



Term Paper

Topic: Multipurpose Card Ejecting Wallet

SUBMITTED BY:

Name : Anushka Ajay Ahire

Roll no. : 19111011

Semester : 6th semester

Branch : Biomedical engineering

Email : anushkaahire0912@gmail.com

Subject : Design Thinking and Product Innovation

Guided BY:

Dr. Neigapula Venkata Swamy Naidu, Sir
Professor,
Mechanical Engineering Department,
NIT RAIPUR

PROJECT:

MULTIPURPOSE CARD EJECTING WALLET



TEAM MEMBERS :

ANUSHKA AHIRE ✓
AASTHA PANDEY
AYUSH CHOUKSEY
CHHAYA SAHU
AYUSH DIXIT
RASHI SAHU

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ACKNOWLEDGEMENT:

I would like to thank Dr.Neigapula Venkata Swamy Naidu sir, The Associate Professor, Mechanical Engineering Department, NIT RAIPUR. He guided us in every stage of this project and helped us gain a very crystal clear idea of all the concepts of Design Thinking and Product Innovation. I would also like to thank my colleagues/ my teammates- Aastha Pandey, Ayush Chouksey, Chhaya Sahu, Ayush dixit and Rashi Sahu , who maintained a very creative and cooperative environment in the group and helped me achieve the desired output.

INTRODUCTION:

WHY WE CHOSE WALLET FOR INNOVATION?

When we thought of innovating something, We wanted it to be a product/thing which is used by large number of population, irrespective of their gender, class or religion to maintain the "equity". We wanted it to be thing which people can use in their everyday life.

ELIMINATING DIFFERENT PROBLEM STATEMENTS-

We started with searching for different daily use products which we use in our home, our kitchen more often. Something that can make our life easy. Everyone in the group started suggesting some problems like-

Vegetable washer and cutter combined.

A smart dustbin .

A easy to carry kitchen set for travelers .

A compact helmet.

Cloth dryer for rainy season

Wallet, etc.

We started discussing on what major changes can we bring through particular product or particular innovation, and after hours of discussion we chose "Wallet" as our problem statement because it satisfies our principle idea of "equity".

Wallet is basically a small flat folded case where we can keep necessary things we need to carry everywhere we go. It can be used by anyone. Now challenge was to innovate this wallet into a product which can make our life easy! So, In this paper I have Explained the process we went through to reach our required product.

PROBLEM IDENTIFICATION:



After Deciding what product to work on , It was now time to think about what innovation to bring on. But for that, we need to know what problem most of our population faces while using wallet. So, we started with ourselves, we started discussing about the problems we ourselves face while using wallet.

Out of all the other problems we found the common among all of us was managing cards and difficulty to select the card we need to use. Anyone who has owned multiple cards knows that keeping them and finding that right card at the right time is a huge mess.

Also the wallet becomes bulky with all the cards, money, photos and sometimes with the tickets as well.

We can't keep anything additional over there. We need to carry another small bag while travelling to keep other necessary things.

Also the existing wallets are quite expensive that , not all classes of society can afford them.

Depending on these problems and purposes to be met, our wallet became " Card Ejecting Wallet" at first and then "Multipurpose Card Ejecting Wallet"...!

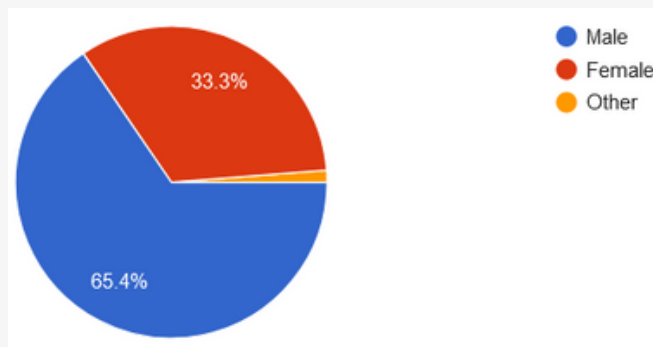
PROCEDURE:

THE COMPLETE PROCEDURE WAS
CARREIED OUT IN 5 STAGES OF DESIGN
THINKING:

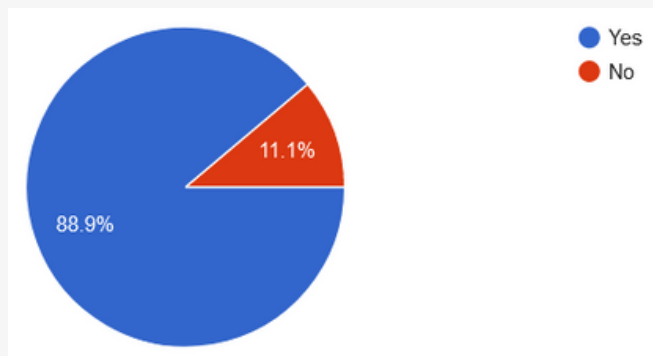
- Empathize
- Define
- Ideate
- Prototype & Test

1. EMPATHIZE:

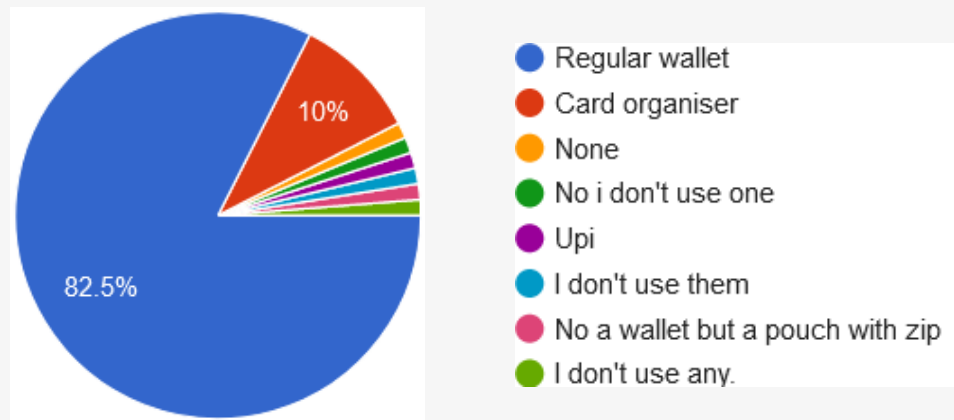
As soo as we decided "wallet" as our product for innovation, we framed some questions and conducted a survey. We received near about 100 responses. Below is the required data we got from survey:



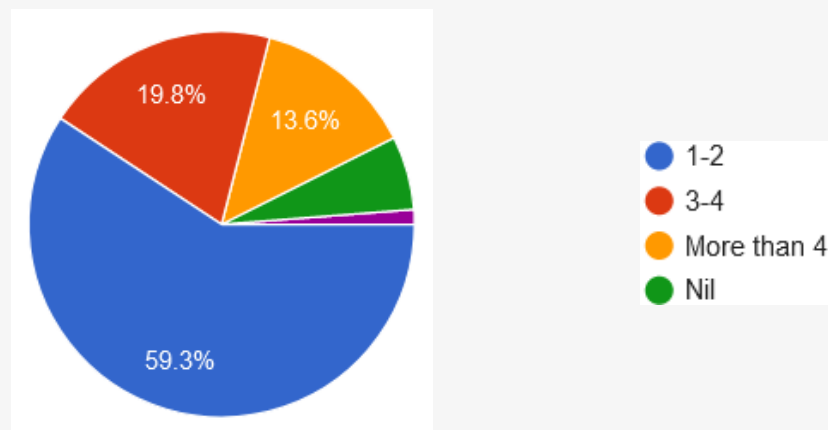
Gender diversity



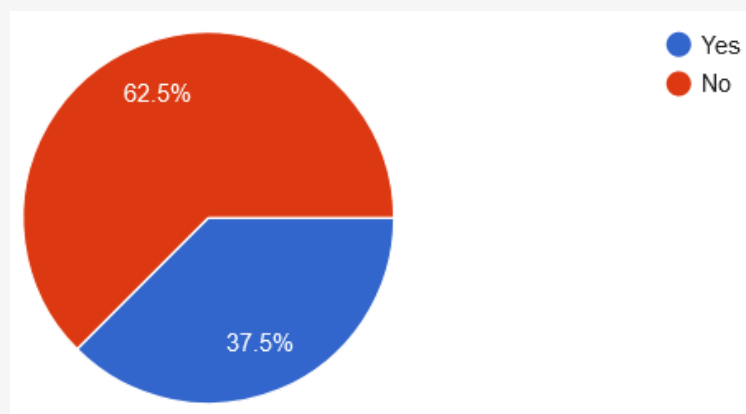
Do they use
wallets?



Type of wallet they use



No. of Cards they keep



On being asked about using multipurpose wallet

On asking questions like following in survey form, these were some of the common answers:

1.Do you keep something apart than cash/cards in the wallet? (If YES, then please elaborate the items)

Sim ejector tool, Bills, Photographs, My id, Driving license, Some business cards and Railway pass, Aadhaar, Some other countries currencies, Paper soap.

2.Any other issues that you face with your wallet?

.Can not store more than 2 cards in the wallet pocket. Any sharp object tends to damage the wallet..

- I forget to take separate wallets, so I like the ones attached with cell phone
- It feel bulky when put up with cash.
- If it's big then there's an issue to carry and of it is small then it can't carry essentials
- With increasing usage of 10 Rs and 20 Rs coin...storing coin is mess.

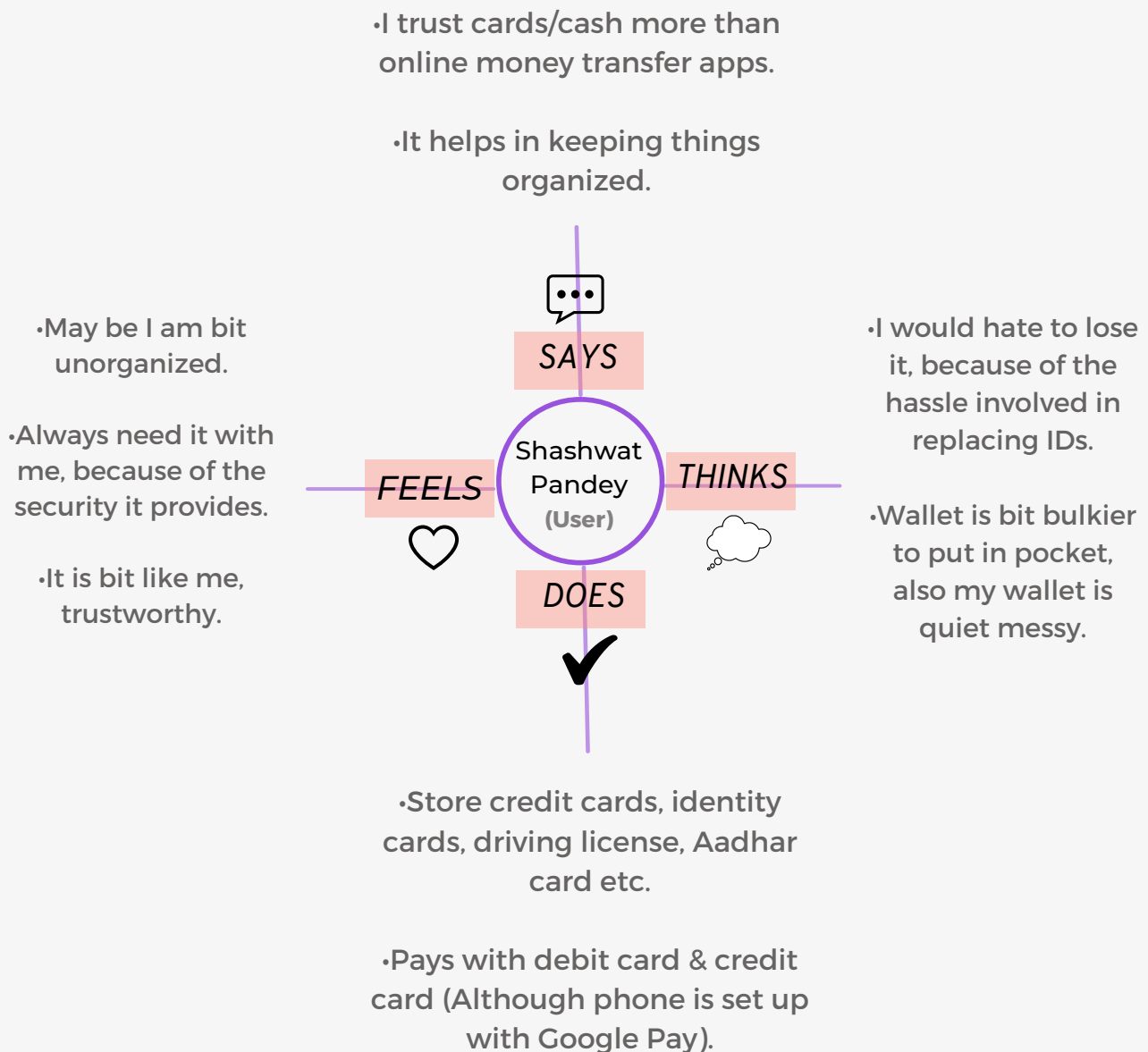
3.Any suggestions/features you would want in your wallet someday?

- More compact and simmer.
- Would like a dedicated, coin slot and from technical stand point maybe an NFC chip for security and proximity reasons.
- I prefer wallet attached with phone cover so I don't forget to take it and also needed items are there with me 24×7.. I don't have to think about it on daily basis what to take and what not to take.
- It would be great if it remains pocket-sized + EDC can fit into it.
- Devices like Find My device can be used to locate the wallet , device can be small as keychain or more smaller.
- It should be small, comfortable and we'll organized, it should have appropriate section for coins.

We also conducted some USER RESEARCH where -

- **We observed people in their natural surroundings
(in stores, cafes and train stations!)**
- **Focused Interviews to gain deeper insights**

EMPATHY MAP



2. DEFINE:

During the Define stage, you put together the information you have created and gathered during the Empathise stage. In this stage, we analyze your observations and synthesize them in order to define the core problems that our team have identified up to this point.

The first step to creating an effective project plan is to set a baseline. The baseline is the foundation on which the other project elements will be built on. And for this project the baseline is "Problems faced with existing product". Given below are the following problems faced with the existing wallets in the market-

PROBLEMS

FACED WITH EXISTING
PRODUCTS:

- Card accessing is time taking and messy.
- Bulky wallet
- No space for EDC items.
- Quite Expensive
(not all classes of society can afford it.)



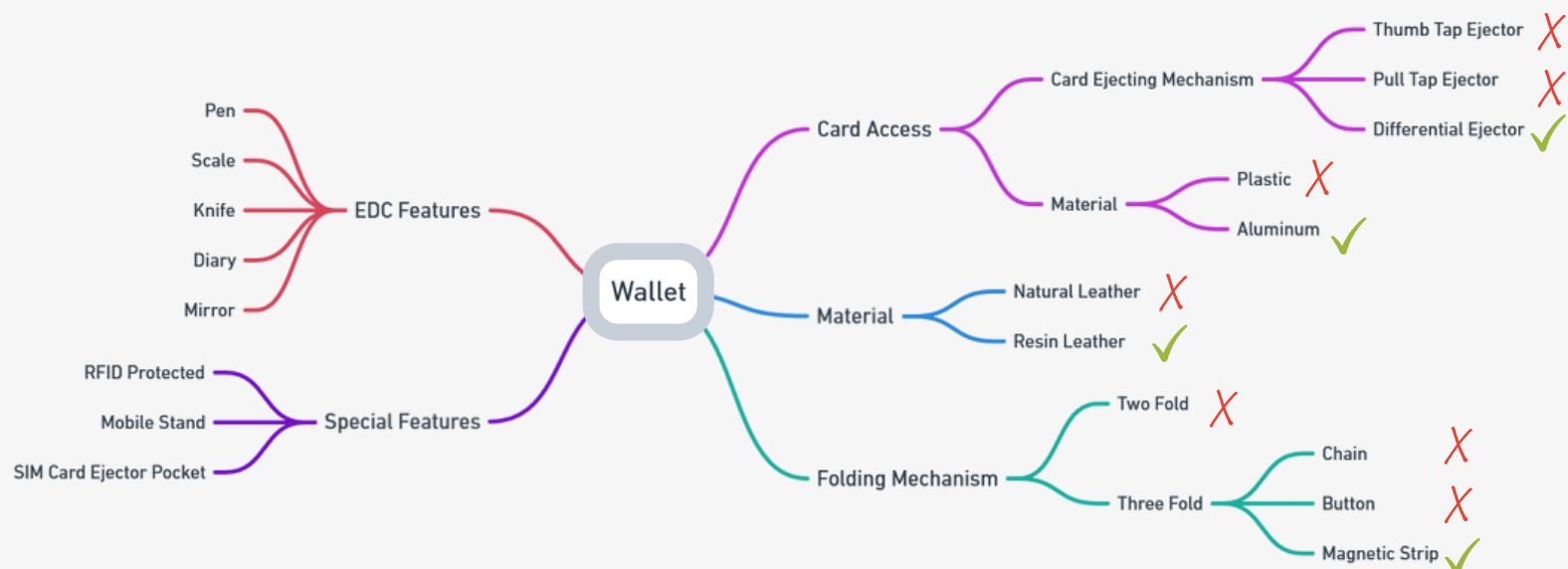
3.IDEATE:

Ideate phase started with Brainstorming Sessions and hours of idea generation and discussion. After hours of brainstorming, We came up with some of the 'Potential design requirements'-

- Easy card accessibility
- Light weight
- Space for EDC objects
- Extra space for coins
- Compact shape and size
- RFID Blocker card holder
- Thin and Durable material



MIND MAP



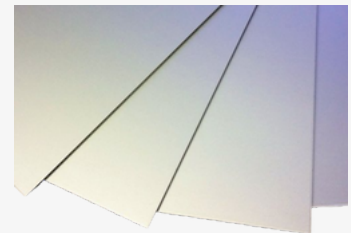
WHY DIFFERENTIAL EJECTOR IS USED FOR CARD ACCESS?

- Card can be accessed using this Differential Card Ejector, with a trigger that pops out up to 4 cards quickly and easily so you can choose the one you want.
- They're minimalist.
- Differential Card Ejector is preferred, as accessing card is easier. Cards can be brought out in a staggering fan with the help of trigger.



WHY ALUMINIUM IS USED AS MATERIAL IN DIFFERENTIAL CARD EJECTOR?

- The cards are stored in a rigid aluminum case that keeps them from bending.
- It also gives them RFID-blocking protection.



Aluminum sheets

WHY RESIN LEATHER IS USED AS A MATERIAL FOR WALLET?

- Resin leather is very durable, will last a long time and is light weight.
- It can withstand scratches and scrapes. It is not prone to crack or peel like leather.



Resin Material

SELECTED DESIGN FEATURES-

**3 FOLD SYSTEM
WITH A
MAGNETIC
STRIP**

**ALUMINIUM
CARD
EJECTOR
MECHANISM**

**USING
RESIN
MATERIAL**

**ENOUGH
POCKETS
FOR NOTES
AND COINS**

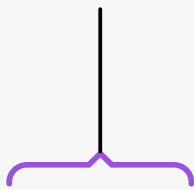
FINAL IDEA

**PLACING EDC
ITEMS
JUDICIOUSLY**

**COMPACT
SHAPE AND
SIZE**

RFID BLOCKER

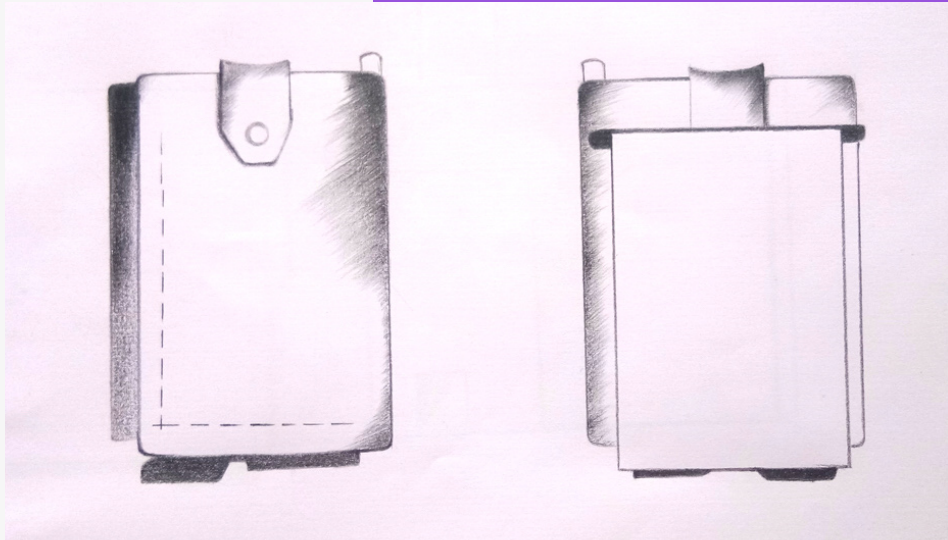
**MOBILE PHONE
STAND**



- Cash compartment
- Coin pouch
- Diary
- Pen
- Scale
- Knife
- Sim card holder
- Mirror

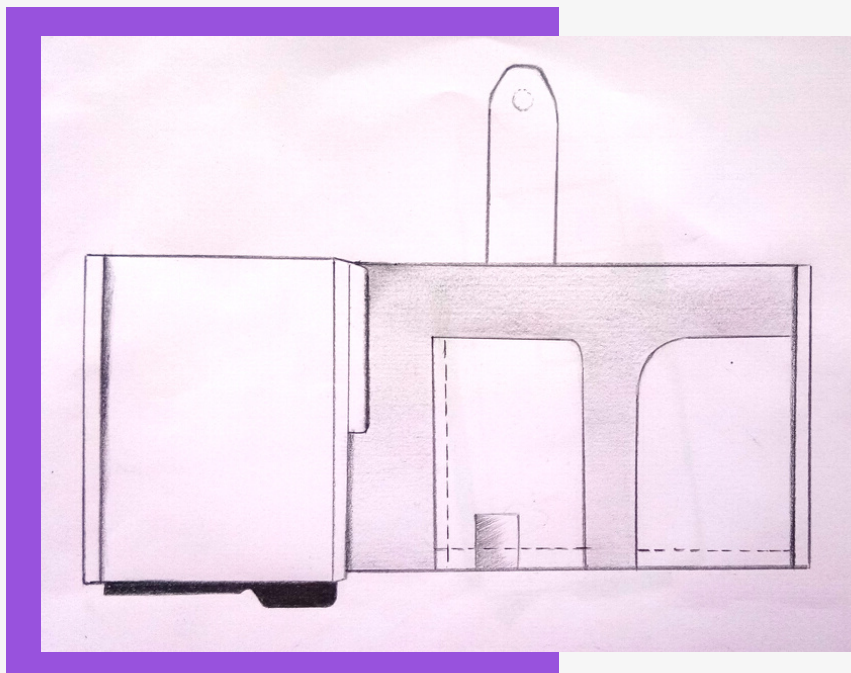
4.PROTOTYPE:

ARRANGEMENT (SKETCHES)



Front

Back



Open View

FINAL PROTOTYPE



Right after opening this wallet, we will find the "**DIARY**" at the left which has "**SCALE**" marked on it



Right after opening this portion of wallet from back, we will find "**MIRROR**", "**COIN POUCH**" and "**PHONE STAND**" as well.



CONCLUSION:

In this report ,We tried to make a "Everything, whilst having a compact size!!!" product . A **Multipurpose Card Ejecting Wallet** which is light weight and easy to carry anywhere we want. Other than its compact size , main feature of this wallet is its card ejecting and multipurpose quality which is definitely going to make our life easier and will save our time.