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GUJARAT TECHNOLOGICAL UNIVERSITY
GEC,Rajkot
Affiliated



Government Engineering College, Rajkot

A Report On
“HOME POWER SAVING SYSTEM”

Under subject of
DESIGN ENGINEERING
B. E. III Semester – 5
(E.C. Engineering)

Submitted By:

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Guided by
(Prof. M,J,Patel)

Prof. C.H.Vithlani
(Head of Department)

CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project entitled **“HOME POWER SAVING SYSTEM”** submitted towards completion of project in **Fifth Semester** of B.E. (E.C.) is an authentic record of my original work carried out under the guidance of **“ M.J.Patel”**.

We have not submitted the matter embodied in this project for the award of any other degree.

Semester: 5th
Place: Rajkot

Signature :

- | | | |
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**GOVERNMENT ENGINEERING COLLEGE
RAJKOT**



CERTIFICATE

This is to certify that the “**HOME POWER SAVING SYSTEM**” has been carried out by **Parmar Rajdeepsinh** under my guidance in fulfillment of the subject Design Engineering in **E.C.** (5th Semester) of Gujarat Technological University, Ahmedabad during the academic year 2018-19.

GUIDE:
Prof. M.J.Patel

Prof. C.H.Vithlani
(Head of Department)

**GOVERNMENT ENGINEERING COLLEGE
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CERTIFICATE

This is to certify that the **“HOME POWER SAVING SYSTEM”** has been carried out by **Pandit Niteshkumar** under my guidance in fulfillment of the subject Design Engineering in **E.C. (5th Semester)** of Gujarat Technological University, Ahmedabad during the academic year 2018-19.

GUIDE:
Prof. M.J.Patel

Prof. C.H.Vithlani
(Head of Department)

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CERTIFICATE

This is to certify that the “**HOME POWER SAVING SYSTEM**” has been carried out by **Nadiyapara Dimple** under my guidance in fulfillment of the subject Design Engineering in **E.C.** (5th Semester) of Gujarat Technological University, Ahmedabad during the academic year 2018-19.

GUIDE:
Prof. M.J.Patel

Prof. C.H.Vithlani
(Head of Department)

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CERTIFICATE

This is to certify that the “**HOME POWER SAVING SYSTEM**” has been carried out by **Raithatha Giriraj** under my guidance in fulfilment of the subject Design Engineering in **E.C.** (5th Semester) of Gujarat Technological University, Ahmedabad during the academic year 2018-19.

GUIDE:
Prof. M.J.Patel

Prof. C.H.Vithlani
(Head of Department)

ACKNOWLEDGEMENT

We have taken many efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend my sincere thanks to all of them.

We are highly indebted to ***“Prof. M.J.Patel”*** Sir for their guidance and constant supervision as well as for providing necessary information regarding the Design Engineering Project Titled **“HOME POWER SAVING SYSTEM”**. We would like to express my gratitude towards staff members of E.C. Department, Government Engineering college, Rajkot for their kind co- operation and encouragement which helped us in completion of this project.

We even thank and appreciate to our colleague in developing the project and people who have willingly helped us out with their abilities.

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Chapter 1: Introduction

It's a report on “**HOME POWER SAVING SYSTEM**” by our team. Our team consists of actively participating members with positive approach and honest hard work. All the team members are dedicated to the work and completed their duty as per divided on time without any problems. All the members believe in team work and support each other in every step to our project journey. Team guide **M.J.Patel** Sir is an actively supporting faculty guiding us with minute details in every step our project. Sir has been a strong hold as a guide for our success and completion of our project. With team's and Sir's efforts today is what made this project successful.

Design thinking is a new human centric approach of looking at problems and solving them. Engineering has for long been at the forefront of human quest for progress and solving its problems. However, in the 21st century as the age of mass production declines and individual and individual customization increases, what engineering does will be redefined.

What an individual thinks and feels about will become the intangible and most important component of new goods in our economy. Innovation in that era will be human centric.

Design thinking in engineering is to recalibrate engineering for this new era. It will be the mind over matter era.

Chapter 2: Empathy Mapping Canvas

2.1 Introduction

Empathy Mapping Canvas is a canvas which is the foremost process of the design thinking process. It generally deals with the emotional aspects of the user. This canvas includes:

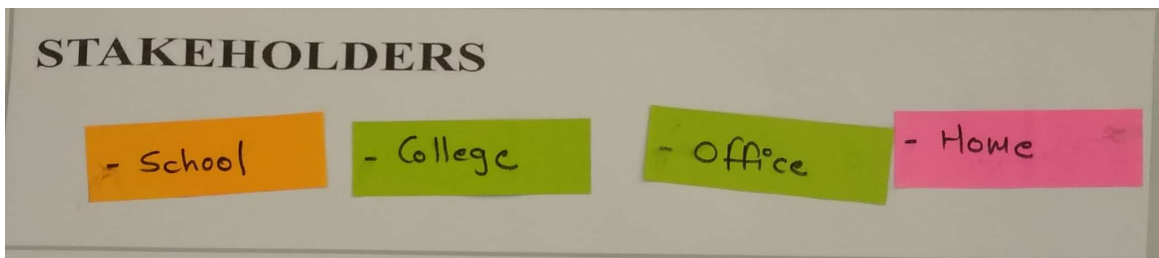
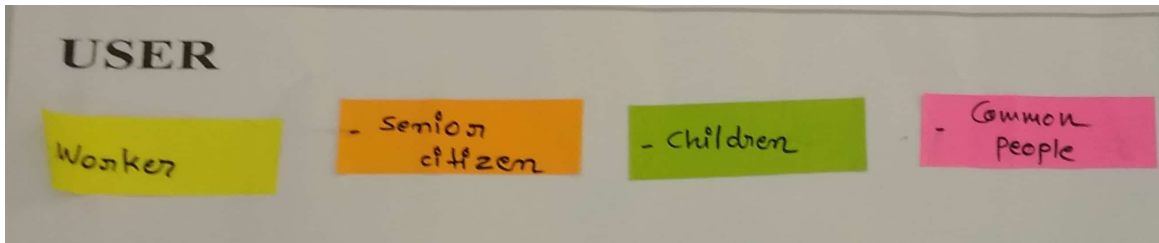
1. User
2. Stakeholders
3. Activities
4. Story Boarding.

Empathy Mapping Canvas

Design For Date	Design By Version
USER Worker - Senior citizen - Children - Common People	STAKEHOLDERS - School - College - Office - Home
ACTIVITIES - Watching TV - Eating food - Reading - Writing - Using Mobile	
STORY BOARDING HAPPY : nowadays the students in the hostels have understood the importance of Energy and Electricity saving. So the students uses the lights and fans only when it is needed And also we have observed that hostels too are constructed in such a way that there should be minimum 2-3 windows in each rooms, so the need of lights and fans both are reduced. So, the windows provide light as well as fresh air.	
HAPPY : we have observed that in the Mall, the escalators used are modified and constructed in such a way by the use of the sensors, that the escalators stops its rotations when the person is not standing on the stairs and when the person stands on it, the escalator will be automatically starts its rotations. So the energy is being saved.	
SAD : Navratri celebration was Organised in the College Campus before the actual Navratri Starts for the joy and happiness for the Students and teachers. we observed that in such excitement of playing Garba and dandiya in the College campus Some of the Students do not switch off the fans and light while going for the Navratri celebration.	
SAD : we have observed that normally people also use the Air Conditioner (AC) when there is no use of it. While the temperature is normal then we can use fans instead of the Air Conditioner. For example; They use AC when there is normal temperature in monsoon, we can use fans or open the windows when there is no need of AC.	

2.2 User and Stakeholders

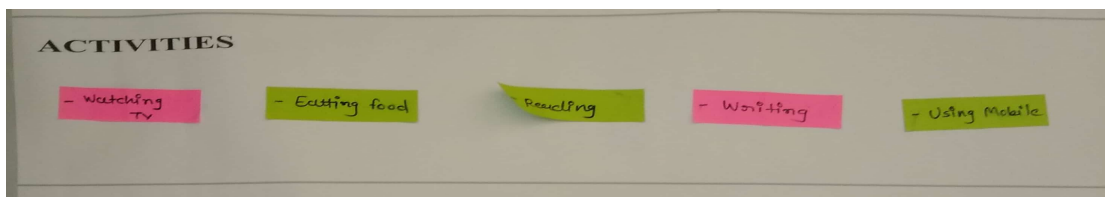
Users and Stakeholders deal with understanding the users and knowing who is going to use our solution, research or analysis.



2.3 Activities

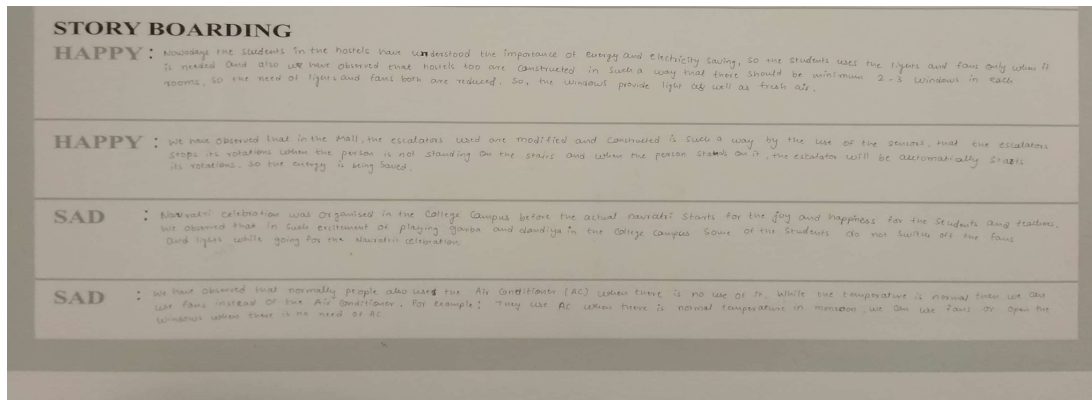
After observing the user and stakeholder works we determine the activities the user and stakeholder does. All the activities done by the user and stake holders are:

1. Watching TV
2. Eating Food
3. Reading
4. Writing



2.4 Story Boarding

Base on our observation of user and their activities and experiences of users we have noted couple of stories from them. A couple of story about some pain or sad experience and couple of stories about some exciting or happy experiences of the user.



First happy story is like that One person injured in accident. Due to high injury he loses his very much blood. And by chance his blood group is rare type of O⁻ negative and there is no blood bank near by to his. The blood bank have not this type of blood. And then so he requested for O⁻ blood in our web site. And that time we have one donor for O⁻ blood. So he get the blood from our website. And finally his life was saved. And he was very happy.

Second happy story is like that one time baby girl suffering from major thelesemia. She have to change her blood month by month. So her parent has to find blood her in every month. Because of our website her parent do not have to go to different blood bank. They got blood from our website in every month. Finally she and her family was very happy.

The first sad story is like that one lady heard about our website. She think that anytime when she need blood she got blood from our website so when relative need blood she don't apply for blood or not tried to find that type of blood in any

2.5 Conclusion

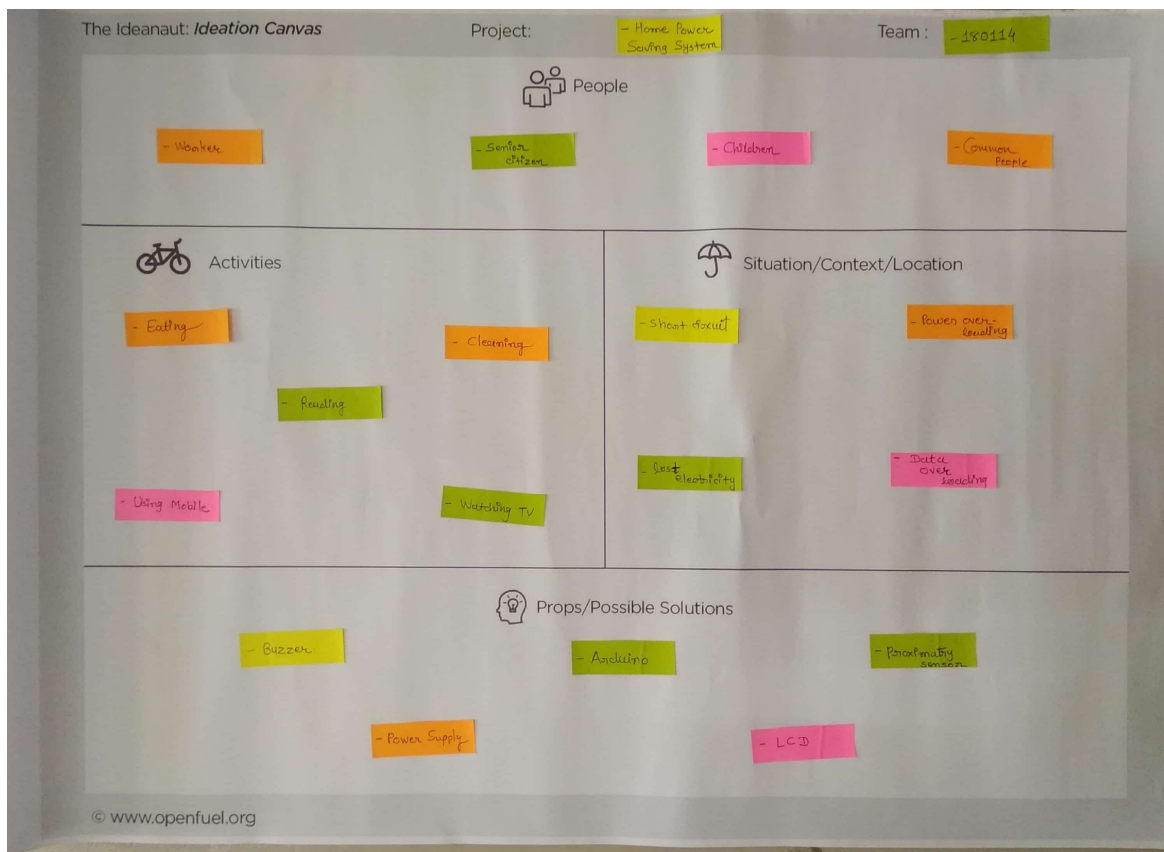
From this canvas the user and stakeholders are found for our project and how our design could be helpful to them and how it will help them to achieve their common desires. Website helps the user and stakeholders to achieve high security of their data and this may protect their data form vulnerabilities and also from leaking. It is also helpful for user to donor. It will be helpful to the hospital and the blood bank. Thus, we concluded the feelings of the users and their activities related to our project.

Chapter 3: Ideation Canvas

3.1 Introduction

Ideation canvas helps the student to expand the list of user activities to list all possible news situations and conditions that user faces or may face. Now on that basis we will try to find out the multiple problems user may face by analyzing and studying all variations of his activities and key problems are identified. Now that key problems are identified, it's time to start looking for possible solutions. So firstly multiple solutions are ideated and from that key solutions are selected. The Ideation canvas helps in ideating the problems and finding solutions for the same. The ideation canvas includes:

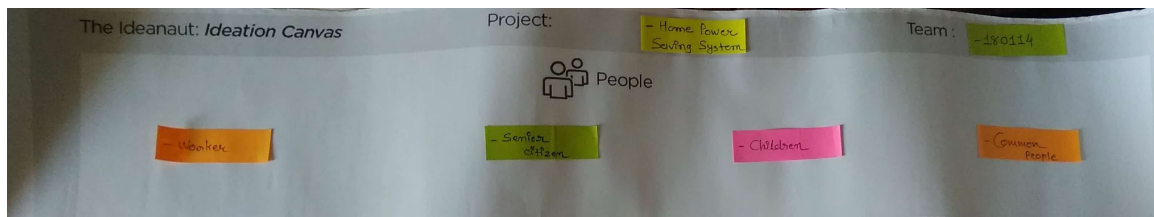
1. People
2. Activities
3. Situation/ Context/ Location
4. Props/ Possible Solutions



3.2 People

The Ideation canvas includes all the users from the empathy canvas and also some other user and found. They are-

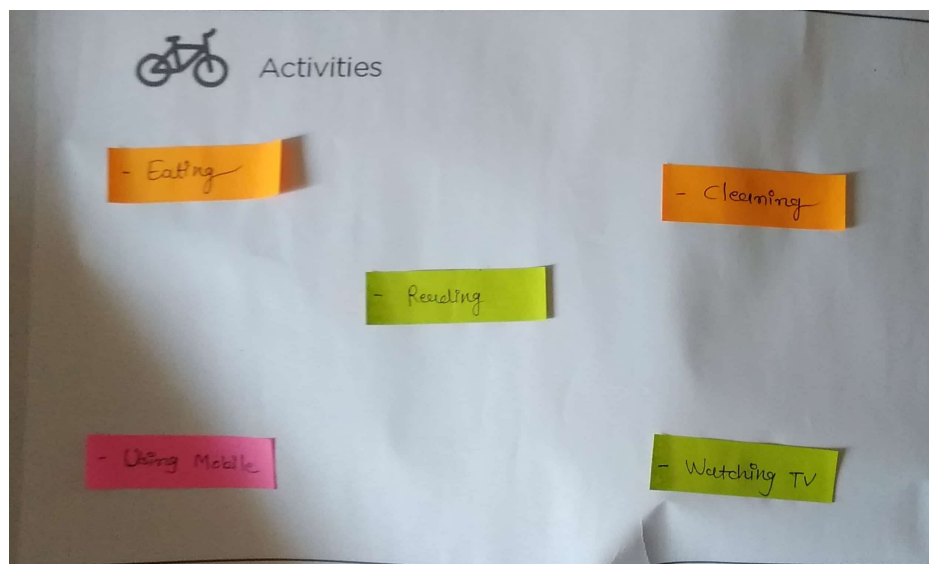
1. Worker
2. Senior Citizen
3. Children
4. Common People



3.3 Activities

This portion covers the activities based on the users. These activities are related to the people mentioned. They are-

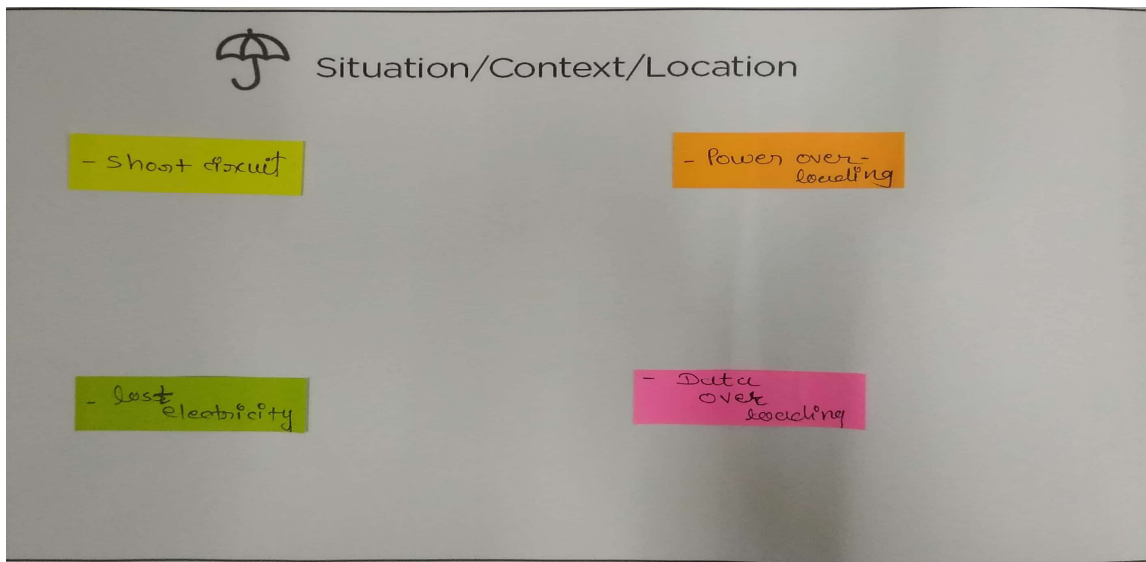
1. Eating
2. Cleaning
3. Watching TV
4. Using Mobile
5. Reading



3.4 Situation/ Context/ Location

This canvas discussed the situation related to the user and blood donor. They are-

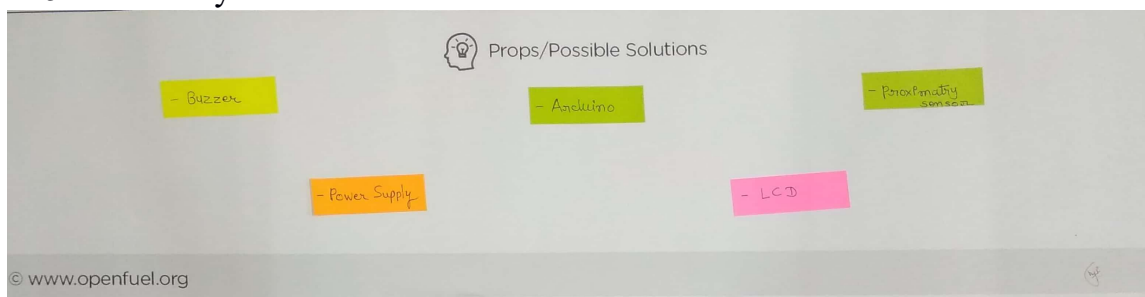
1. Short circuit
2. Power over loading
3. Lost electricity
4. Data over loading



3.5 Props/ Possible Solutions

The possible solutions to the problems are-

1. Buzzer
2. Power Supply
3. Arduino
4. LCD
5. Proximity sensor

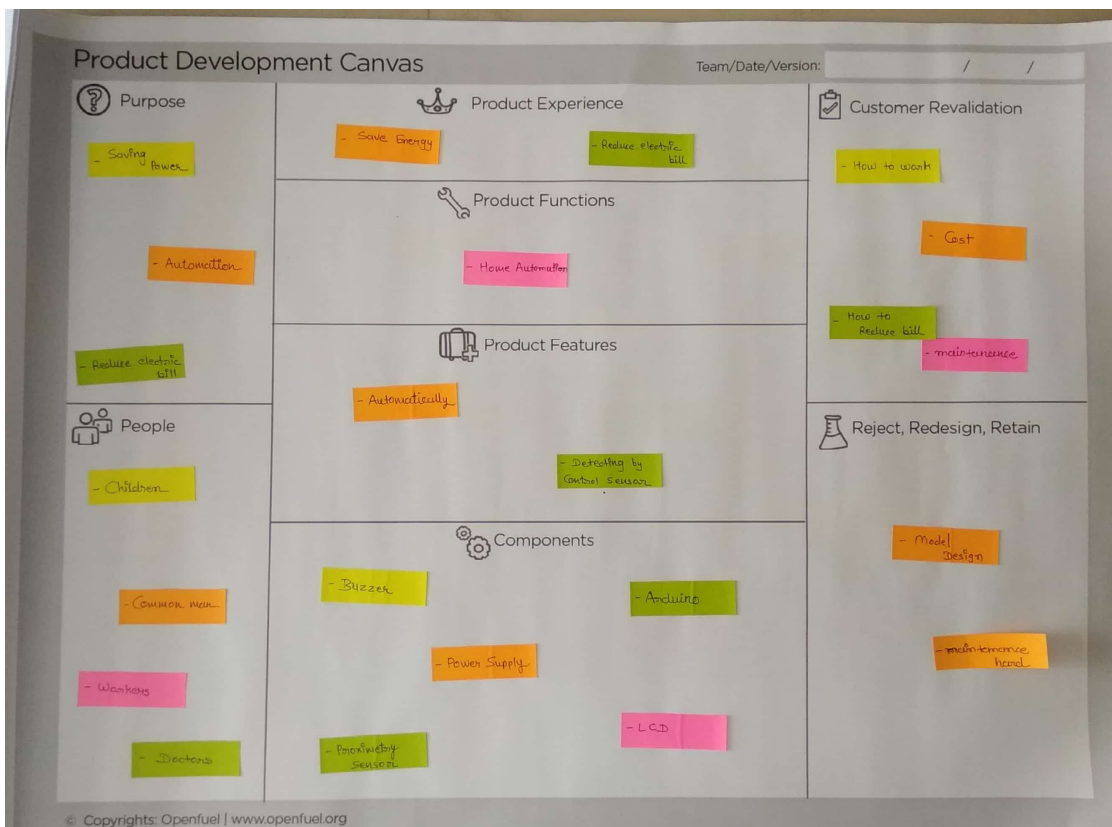


Chapter 4: Product Development Canvas

4.1 Introduction

Product development canvas deals with steps related to the development of the product and how the prototype of the product is designed keeping in mind the basic need of the user and how to do a validation check and redesign if necessary to perfection and how it will be helpful determining the development of the product. Product Development canvas includes-

1. Purpose
2. People
3. Product Experience
4. Product functions
5. Product features
6. Components
7. Customer Revalidation
8. Reject, Redesign, Retain

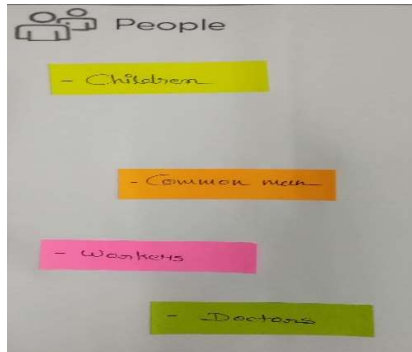


4.2 People, Purpose and Experience

Product development canvas helps to build a structure of our product around the emotional needs of the user. Building solutions around the emotive needs of user is central in design thinking.

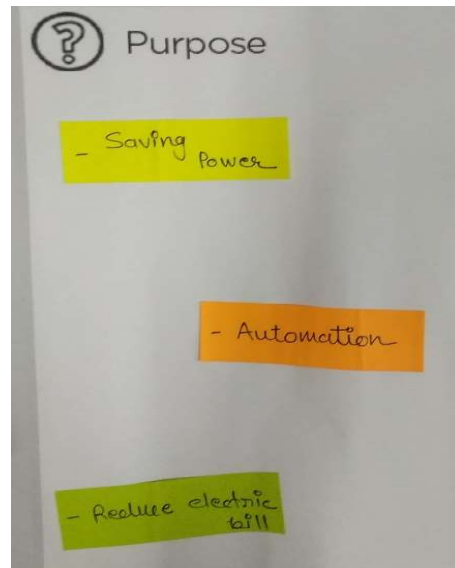
People :

1. Children
2. Common man
3. Workers
4. Doctors



Purpose:

1. Saving Power
2. Automation
3. Reduce Electric bill



Product experience

1. Save Energy
2. Reduce Electric Bill

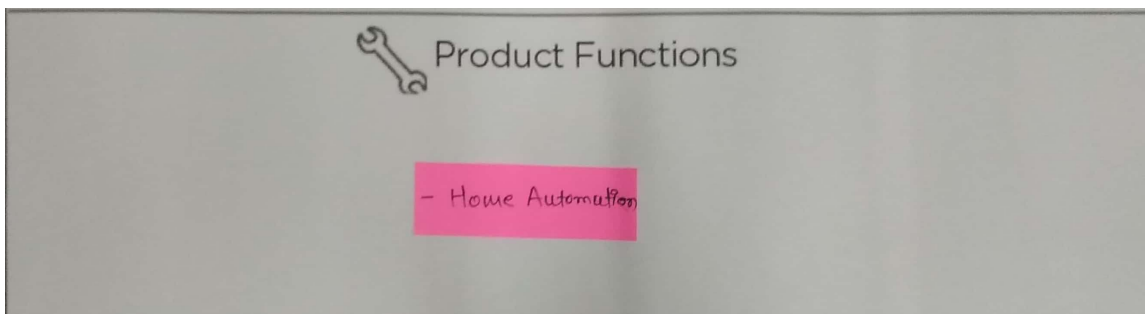


4.3 Product functions and features

The product functions and features are grouped by our solutions and sub-divided accordingly. Functions are broad level actions of our product and features are specific ways in which these functions are supported, powered.

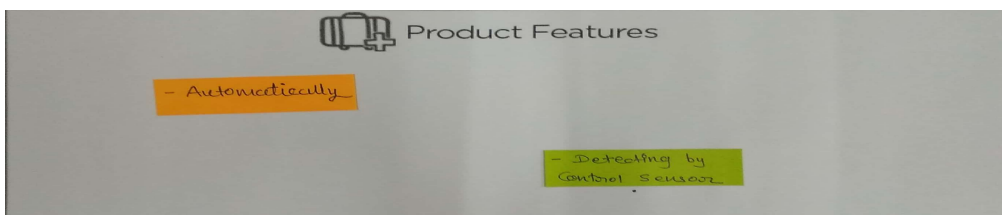
Product Function

1. Home Automation



Product Features

1. Automatically
2. Detecting by control sensor



4.4 Product components and validation

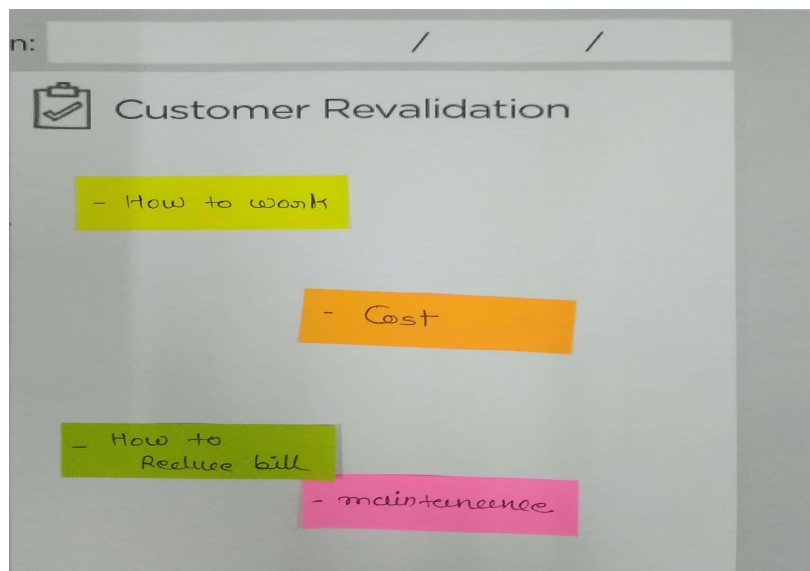
Components

1. Buzzer
2. Power supply
3. Arduino
4. LCD
5. Proximity Sensor



Customer Revalidation

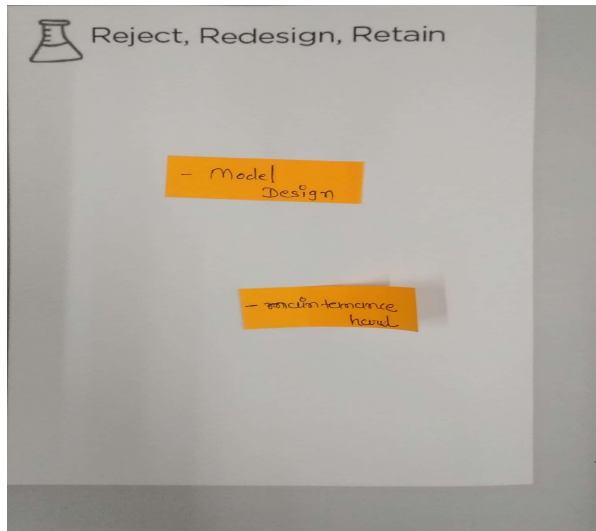
1. How to work
2. Cost
3. How to work
4. Maintenance



4.5 Reject, Redesign, Retain

Redesign

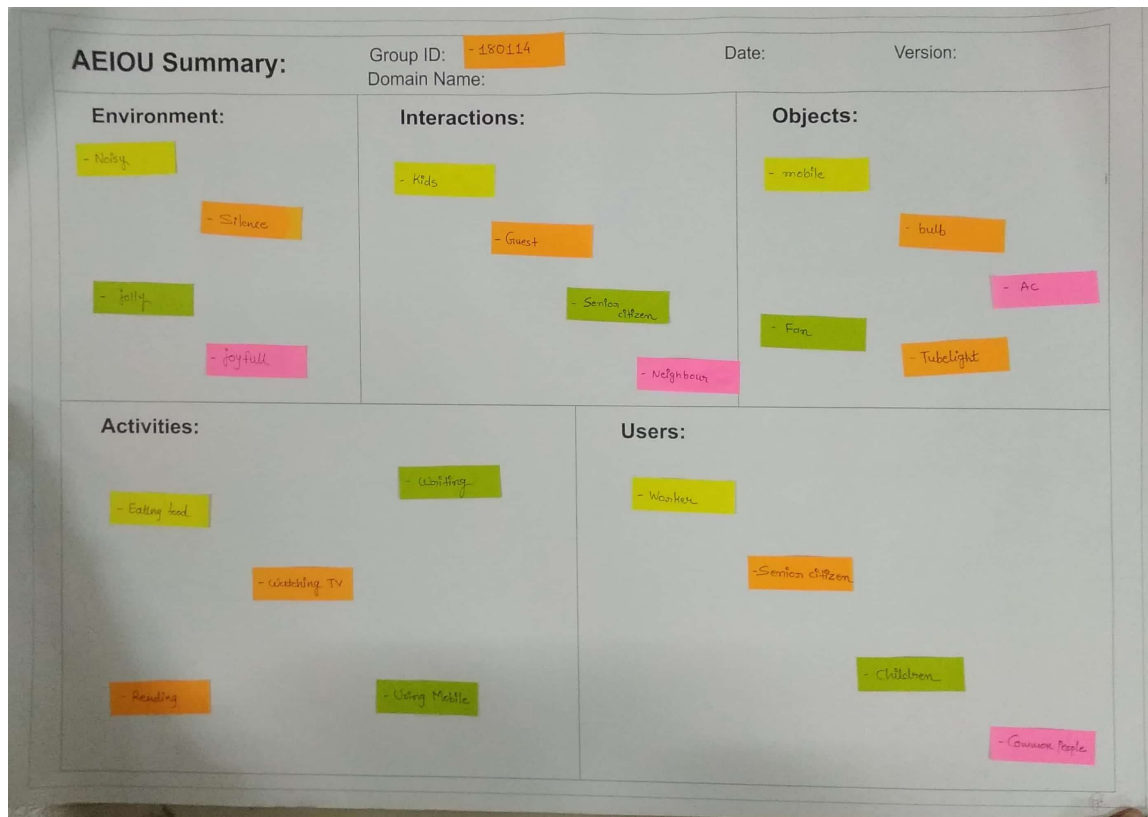
1. Result download feature
2. Regular update website
3. Remove unwanted advertizement
4. Add history feature



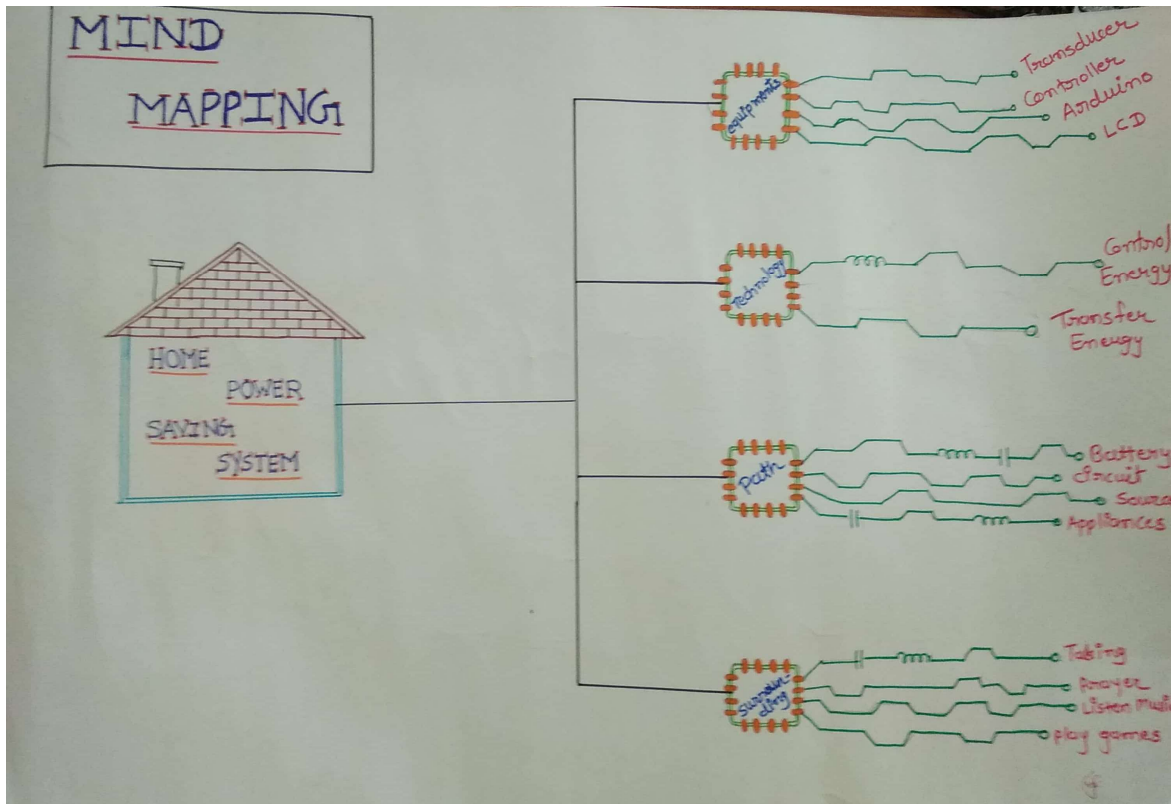
Chapter 5 AEIOU Summary

AEIOU Summary includes a summary of all the sheets and helps to determine:-

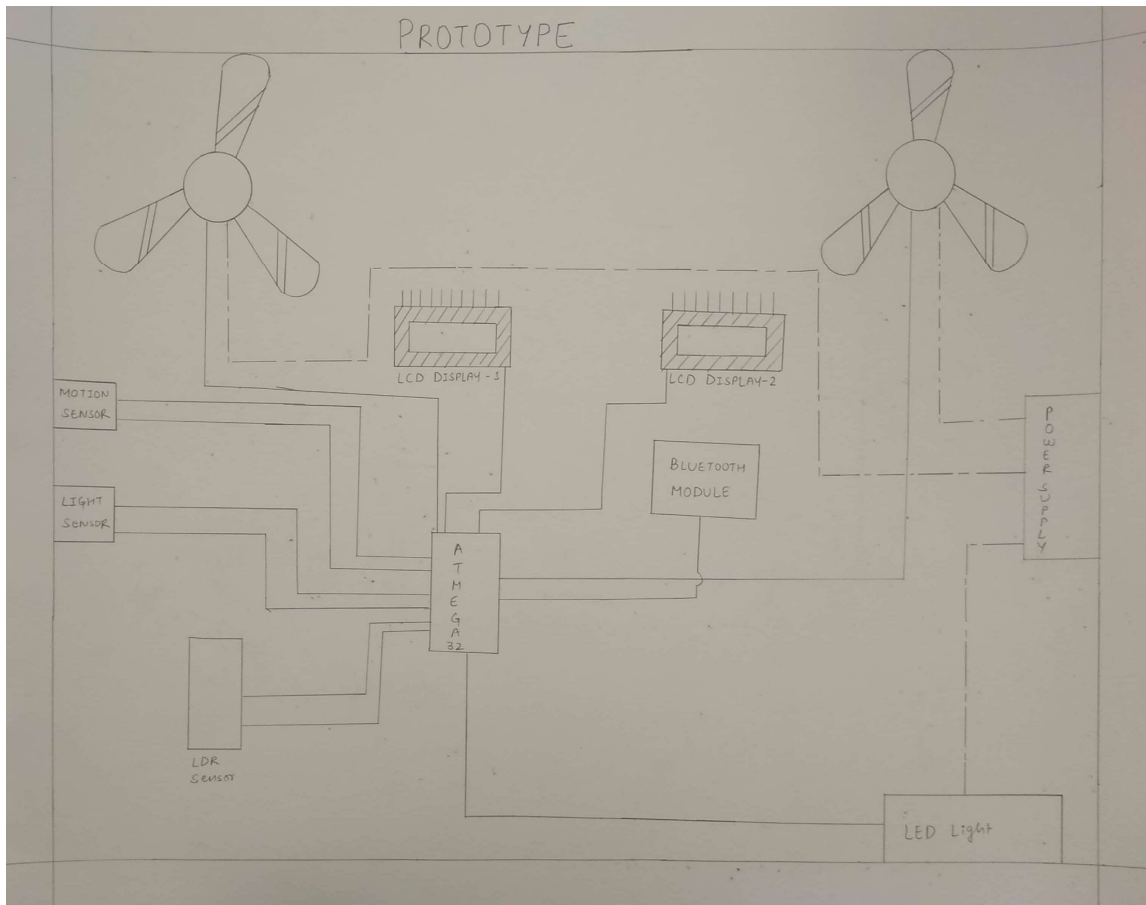
1. Environment
2. Interactions
3. Objects
4. Activities
5. Users



Chapter 6 Mind Mapping Canvas



Chapter 7 Prototype Canvas



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