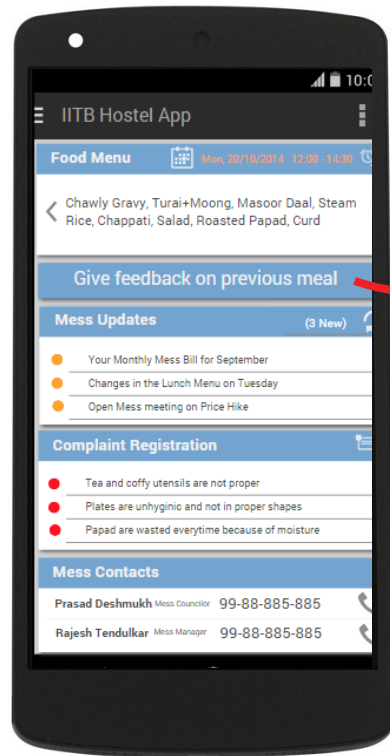
Landing Page



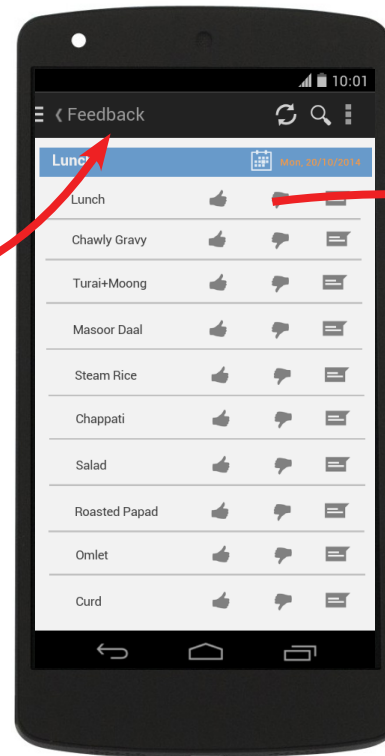
Change in the Food Menu



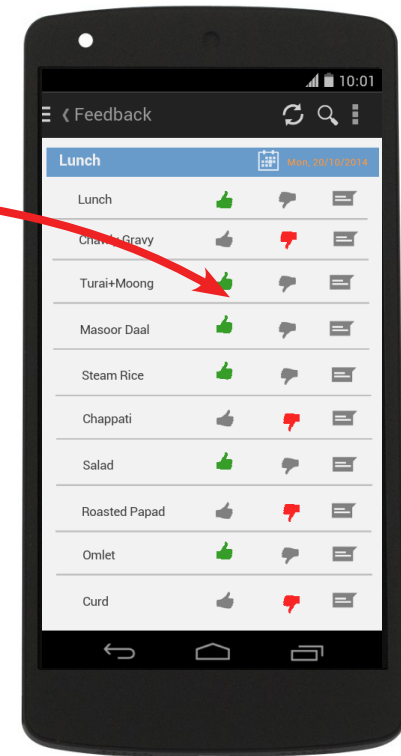
Food Menu Page (Scrollable)



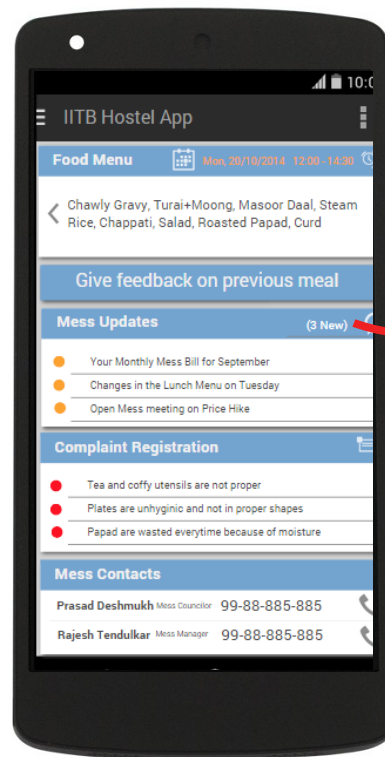
Landing Page



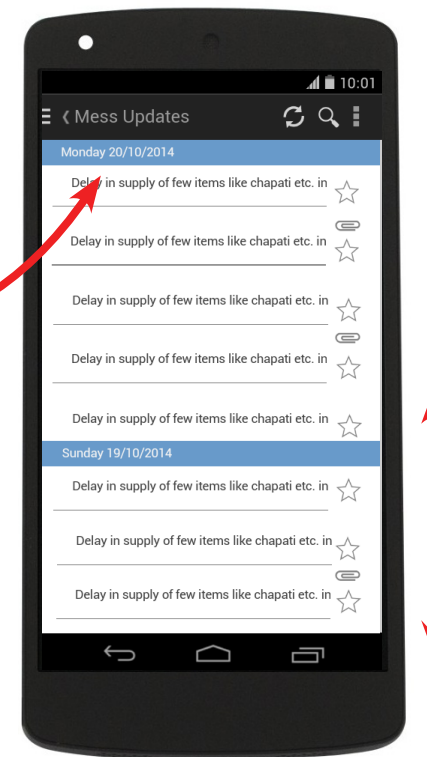
Feedback Page without voting



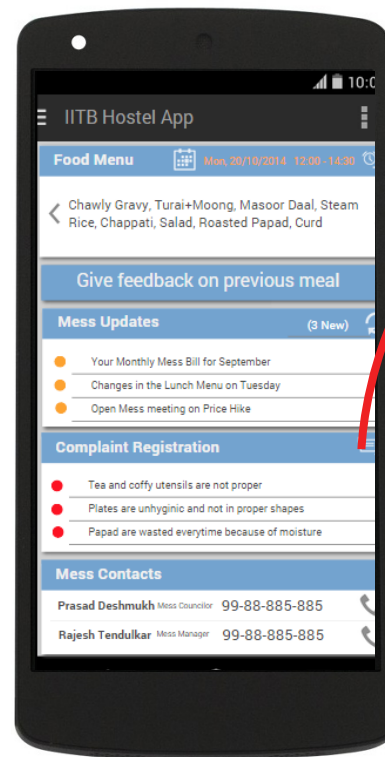
Feedback Page after voting



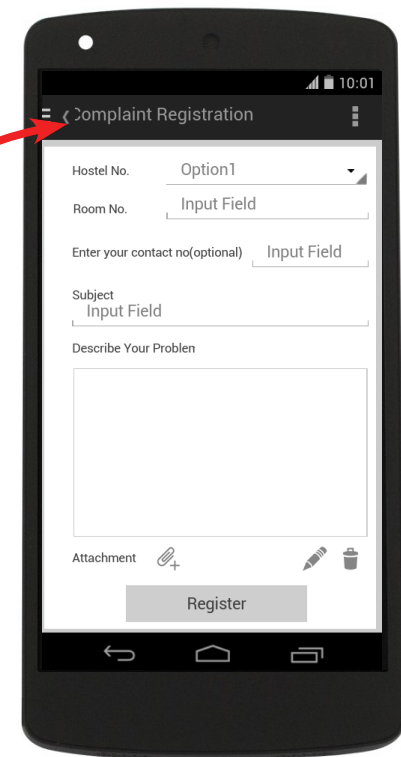
Landing Page



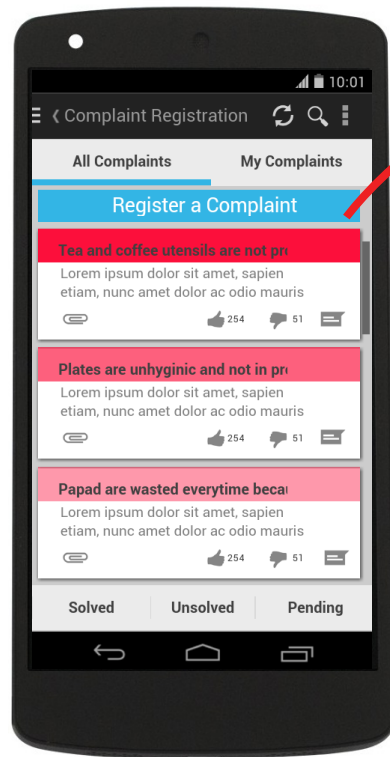
Mess Updates Page
(Scrollable)



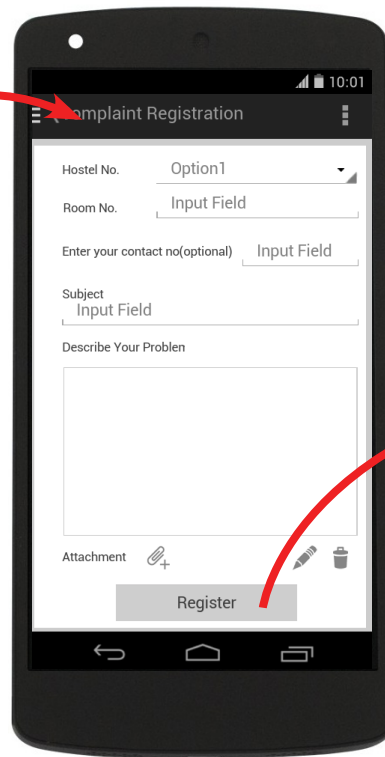
LandingPage



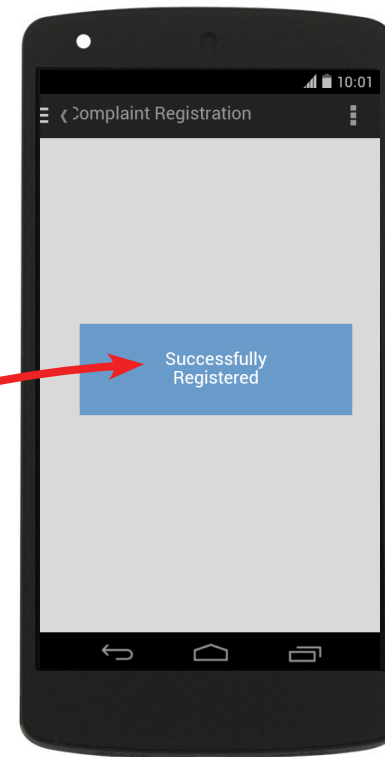
Complaint Registration Page



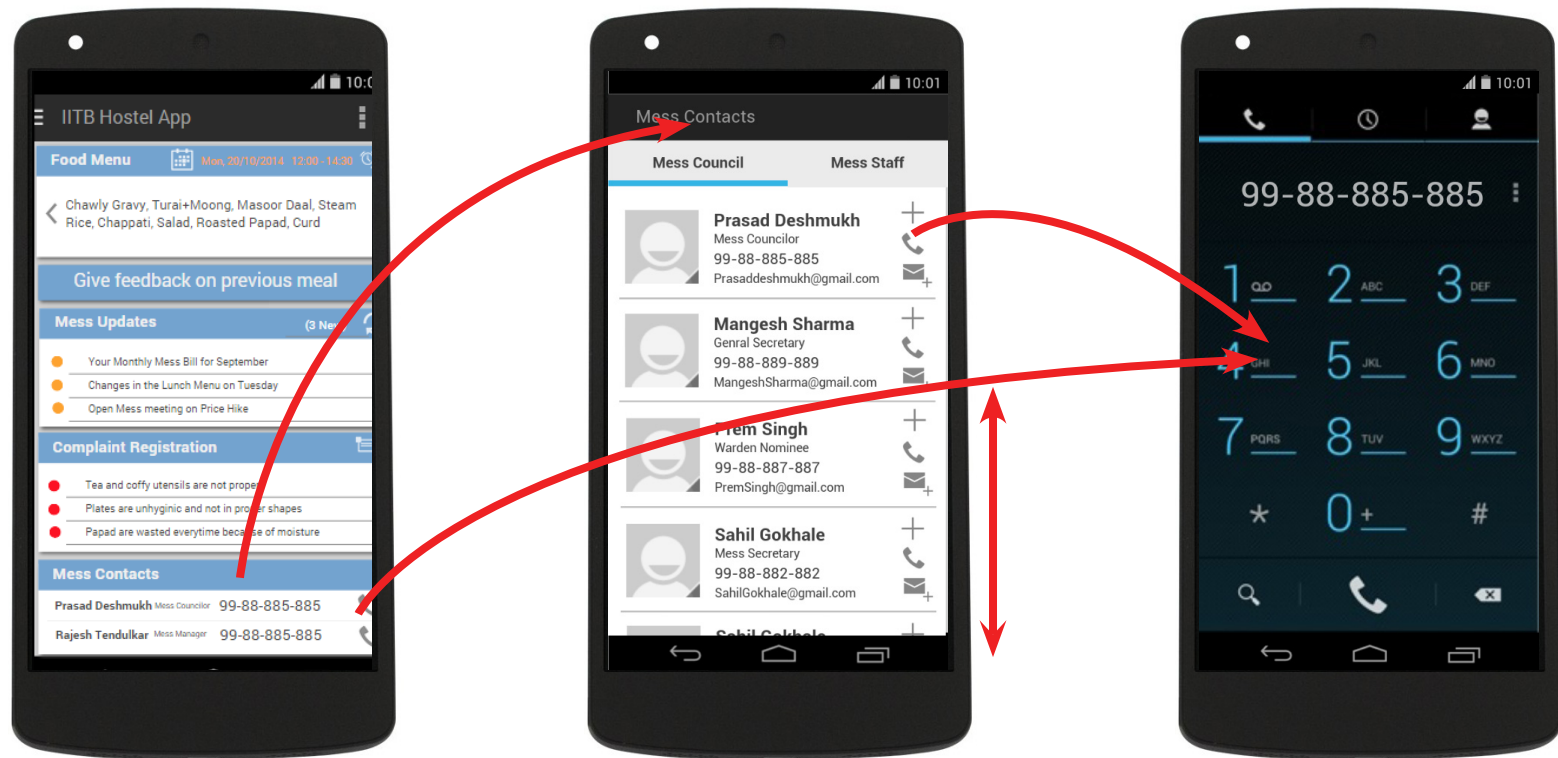
Complaint Management Page



Complaint Registration Page



Success in Registration

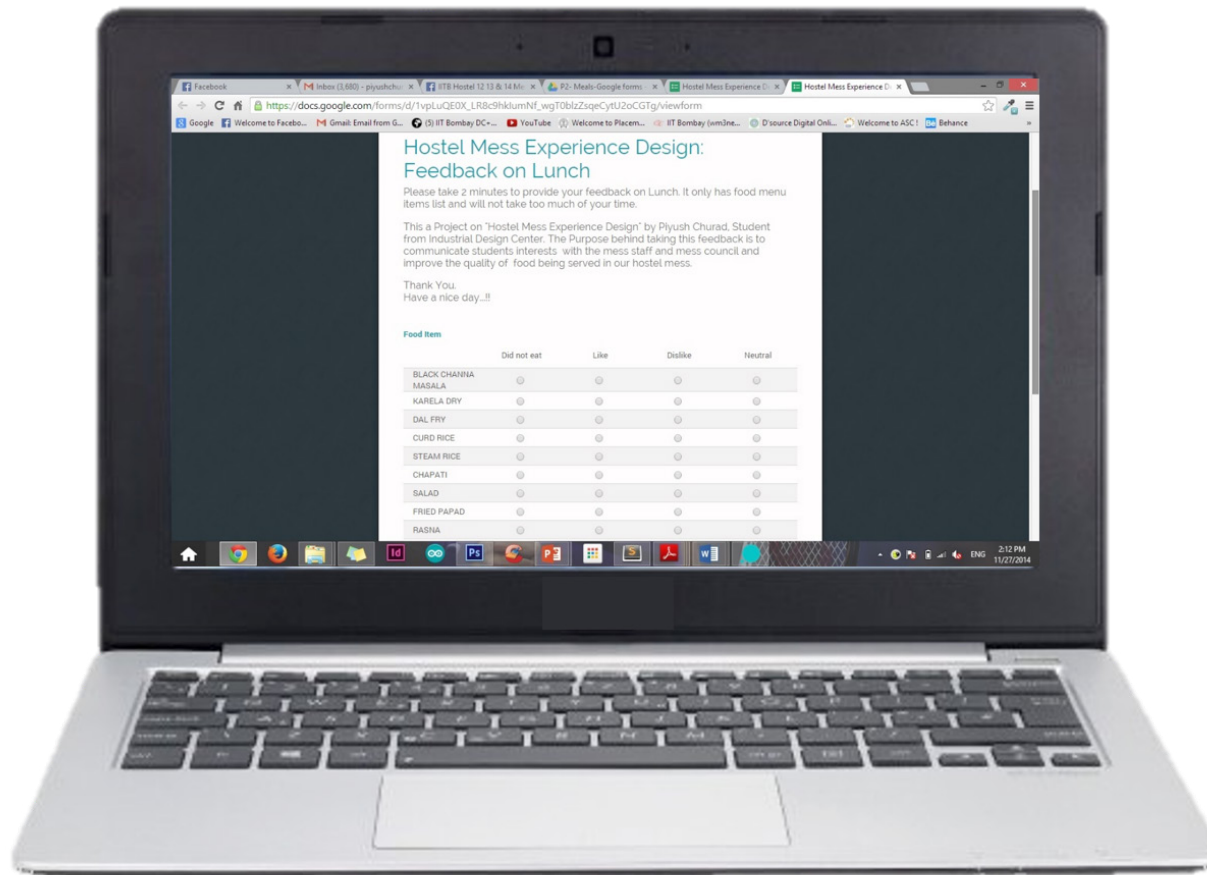


Landing Page

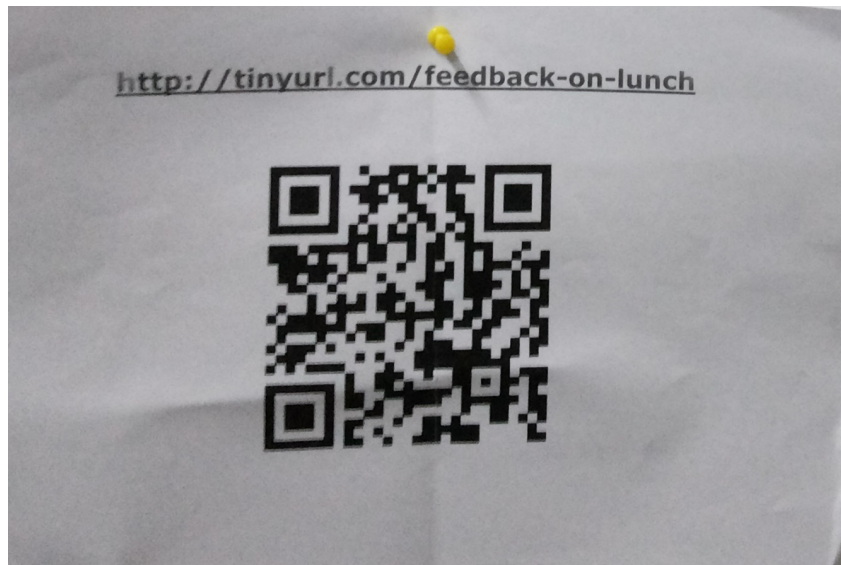
Mess Council Contact Page

Dialler Screen

Mess Kiosk



The mess kiosk was implemented using a laptop, with which users can type their complaints and write about suggestions.



Please provide your Feedback on previous meal. Tick ✓ in either or column.

Hostel Mess Experience Design : Feedback on previous meal

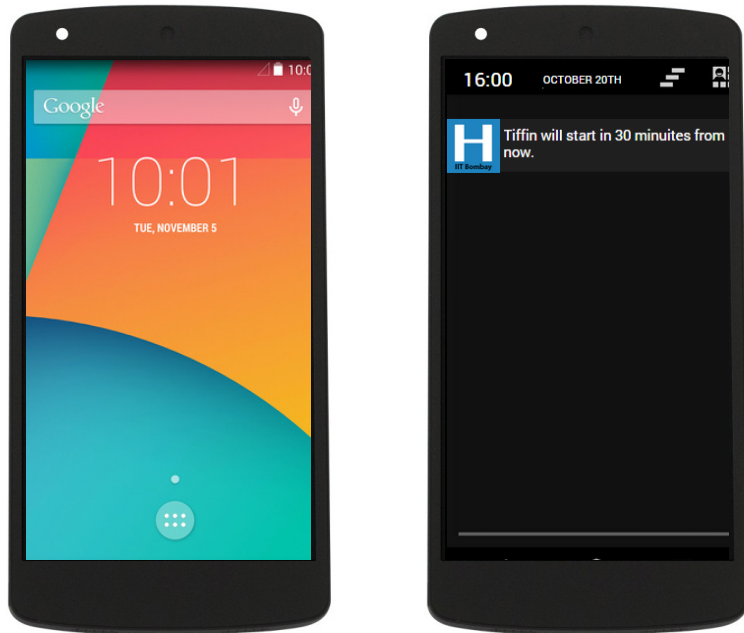
Hostel Number : 14 Type of Meal : BREAKFAST Date: 22/11/2014 Timing: 7:30 to 9:30 AM

Food Menu	LIKE	NEUTRAL	DISLIKE	DID NOT EAT
ONION PARATHA	✓		✓	
CURD & SAUCE		✓		
MIX SPROUT		✓		
BBT	✓	✓		
TEA/COFFEE/MILK	✓	✓		
BANANA	✓	✓		
BOILED EGG / OMELET	✓			

Food Menu	LIKE	NEUTRAL	DISLIKE	DID NOT EAT
ONION PARATHA	✓	✓		
CURD & SAUCE	✓			
MIX SPROUT	✓			
BBT	✓			
TEA/COFFEE/MILK	✓	✓		
BANANA	✓	✓		
BOILED EGG / OMELET	✓	✓		

In case of service breakdown, the active touch points were provided to the users. It included links to the feedback page for corresponding meal timings. In case the page link doesn't work, a feedback form was given to the users to rate the food according to their likes and dislikes.

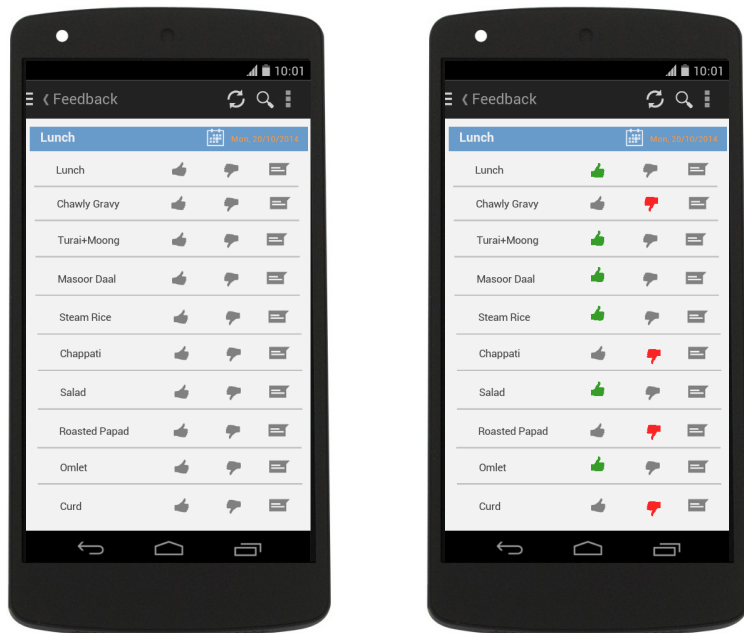
Scenario #1



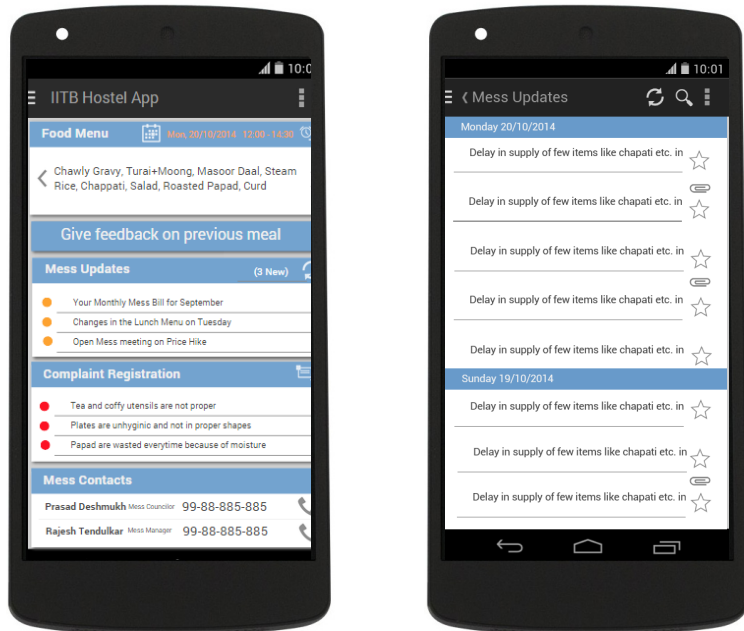
Tushar is sitting in his hostel room. He gets an alarm on his smart phone about Tiffin starting in 30 mins.



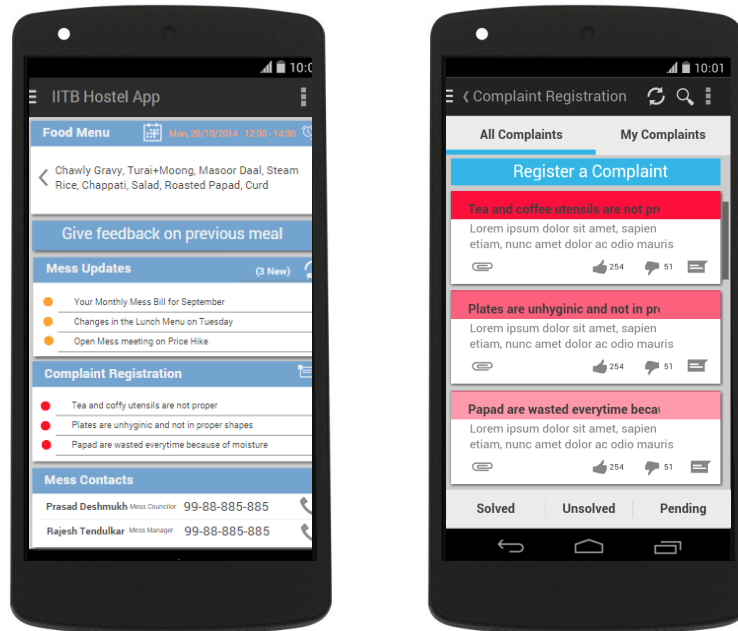
Last week he found an insect in his food, He complained for that.
Now he wants to check for today's food menu.



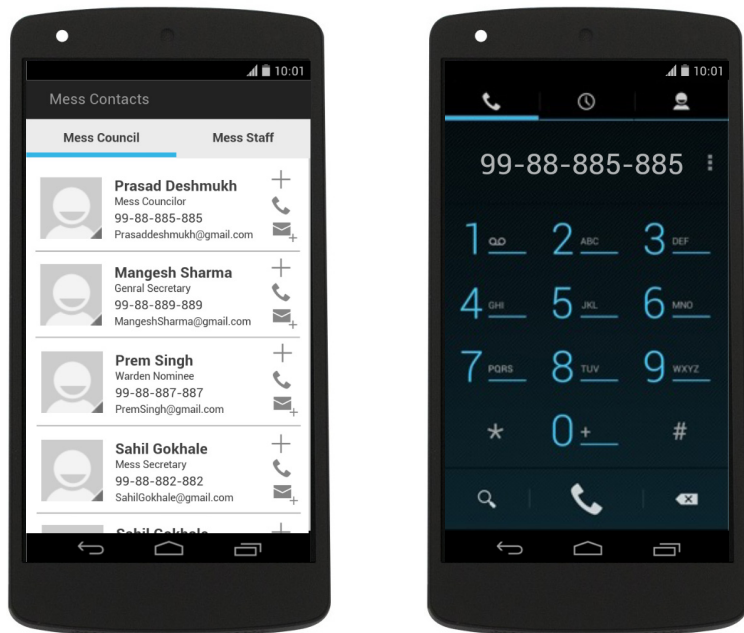
Since he has 30 more minutes for Tiffin to start, he decides to give feedback for today's Lunch.



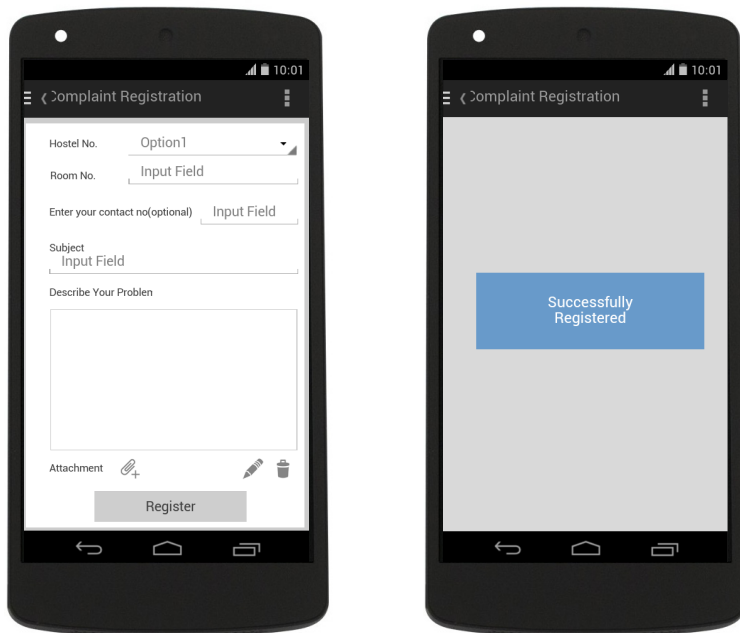
Gets the plate takes food and sits at a place. Meanwhile eating he checks mess updates.



Tushar checks the status of his complaint that he did one week before. Rechecks it in the list and gets to know that it is unsolved. He discusses with the mess staff.



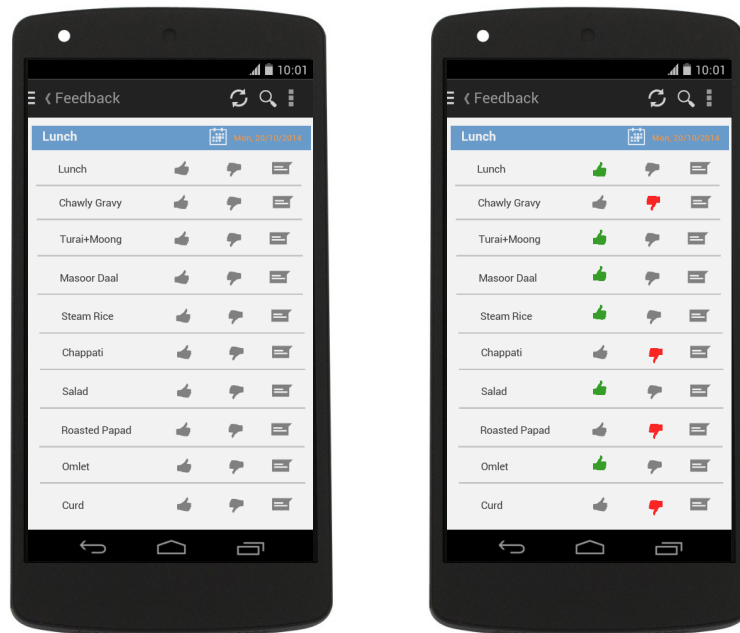
Then decides to call Mess Councillor. Mess councillor asks him to write another complaint.



Mess Councilor solves his issues by meeting with the Mess manager after 2 days.

Scenario #2





A group of students gets to know about new system in the Hostel mess. They get to interact with each other and discuss various issues. It acts as a trigger for the social interaction.

Then they decide to give their feedback and suggestions for Tiffin.

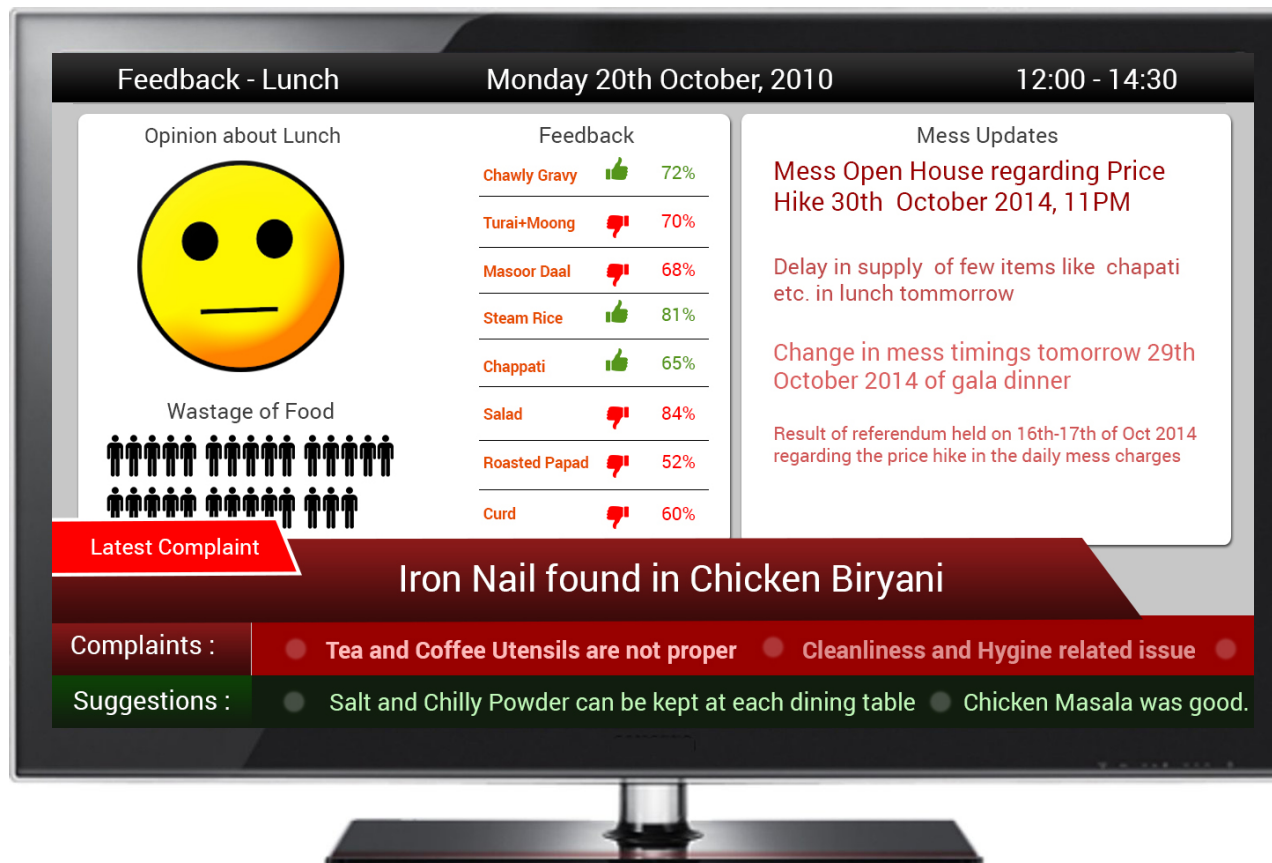


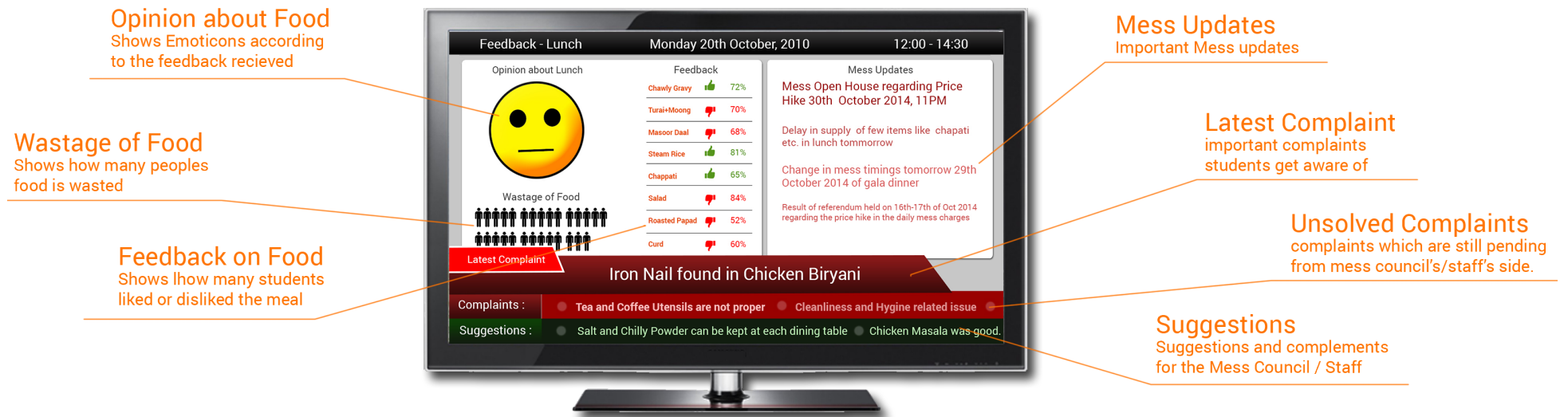
User Feedback

User Feedback for Mess Display

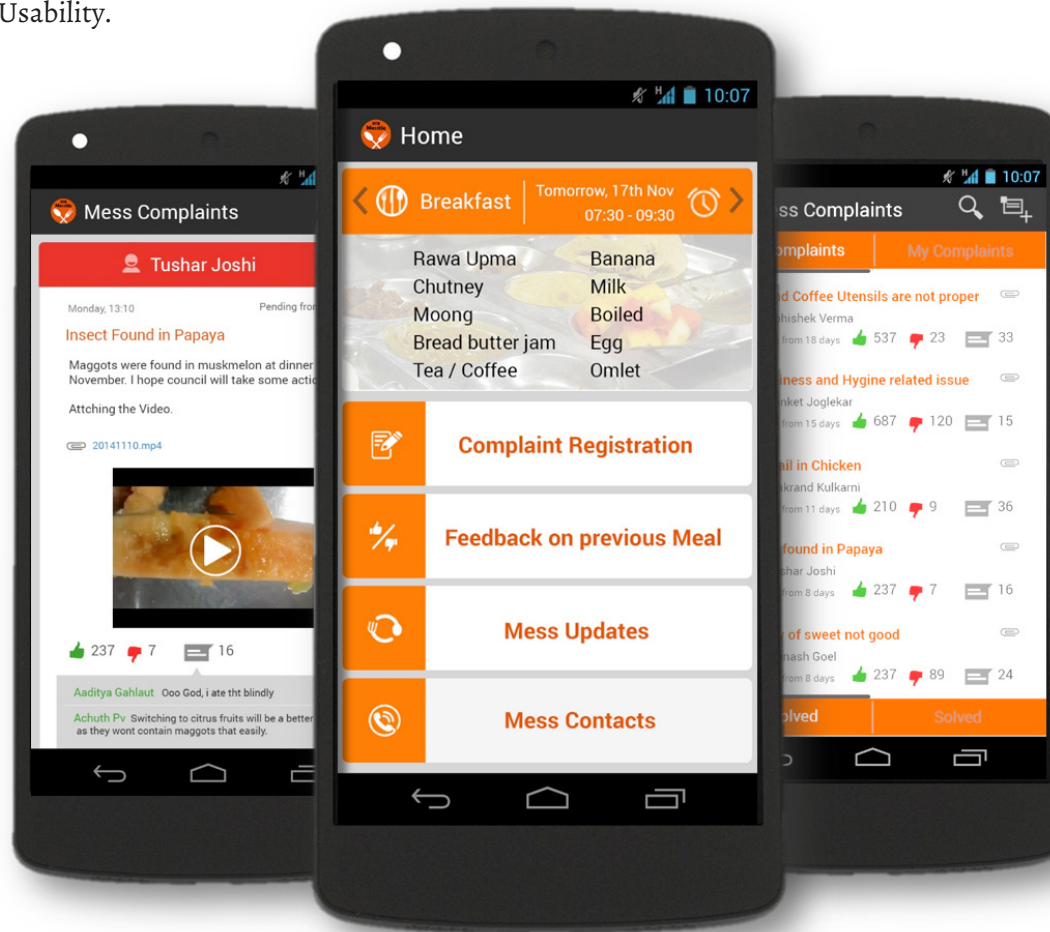
After taking the user feedback the interface for Mess Display was modified. Generally, students don't wait for more than 2 minutes in

the mess after having dinner. Considering the time constraints, the design was modified taking the inspiration of a news channel TV interface where most of the information is visible in a single screen.



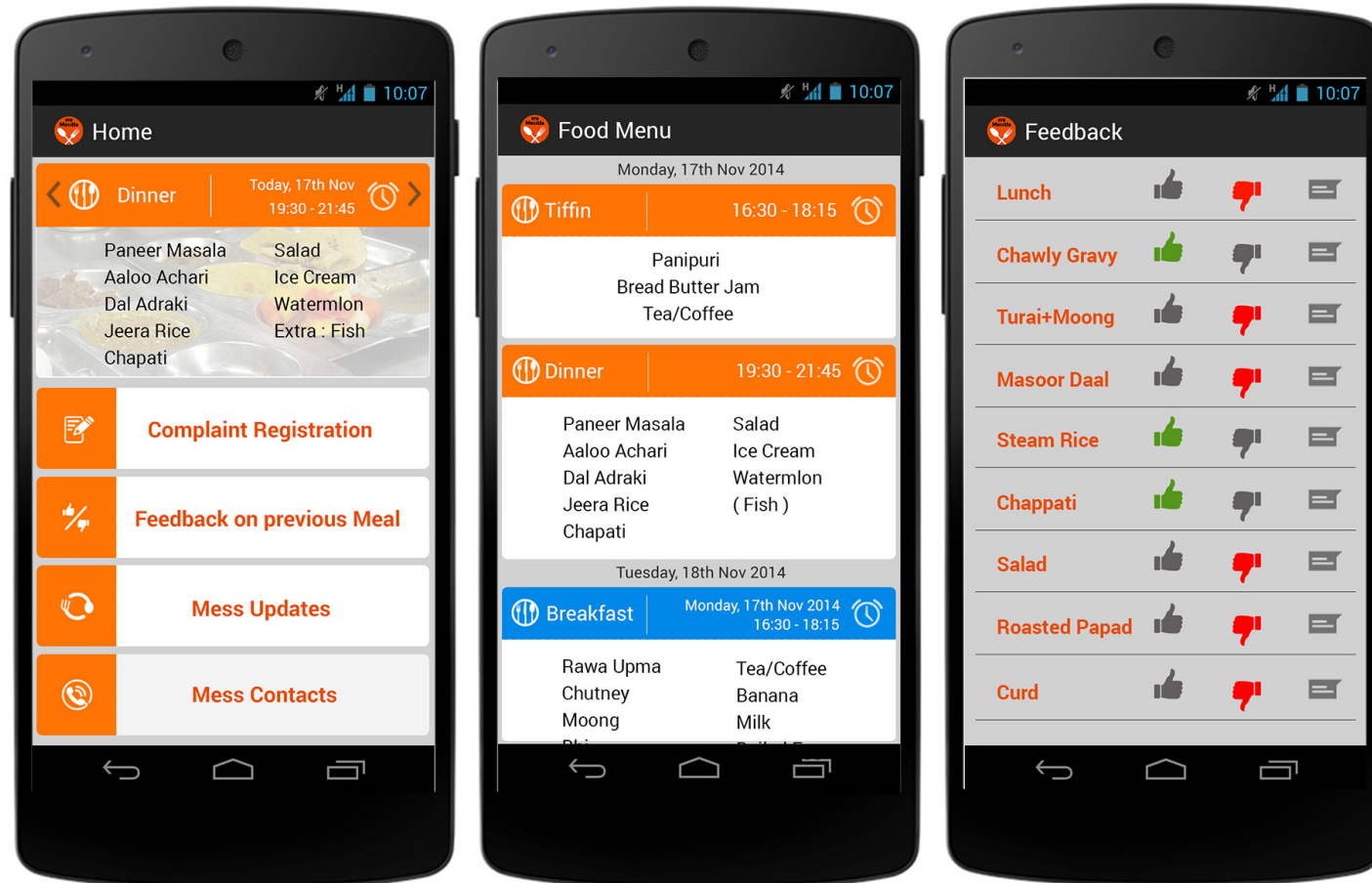


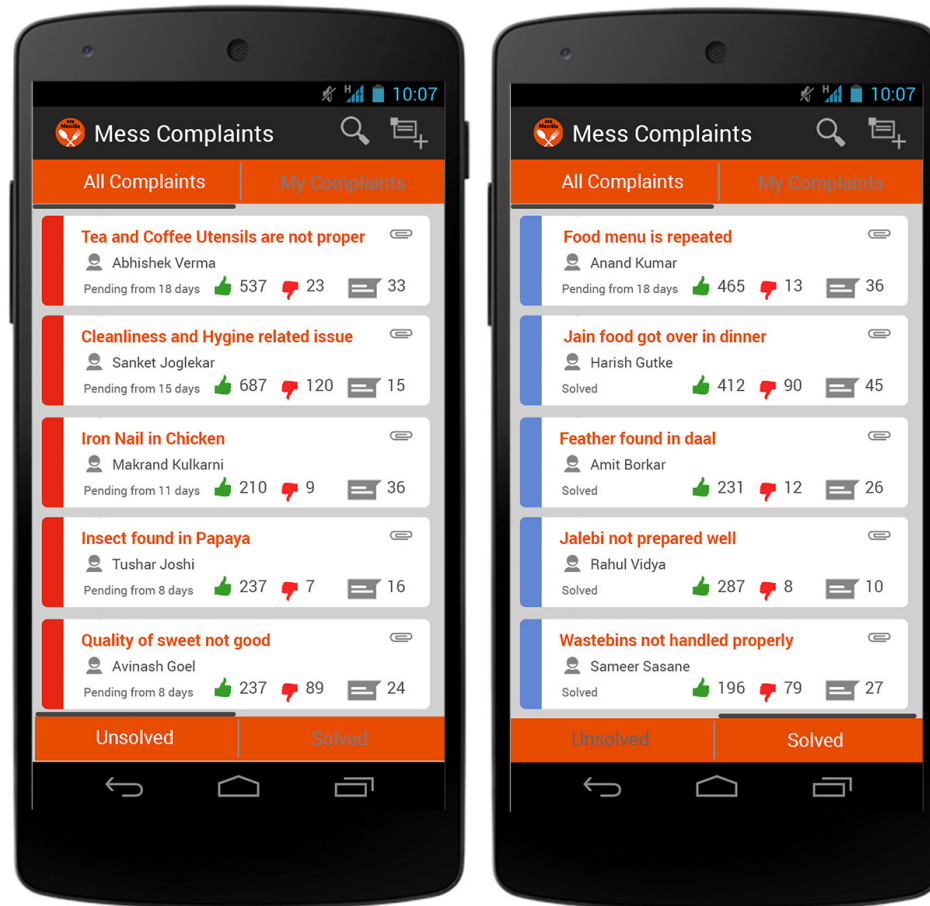
After getting user feedback and doing heuristic evaluation the IITB Mess App was further modified and redesigned in terms of Visuals language, Navigation and Usability.

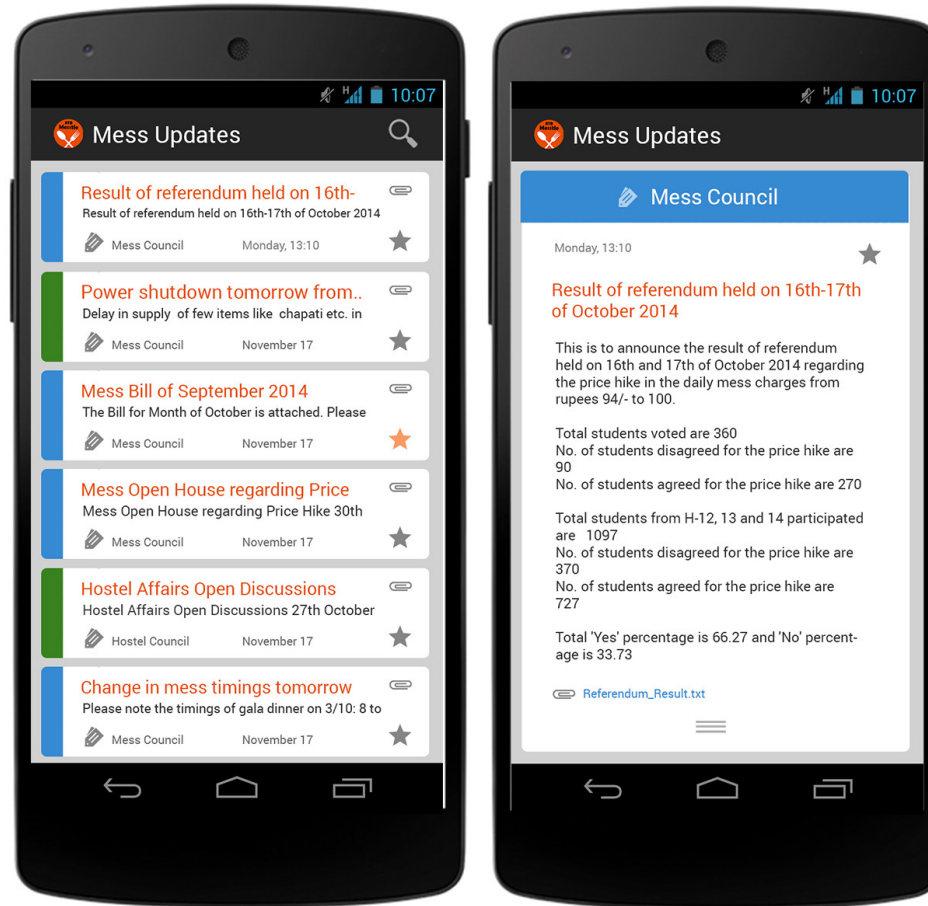


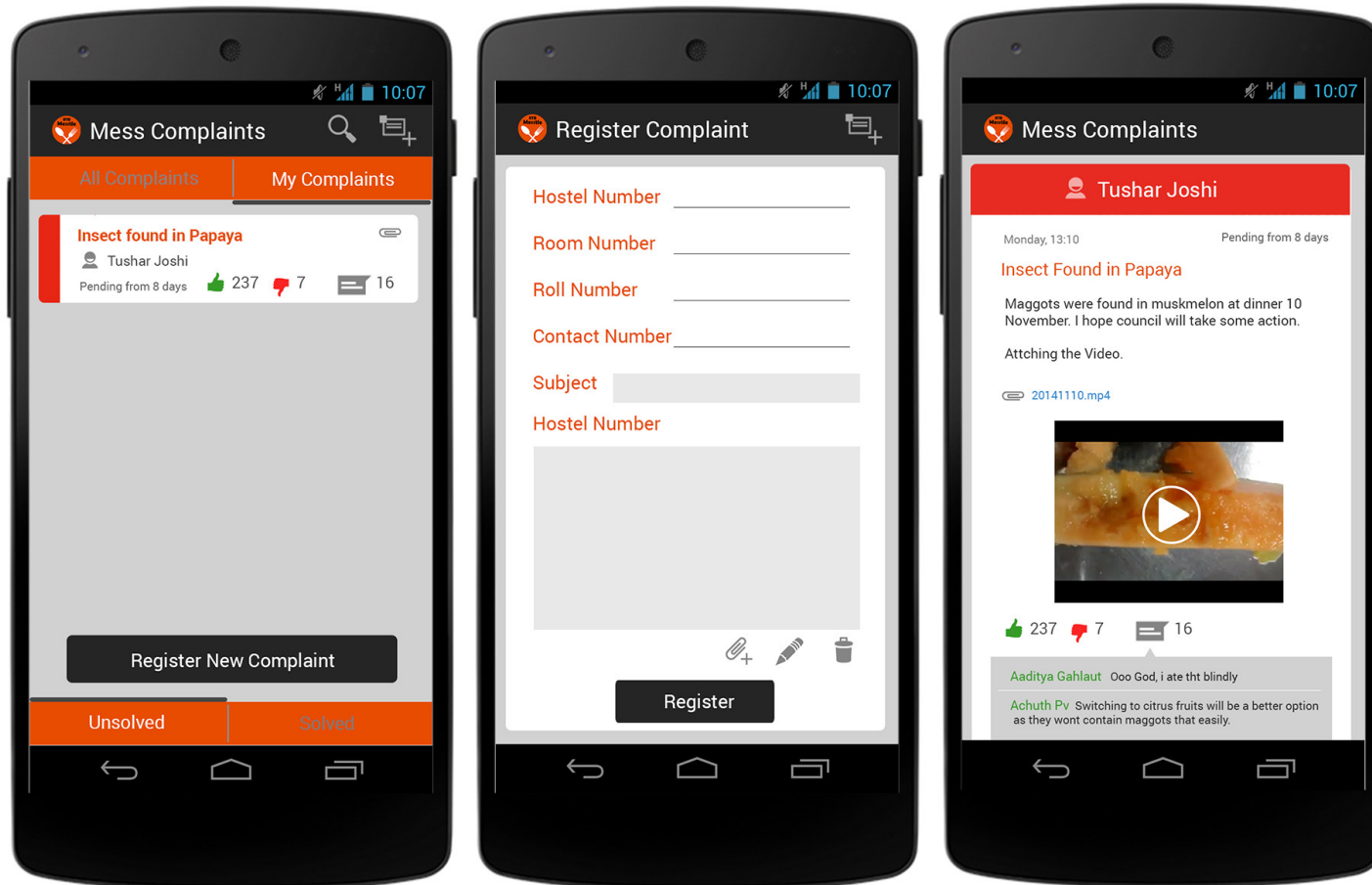
Hostel Mess Experience Design

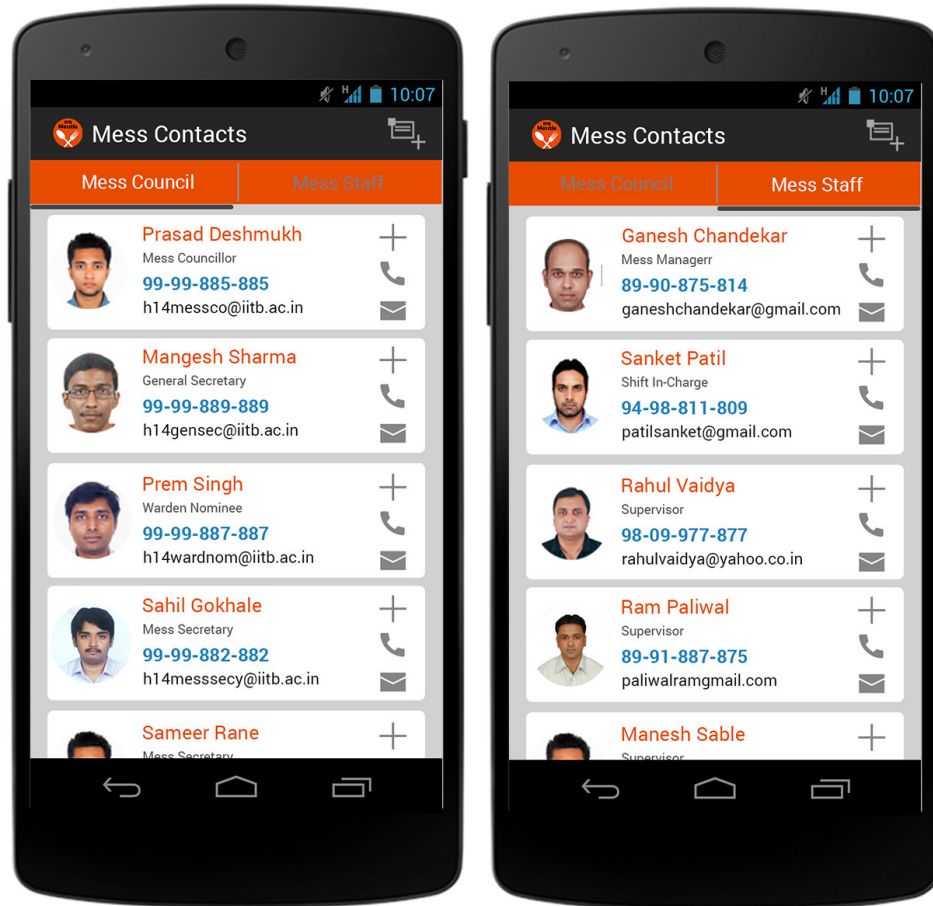
Project By: Piyush Churad, IDC IIT Bombay











Evaluation

For Mess Application

Goals:

- From user's perspective the goals of evaluation is to examine the usability of newly proposed solution.
- Examine the perceived usefulness and the limitations of the service.
- Are the users able to communicate their feedbacks and suggestions towards the mess caterers.

Introduction :

The participants were given a brief of the application. The participants receive an overview of the usability test procedure. Participants were asked to answer to post test questionnaire. 20 - 30 students were asked to provide feedback. 8 meal timings were covered in the hostel mess 14 of IIT Bombay.

Criteria :

- Students who are residing in hostels and have access to Mess.
- Students who atleast eat 2 times a day in hostel mess.
- Students / Mess Staff who are familiar with smartphone apps.

Evaluation Test

- The user were asked to perform a number of unfamiliar task.

Evaluation Criteria: Completed or not, no of tries required to complete the task, time required to complete the task.

- Users were asked to do think aloud while performing tasks.
- A group of designers were given the access to the system and asked to do a heuristic evaluation.

Post-test Questionnaire

- User were asked to answer a post-test questionnaire.
- Users were asked to give feedback about the application



Evaluation Task for IITB Mess App

- Search for tomorrow's breakfast. (15/18)
- Search for the extra food item in tomorrow's dinner. (9/18)
- User is supposed to be done with today's lunch. User has to provide feedback on today's Lunch (18/18)
- User is not happy with the hygiene in the mess. User has to register a new complaint. (16/18)
- Look for the status of user's recently made complaint. (8/18)
- Look for the details of result of the recently floated referendum. (18/18)
- Call the mess councilor. Then, Mess councilor is not present in the mess. User has to call the mess Supervisor. (18/18)

User Feedback for Mess Application

Visually the application was not appealing enough to attract users' attention. Certain modification and redesign of the interface was done after taking the user feedback.

- The affordance of food menu button was not clear
- The affordance of 'Register new complaint' was not clear
- Feedback on the previous meal needed 2 more extra variables of 'Neutral' and 'Did not eat'
- Need for comment for all food items was not required
- Status of the unsolved complaints was not prominently visible
- Relevancy of the complaints with likes and dislikes was found to be confusing
- Color theme was not properly conveyed.
- Add button in contact was not clear.
- Visual design wise the mobile application was not appealing
- Dates and time in the prototype created some confusion

Evaluation Task for Mess Display

- Think aloud on the information being displayed on the mess display.
- Repeat the above mentioned task for different screens being displayed
- Repeat the above mentioned task for different time interval and for different distance

Some of the feedback is as follows,

- Students don't have much time to read all the information on the mess display
- A bigger display screen is needed.
- Distance and time of students waiting or passing is critical for conveying information
- The frequency of giving feedback was not clear
- Pie chart were found to be confusing.
- Updates and feedback were needed to get maximum importance on the display
- Arrows gave a feel of Sensex on the front screen
- Pending status of complaints was needed
- Visual order needed to be highlighted
- Too much of information. Some screen were needed to be withdrawn.
- The contact page could be withdrawn and replaced with a print out on wall
- Use of single screen page with hierarchy of visual information was needed.

Conclusion

The attempts to bridge the communication gap between the huge number of students and the mess caterer proved to be an exciting and fun filled project with lots of takeaways in terms of learning aspects of Service Design and User Experience Design.

From all the user testing and evaluation, the following were concluded.

- The Feedback system with digital screen and Mobile application was successful in terms of communicating users issues and solving them.
- Mess Display proved to be effective ways to communicate important data to a large number of crowd.
- Visual language of the system should be good enough to catch the attention of user group considering the design constraints.
- Incorporation of a Complaint management system in the system requires a lot of work in terms of development.
- The system requires rigorous evaluation to make the system scalable and usable.

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