Human Computer Interaction and Design

Course Work – COMP1649

Deadline: 18 - 11 - 2019

Submitted To	**Submitted By**
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Prototype Link: https://xd.adobe.com/view/b4cd1836-35a6-42a1-50b7-8d154a2f8eef-c2fc/?fullscreen

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1. Introduction

A concept and prototype are going to be created for alter traditional behaviors of people in shopping. A smart device prototype will be created which will able to identify product and place order for the user which will have concretion with a mobile or web application. User will able to show the list of order which is going to be placed by using these applications. A conceptual design of the smart device is going to be created with user interface and implementation of interaction with it.

To construct the desire prototype there need to follow some steps. For creating prototype there need to follow a framework which will help to come out with prototype. And there will be a discussion about all the framework, which will be appropriate for making the protype of the coursework. Cognitive psychology will be applied for understanding the psychology of user to create a prototype. The initial, user and requirements research will be done in upcoming stages. With the help of research material, a low fidelity can be constructed. And finally, a prototype will be made from that low-fidelity and that will be the final product of our coursework.

2. Assumptions

A Smart device prototype which will able to detect product and submit order for the user and a connected mobile or web application for interaction is going to be developed for the people of United Kingdom. Smart device detected product will be grocery items. Target audience for the devices will be from 16 years of teen to 60 years of old people. And people who are busy in his/her daily life with different occupation can use the app. A mobile app is handy to be used by the user. So, prototype will be developed for mobile app for the medium of user and smart device interaction.

3. Background

Smart Home: An advantageous home setup is where gear and devices can be controlled from any place remotely with a networked device using internet is Smart Home. Like controlling the lights of the house. (CHEN, 2018)

Smart Device: A electronic device which is able to do some specific work with the interaction of user or other devices that specific work is like connect, share and interaction. (Techopedia, 2019)
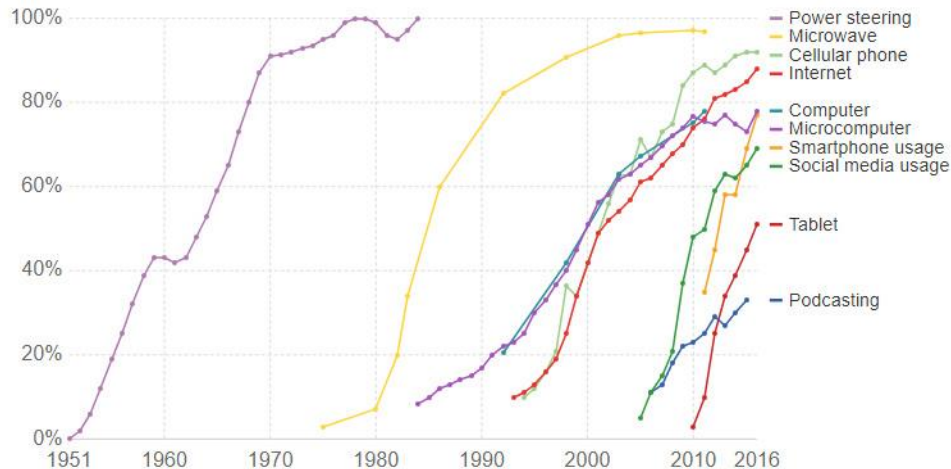
Figure 1: New Technology Adoption rates. (Desjardins, 2018)

People adopting Smart Home because of providing security and privacy to the home and it is compatible and safe for the user to use. User are adopting this technology because it enables security of house using Smart Security Camera, Smart House Locker and many other smart appliances for house. Now the user for smart device in up growing rate. In future if Smart Home provides more user compatibility, makes user life easier and consider the installation cost. And make more beneficial for user that outweigh cybersecurity risks. Then it will make a revolutionary change in users' lifestyle.

Adoption of smart devices in the society is because smart devices makes easier life for the people. People able to manage daily activities with use of smart devices more securely and comfortably. Using Smart Home, Smartphones and Smart watches etc. These appliances make life easier and compatible by optimizing peoples work in a secured and planned way. As technology are developing day by day and smart devices are working to track and control the daily work in one device to make life easier by saving time and money. (Digitutes, 2019)

3.1 Process and Frameworks for Interaction Design

Interaction design is designing the interaction of user with a product without finding any difficulties to interact with the product. And Interaction design framework is some solutions that are applied to accomplished the interaction design goal. So, Interaction Design Framework used to save time and money to accomplished the goal of interaction design.

User Centered Design:

User Centered Design is a framework that focuses on users' needs, it follows an iterative process to do interaction design for a product. (Tran, 2019) . And user centered design helps designer to make a user compatible product, Users get a product what they needed and investor saves time and money. The principles followed by user centered design is clearly specify the user needs alongside business requirements. And creating a rough conceptual design to fulfill the requirements with the testing of usability and evaluating the conceptual design final implementation and the deployment of the product should be done. (Gladkiy, 2018)
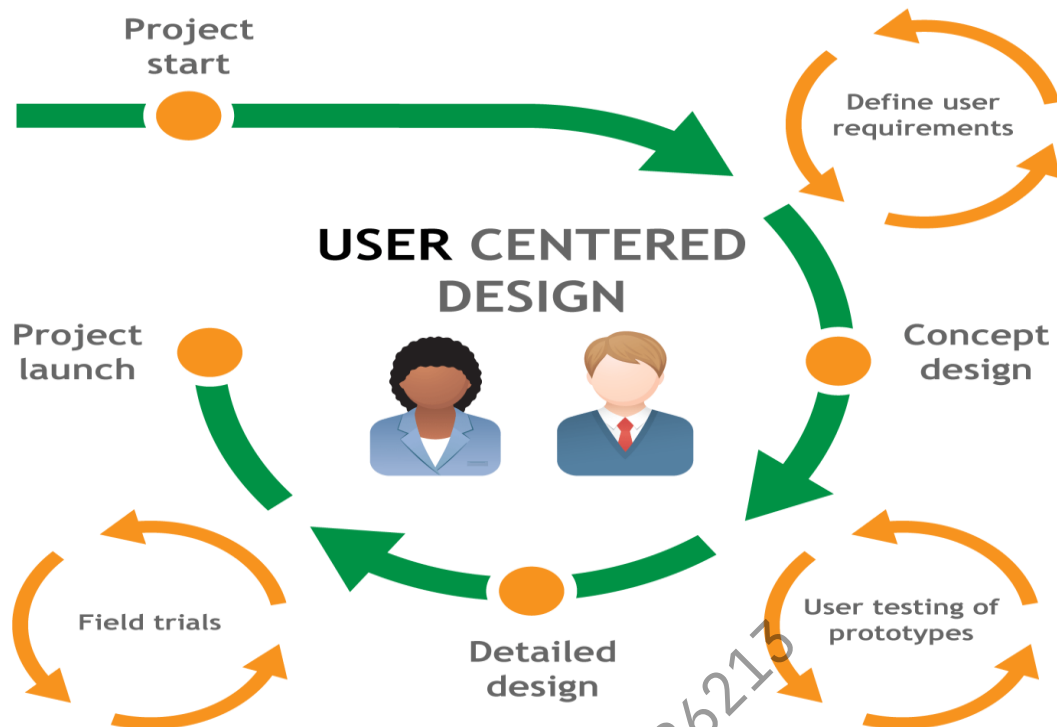
Figure 2: UCD Process (Grebe, 2015)

Goal Oriented Design:

Goal Oriented Design is a methodology developed by Alan Cooper where a product is designed to accomplish the desire of user but here user is not actual user. User is archetypical which is called persona and persona describes the goals or necessity of the user. GOD helps to make improved quality product with less time and less cost along with an effective documentation. GOD follows a process where first work is Research, this can be done by collecting qualitative data by analysis and interviews. From this research two model can be build one is workflows pattern and user model which is persona in Modelling Phase. Focusing on Persona's to define 'day in the life', business goal and technical constraints are need to consider in Requirements stage. Over all concept and prototype of the product will be created in Framework stage.

Refinement stage focuses on improvement and more refinement of the product. (Alan Cooper, 2007)
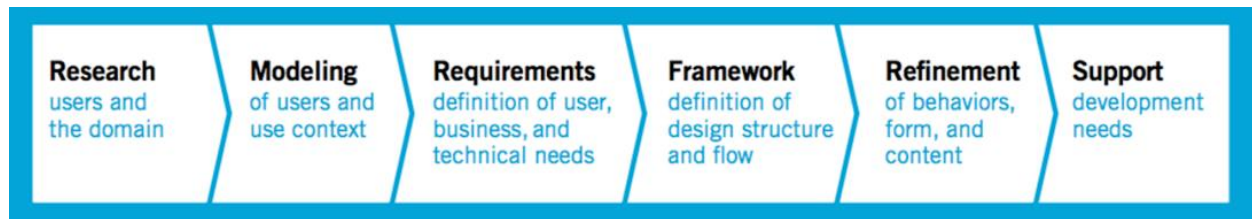

| Research users and the domain | Modeling of users and use context | Requirements definition of user, business, and technical needs | Framework definition of design structure and flow | Refinement of behaviors, form, and content | Support development needs |

Figure 3: DOD Process (Shah, 2019)

Lean UX:

Lean UX is a process of designing a product where the main focus is to accomplish the product goal not the deliverables where team works cross-functionally, collaboratively with the user to get the appropriate outcome for the product. The benefits of using Lean UX is it less the waste of resources, work collaboratively with the team and it focuses on user need. It helps the team start design phase quickly to do the work smartly. Which also helps in saving time. Lean get early feedback of the design research with testing which ensures a good product outcome. (Gothelf, 2013)

Justification for Choosing Lean UX Framework

For completing the design process of the coursework, a better solution can be given using Lean UX framework. Because Its works for end goal. It uses Lean and Agile method in its working process. It works efficiently and quickly for the end product. Getting feedback from the user and working on the feedback for product goals is the main goal of Lean UX. Making hypothesis of the user feedback and against that hypothesis MVP used to get the best outcome. And for accomplishing outcome feature or service are added at to the solution reach the product goal. And this work done iteratively. (Justinmind, 2018)
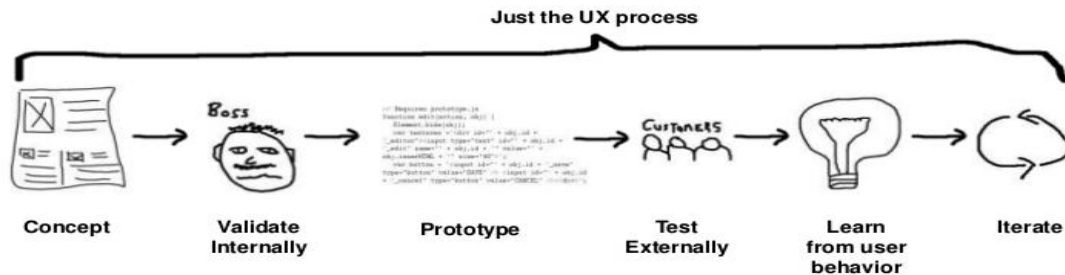
Figure 4: Lean UX Process (Justinmind, 2018)

Application of Lean UX to the coursework scenario will be by applying Lean UX Cycle. Which are divided into three phases they are Think, Make and Check. (Justinmind, 2018) In the coursework Think will be applied by doing User Research, Product Research, Ideation, Interaction Design research. In User research there will be use of persona for analyzing user needs. Secondly Make will be applied creating the prototype which is the main goal of the coursework. For coursework low-fidelity, wireframe and high-fidelity will be developed to apply Make phase to the coursework. And for the last phase in course usability testing and UX goals testing will be applied.
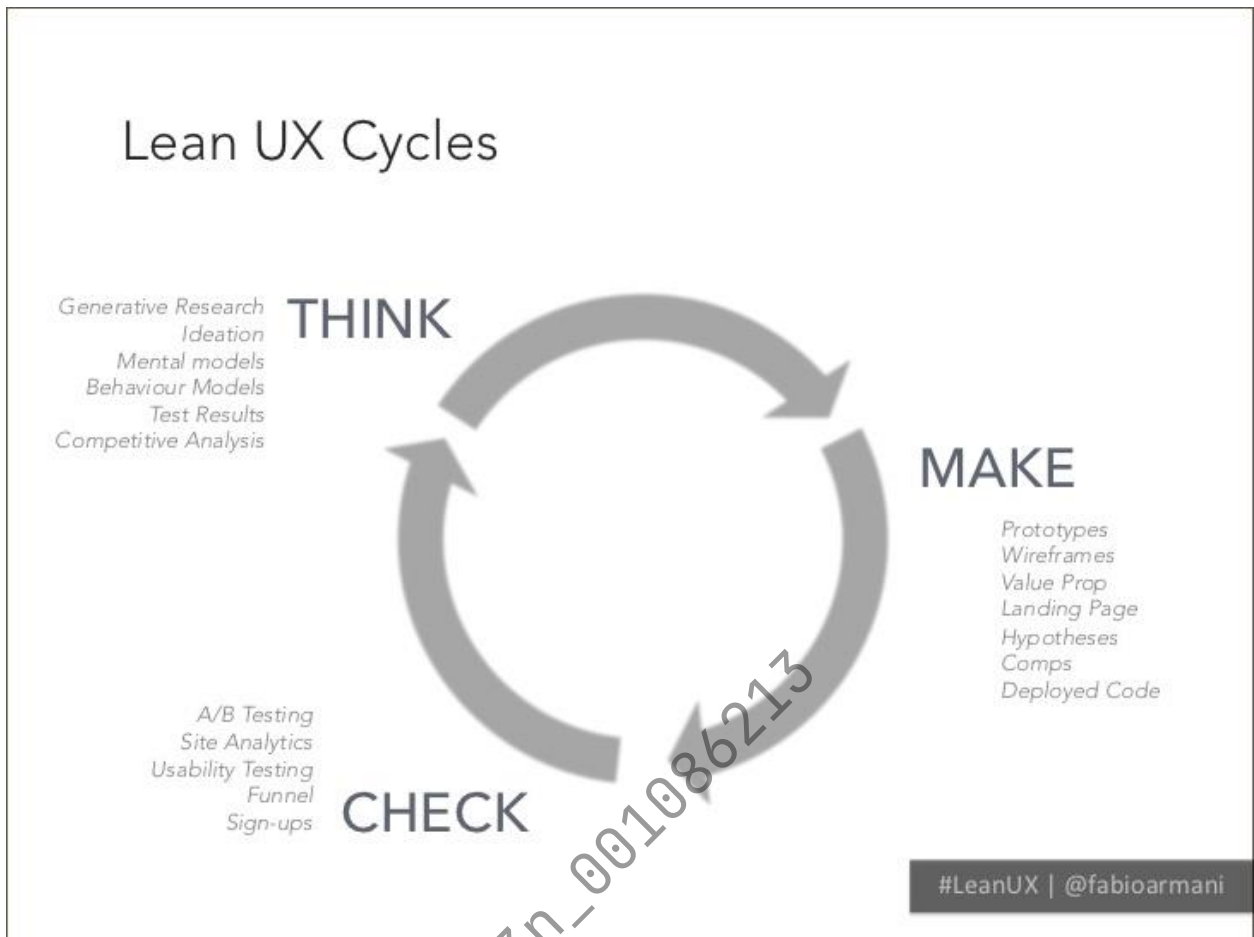
Check Appendix B for more Framework.

Figure 5: Application of Lean UX in the coursework (Armani, 2012)

3.2 Cognitive Psychology

Cognitive Psychology is internal process of brain of people by which people process information to deal with any product using their thinking, perception, memory, learning, problem solving abilities. (Manandhar, 2017) For interaction design there are some process of cognitive psychology to apply. Appling that process developer can develop an effective interaction design for the user by understanding the psychology of user. The process is attention, memory, perception, learning, problem solving etc. And the whole process is interdependent with one another.
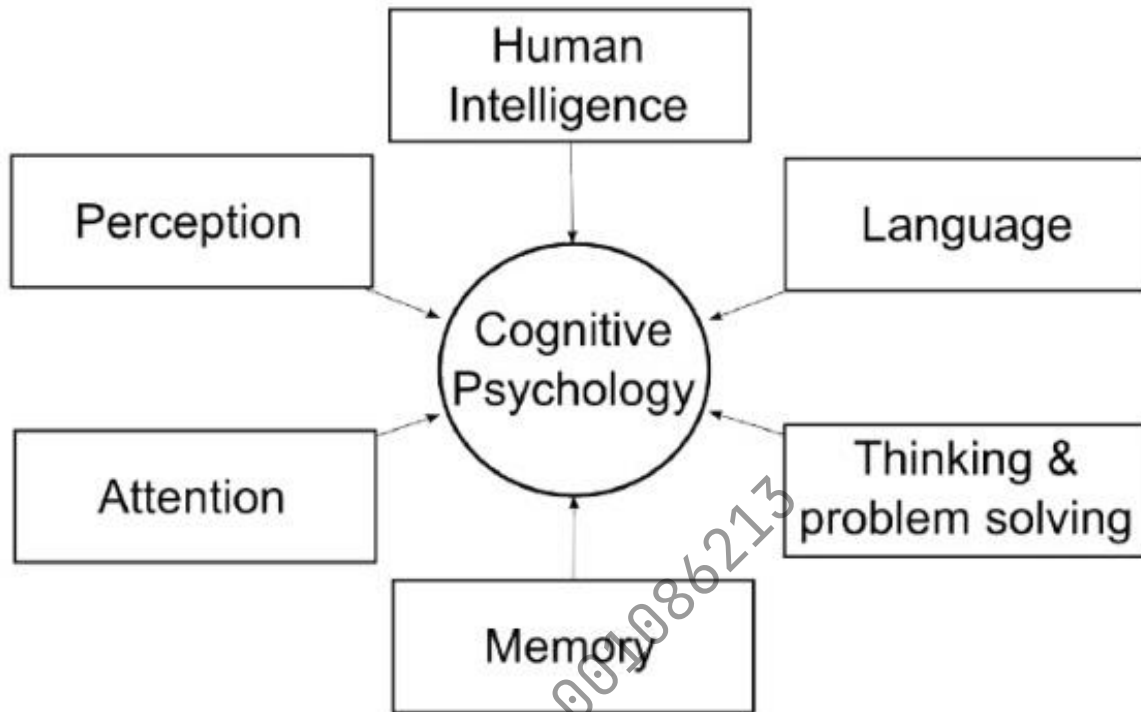
Cognitive Psychology

Human
Intelligence

Perception

Language

Cognitive
Psychology

Attention

Thinking &
problem solving

Memory

Figure 6: Cognitive Psychology Process (mstchumz, 2019)

Process

Attention:

Attention is a process of selecting a thing from a range of possibilities to concentrate on. And attention process involved our auditory and visual senses in the process to select the possibilities by concentrating. The difficulty of this process depends on two things that is Our goal and Information Presentation. Our goal is we set a goal what we wanted to find out and match that goal from the information provided. Through the presentation of information, we find it easy or difficult which appropriate information we wanted to find. Using animated graphics,

colors, order lists, sequences of information, providing relevant information, user friendly interface in design structure will help to achieve this process for user while developing the interaction design of this coursework. (Jennifer Preece, 2015)

Memory: Memory is the process of recalling information from a constant storage. Memory helps us to process information in our brain. And processing information memory use three steps they are Encoding, Storage and Retrieval. Encoding is storing information to the memory and there are three encoded ways like visual, acoustic and semantic. Memory storage where information is stored and it also ensure how long the encoded data will be stored and how much will store at a time. Retrieval is retrieving that encoded stored information from memory storage. (Green, 2015)
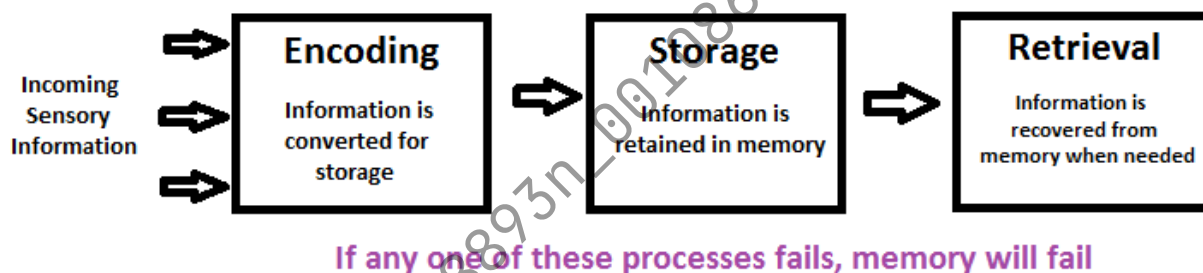

Figure 7: Stages of Memory (Green, 2015)

In interaction design user interface user find hard command-based interface. User need to retrieve information to give command. User need to memories the command. For interaction design there will be less memory load on user. So, it is best practice to recall information by seeing the elements of the interface. Which will reduce the memory load of user. So, while developing the coursework design there will be uses of interaction elements that uses to recall data from user memory like icons, image, menus etc. System Interaction will contain icons, images, menus to reduce memory recall of the user.

Perception:

Perception is a process which uses our sense organs like fingers, eyes, ears, Tung and nose to gain information from the environment and make into experiences of objects, sight, sound, taste and smell. Perception use memory and attention in its process. Perception is mainly recognizing or perceiving something with the help of sense organs. Perception need to apply by the developer while developing. So that user can easily recognize the meaning of the interaction elements. So, perception can be applied by using icon which will give a meaning of it to user. Same type of information keeping in a group. Audio used in will be readily understandable to the user. Text and its background should be easily distinguished by user. Easily understandable navigation should be applied. (Jennifer Preece, 2015)

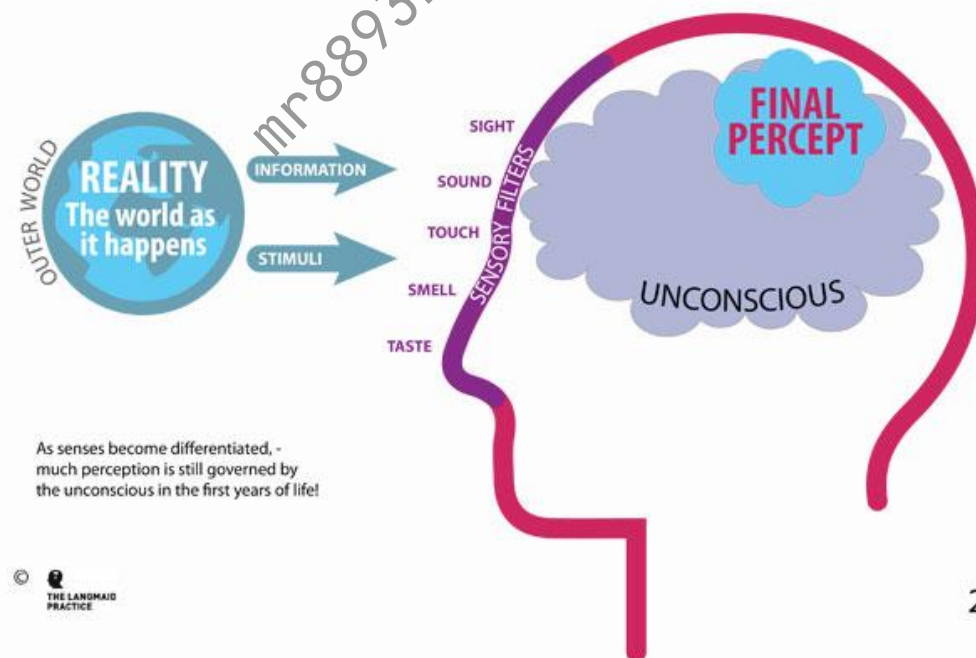**Check more process in Appendix C**

Figure 8: Example of perception (Langmaid, 2014)

Cognitive Framework

Frameworks that are developed to predict user interface of the system assuming user's behavior like thinking, perception, learning and problem-solving process. There are different types of framework.

Mental Model:

Representation of User perception about using User Interface of any system is Mental Model. This model is created based on the concept that one user can have to the system interface to interact. Mental model of one user can vary with the other user. So, developer should draw mental model of user's mental model. So, they need to make interface as easy as possible. So, user find it familiar with their mental model. (Jennifer Preece, 2015)
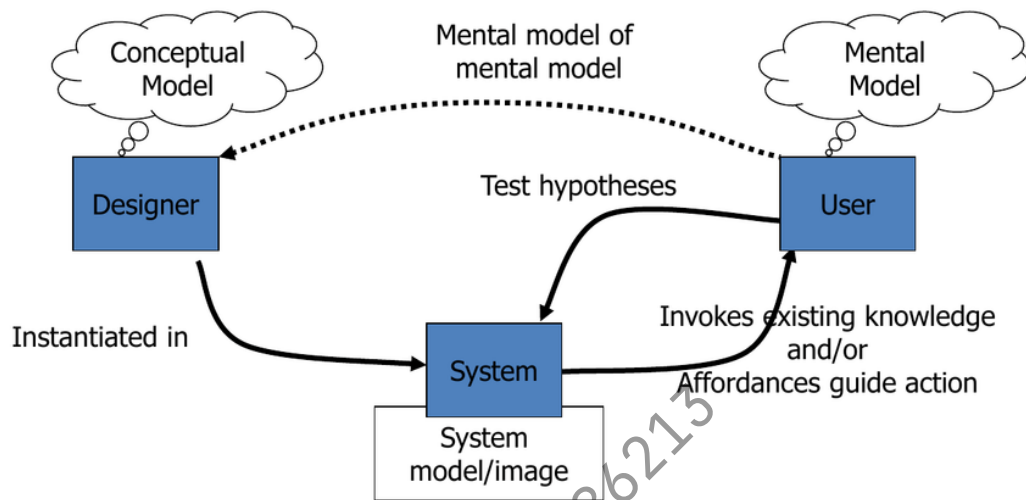
Conceptual & Mental Models

Figure 9:Mental Model concept (Lib, 2016)

In this course work for the interaction interface need to be created as simple as possible by considering the mental model of users. And that can be ensured by making the interaction design more transparent (useful feedback, follow and instructions and help with tutorial).

External Cognition:

To aid cognition with the help of external representations (books, notes, drawing) by people to create or interact with information is external cognition. There are three benefits of using this framework. (Jennifer Preece, 2015)

- ❖ Externalizing to Reduce Memory Load: With the use of notes, diaries memory load of remembering birth date or work need to do can be written. So, this can reduce memory load.

- ❖ Computational Offloading: While carrying out computation using physical tool combination with an external representation than it is called Computational Offloading.

- ❖ Annotating and Cognitive Tracing: Annotating is showing the modification of external representation and Cognitive Tracing is manipulation of this external representation to a new form or structure. (StockSnap.io., 2018)

Check Appendix D for more cognitive framework.

3.3 Interaction Design Theory

Interaction Modes

Voice Mode: Where user will able to interact with system through voice or speech command is Voice mode of interaction. This gives fast interaction with the device. To use this no technical skills will require. Can be beneficial when hands are busy with other work.

Touch Mode: Interaction of user with the system through haptics is touch user interface. Touch mode can engage user more. It is fast and efficient. User find it easy to use because all the action is visible to do the action with the fingers.

Graphical User Interface Mode: GUI is interaction of user with electronic devices through graphical indicators (icon, menu). It is more user friendly. Non-technical people will able to use this. It makes interface more understandable to the user to use by using symbol and icons.

Types of interaction

Beside interaction mode there are four types of interaction, they are Instructing, Conversing, Manipulating and Exploring.

Instructing: This interaction is it will instruct user to interact with the system. User will may have no clue of using an app. So, while interacting with the app or device if any instruction can be given to the user. It will be beneficial to user to use the app or device.

Conversing: As like real conversation with the system through interaction in conversing like searching. Conversing is like conversation of real world. When user give some command to the system then id system replies to that command that is conversing like searching.

Manipulating: Interaction where user will be manipulated by the real-world work in the interaction of system by manipulating. Manipulating will help user because they can have the knowledge of doing this in the real world. So, while interacting they will find it easy to use. Painting can be one example.

Exploring: Helps user to explore the system and learn interaction of the system. If interaction is looks attractive than it will curious the mind of user to explore. And when user will explore, they will able to know more about the system.

In course work touch, voice will be used as interaction mode. Because touch will help to make good user interface which will be easier to the user to understand and can use easily while interacting. Voice will give the user a fast and effective interaction with the device.

Instructing will be used in the course work because user will able to interact with the system with help of getting feedback and instruction provided by the system. Exploring will encourage user

to learn about the interaction of the system that can be accomplished by creating an attractive and functional interface.

4. Design Process

4.1 Interaction Design Research

User research is a process of understanding the impact of design or product to the user by using some methodologies and tools. User research have a great impact on finished design. It helps to know user needs, struggle and behavior on the design which helps to come out with a great user experience. User can also be included while developing which was discussed in 2.1.

Product research which helps to get the best product for the user. Product research helps to find out if the similar product still exits, who are the potential customer of the developing product, cost of developing, user is happy with the existing product. And final product could get market and would be useful can be measured with this.

To developed the asked device there need to do data gathering. And this can be done in many ways. First way is searching in the web. Using internet lots of research paper and analysis can be collected. And beside this questionaries' and interviews will be applied to find out the requirements of the user. By questionaries' what the smart device will be and how it will work for detecting objects can be find out. And with interview users' thoughts and hope about the device will come out.

Check Appendix E for the interview questionaries'

Android is the most popular operating system in whole world. As a Mobile application have chosen to be developed and app will be developed for android device. Because In the given pie

chart, it has shown that global market share of android is 74.45%. That means a huge number of people use android as their mobile OS. As the targeted user for the mobile app is people of United Kingdom. In figure 11 there shown the user of smartphone is increasing day by day in UK. So, it is beneficial to develop an app for the people of UK.
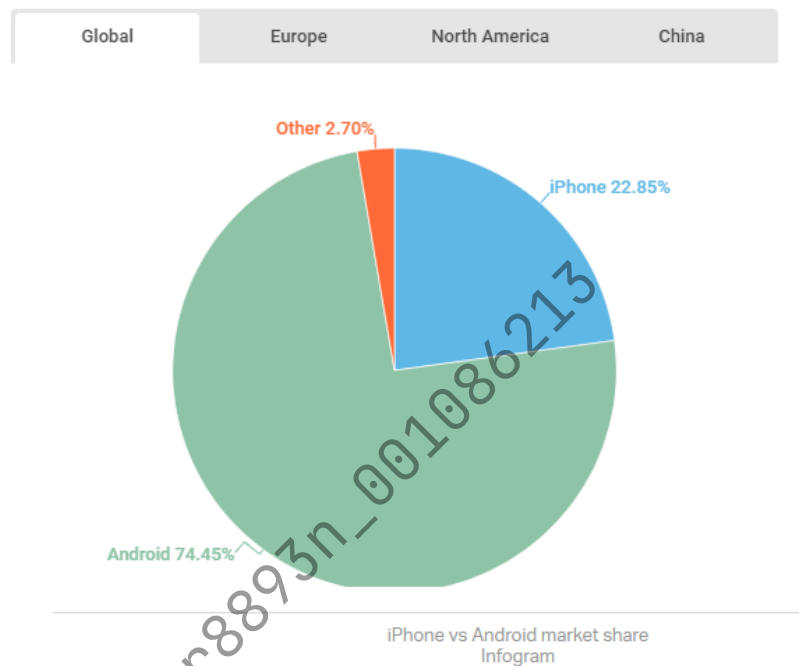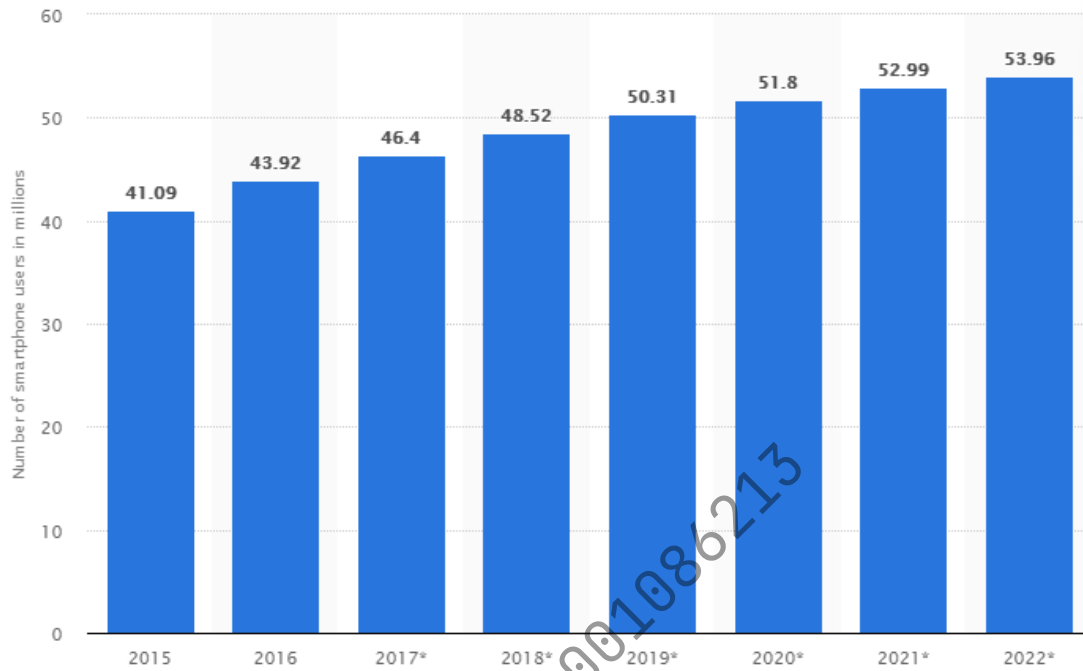

Figure 10: Android Global Market (Casserly, 2019)

Figure 11: Smart Phone User in UK (O'Dea, 2018)

Persona

Persona Scenario:

Amelia Jackson is a nurse. Who works in renowned Hospital. And work of nurse in UK is so stressful. And stress is increasing day by day. She has 3 kids those all are under 16. So, after her working our she needs to cook for the children. And after feeding the children she needs to take rest. So, she has less energy to go to grocery to shop and after shopping cooking for children. So, she wished if any smart device that will able to detect and identify the grocery items that need to be order.

Figure 12: User Persona

USER PERSONA

Amelia Jackson

ABOUT

Amelia Jackson is a nurse. Who works in renowned Hospital. And work of nurse in UK is so stressful. And stress is increasing day by day. She has 3 kids those all are under 16. So, After her working our she needs to cook for the children. And after feeding the children she need to take rest. So, she have less energy to go to grocery and shop nd after shopping cooking for children. So she wished if any smart device that will able to detect and identify the grocery items that need to be order.

GOALS

- She will be able take care of their children and can spend more time with them
- She will be able to get enough time to take rest.

PAIN POINTS

- Can not give enough rest to the body. Possess lots of mental stress.
- Cannot give enough time and take care to the children.
- Cannot give enough time to herself to explore herself.

NEEDS

- Looking for a device which will help to detect and identify grocery product that need to be ordered.
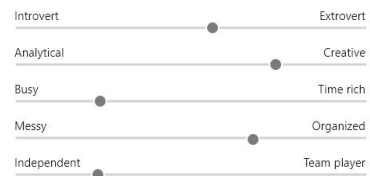- Can give order of the product using voice command.

PERSONALITY

Introvert		Extrovert
Analytical		Creative
Busy		Time rich
Messy		Organized
Independent		Team player

Figure 13: User Persona

I love to serve people & love my children more

AGE 29
JOB TITLE Nurse
STATUS Married
LOCATION United Kingdom

PASSIONATE EMPATHETIC

CURIOUS MOTHERHOOD

FAVORITE BRANDS

Walmart Johnson&Johnson a.

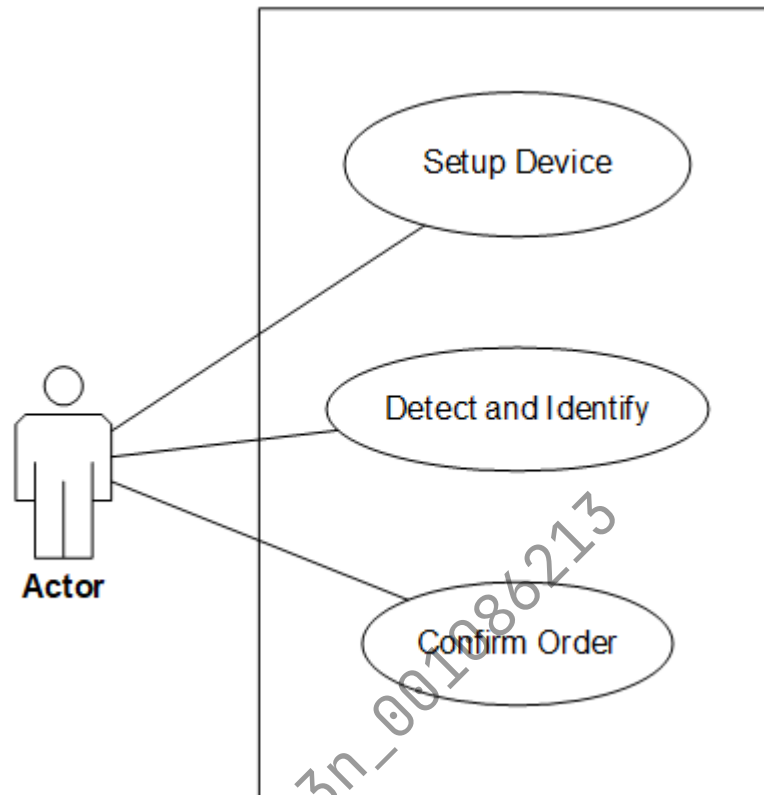**Essential Use Case Diagram**

Figure 14: Essential use case for the coursework system

Requirements

To develop any system there need to be find out the functional and non-functional requirements of the developing product. So, from the scenario the prototype of smart device and mobile app their functional and non-functional requirements are given below:

Functional Requirements:

i. Smart Device must be able to detect any product.

ii. Smart device should able to identify the detected product.

iii. Smart device should detect product by scanning product package.

iv. Smart device should able to add item to the list.

v. Smart device should able to send detected items list to place order.

vi. Mobile application should have setup system to connect with smart device and configuring the device.

vii. Mobile application must be able to place order for the detected products.

Non-functional Requirements:

i. Smart device should be less battery consuming.

ii. Smart device should work readily.

iii. Mobile application should be user friendly.

iv. Mobile application should work faster and reliable in performing task.
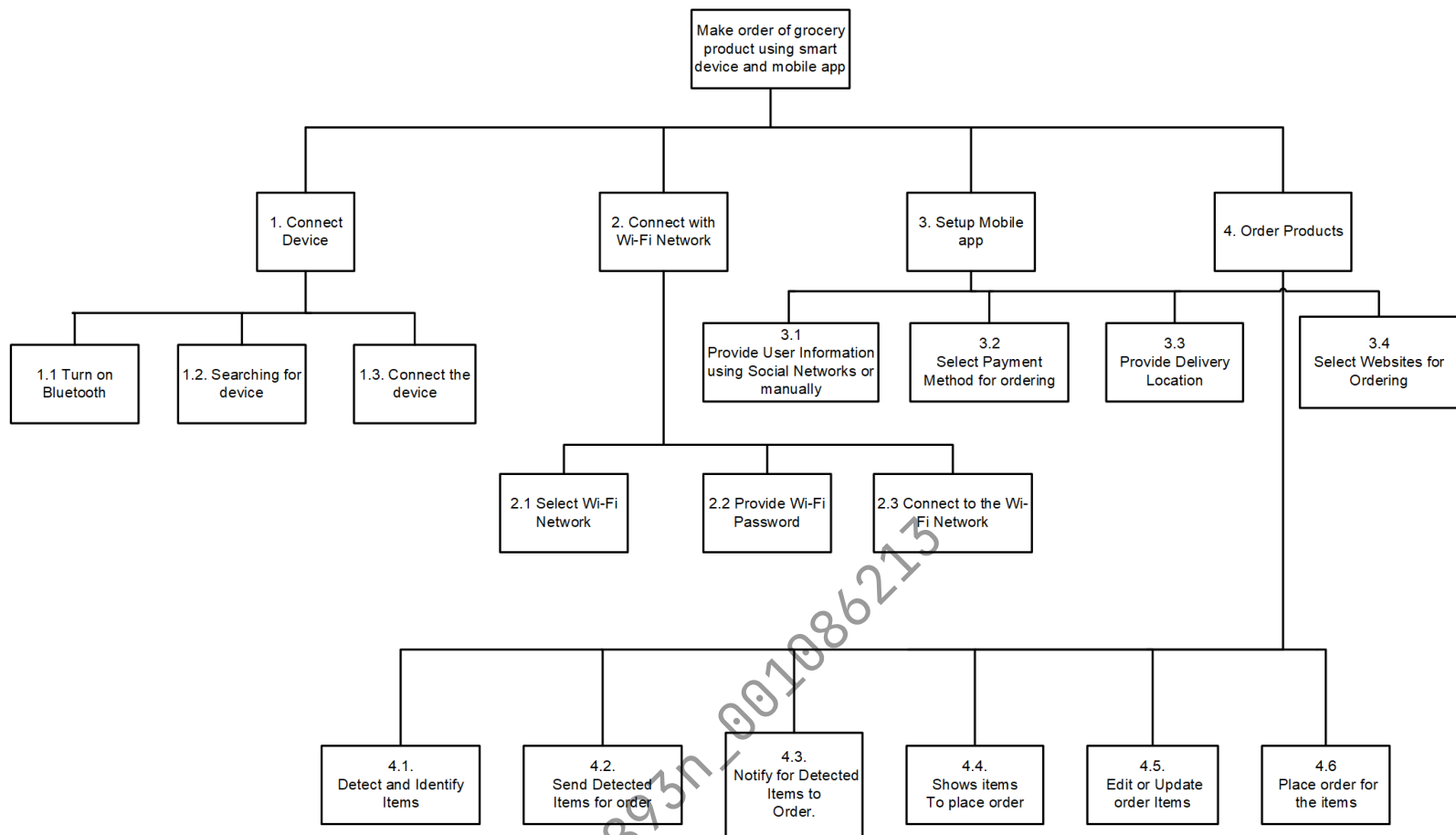
Hierarchical Task Analysis

Figure 15:Hierarchical Task Analysis Diagram

4.2 Conceptual Design

Design Principles is some set or rules or guidelines that are followed by designer to come out with a great design for the user while designing. Design principles are essential because when it is applied in designing it helps to come out with a design which makes user comfortable and easy to use the product. From some design principles, Don Norman's and Paul Beynon's design principle will be followed to design the coursework. Don Norman's visibility, feedback, mapping, affordance, consistency and Paul Beynon's familiarity, navigation is used in coursework design. By the use of these principles' coursework prototype will provide more user experience. Here how this are applied in the course work are shown.

Visibility: Visibility is which shows the visibility of the functions. It helps user to see and understand what is the function of object elements. Clicking on Log in Button user will able to log in to the system. So, by seeing the button name user understand what its function is.
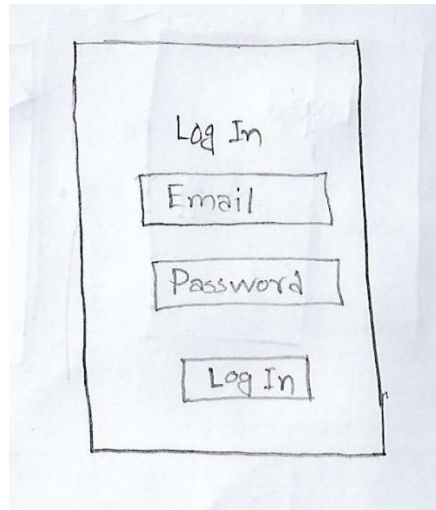
Figure 16: Whole interface is visible and understandable to user.

Feedback: Let the user know about what is happening with his/her action is feedback. It helps user to know about the action he made while interacting with the interface. When password is updated it shown a message to user that password updated.
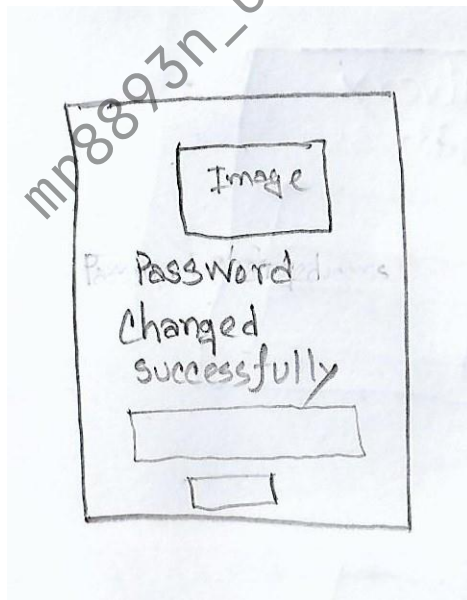

Figure 17: A message shown to give the feedback to user.

Mapping: The clear relation between control and action is mapping. User will able to predict the action of the elements by seeing. Seeing this icon button user will predict that it will divert him to backward interface. When he clicks that icon button it takes the user to the back interface.
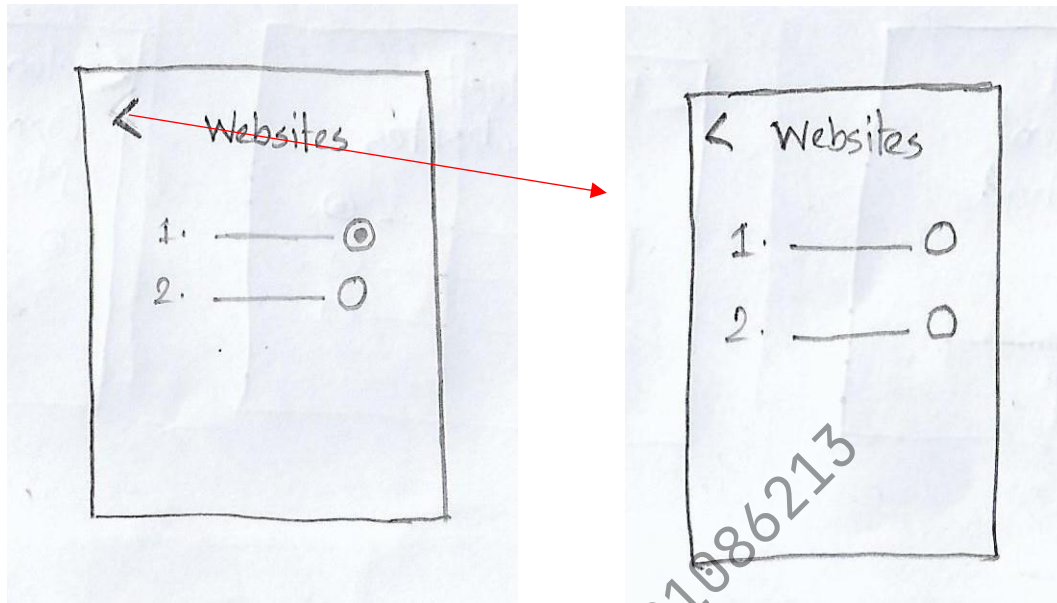

Figure 18: Mapping shown by using back icon

Affordance: When an element of objects allows user to know what is the task of it that is Affordance. User will able to know the action of elements. Seeing this button user will know it is button and it is clickable.
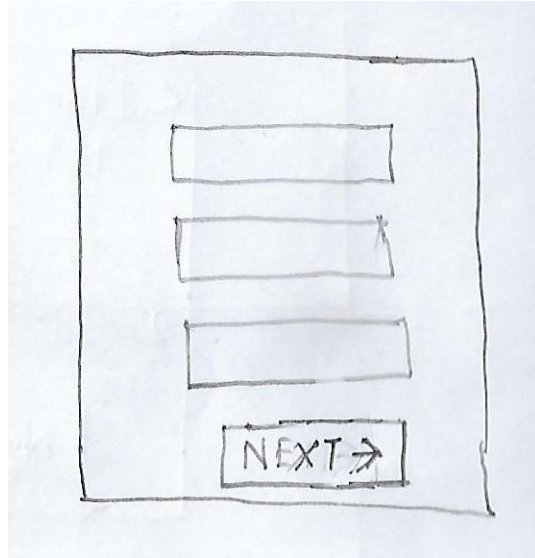
Figure 19: Button shown an example of affordance

Consistency: Same elements same action doing similar task that is consistency. User will find it easy to use the interface when there will be consistency in interface design. User will see the consistency of action buttons layout throughout the user interfaces.
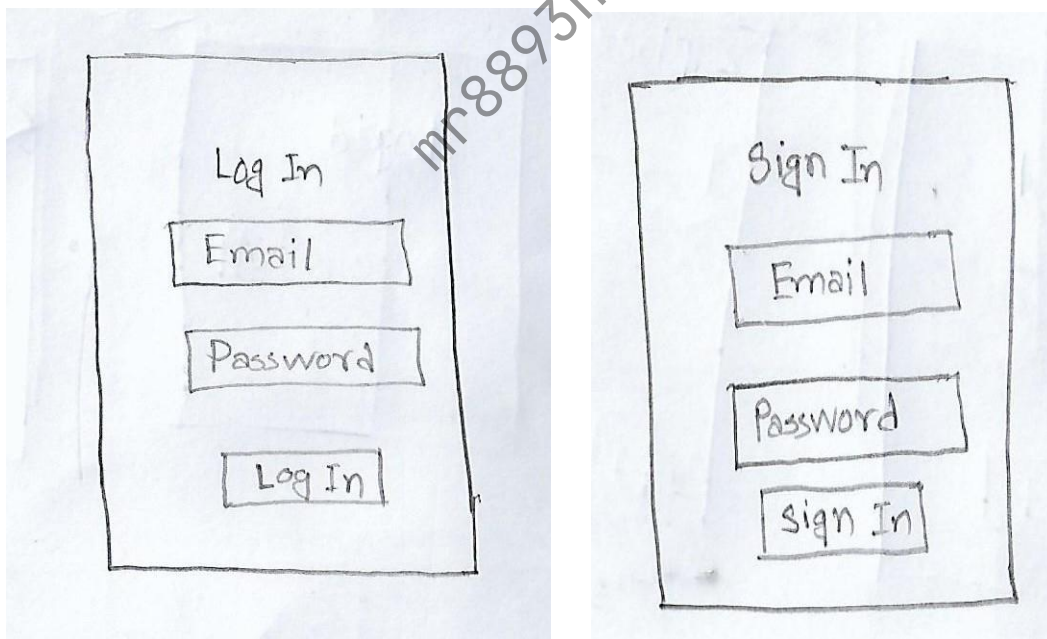

Figure 20: Consistency shown between the layout of log in and sign up.

Familiarity: Elements which is familiar with the user. User finds it easy to recognize is familiarity. User will find easy to interact when they will find familiar elements in interface. Sometimes metaphor can be used. Cart icon used in the button that will be familiar to the user to place order.
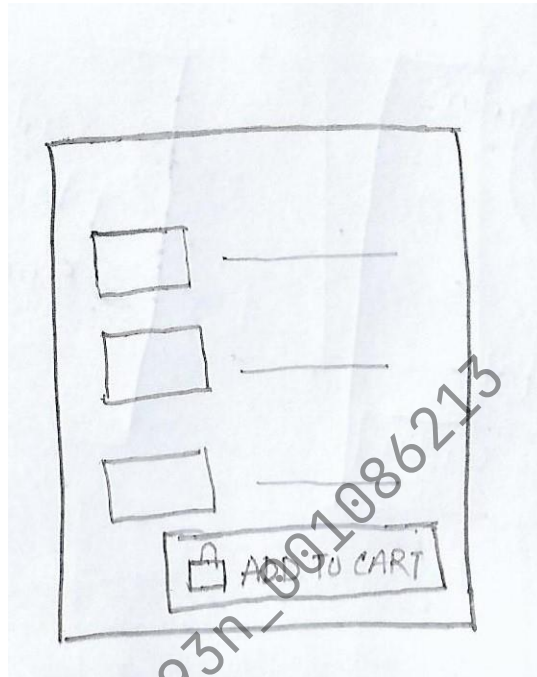

Figure 21: Cart icon familiar to shopping cart used for familiarity.

Navigation: Elements which take user from one interface to another by its action is navigation. User find it easy to go one interface to another using it. Using these arrows user will be able to know the where they are going to navigate.
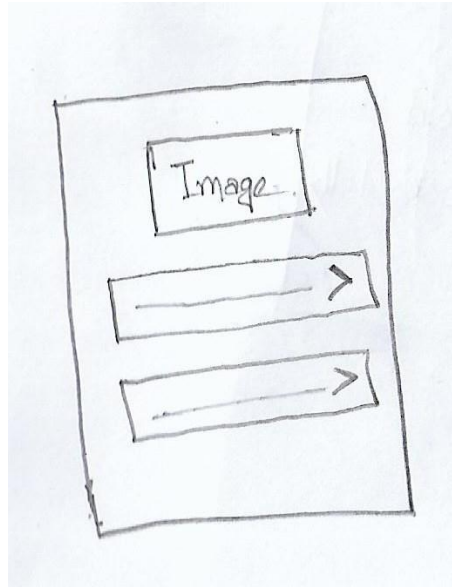
Figure 22: Navigation to go different interface shown.

Ideation Process

Functional requirements of the device are to scan any package of product to send for order. And this can be done in some ways.

1. Scan can be done for product using Bar Code Scanner.
2. Scan can be done for product using Radio Frequency Identification (RFID).

Here the chosen option will be number two. Because RAFID is faster than Bar code scanner. It can detect more accurately and scan multiple items at a time. RFID take less time in detecting
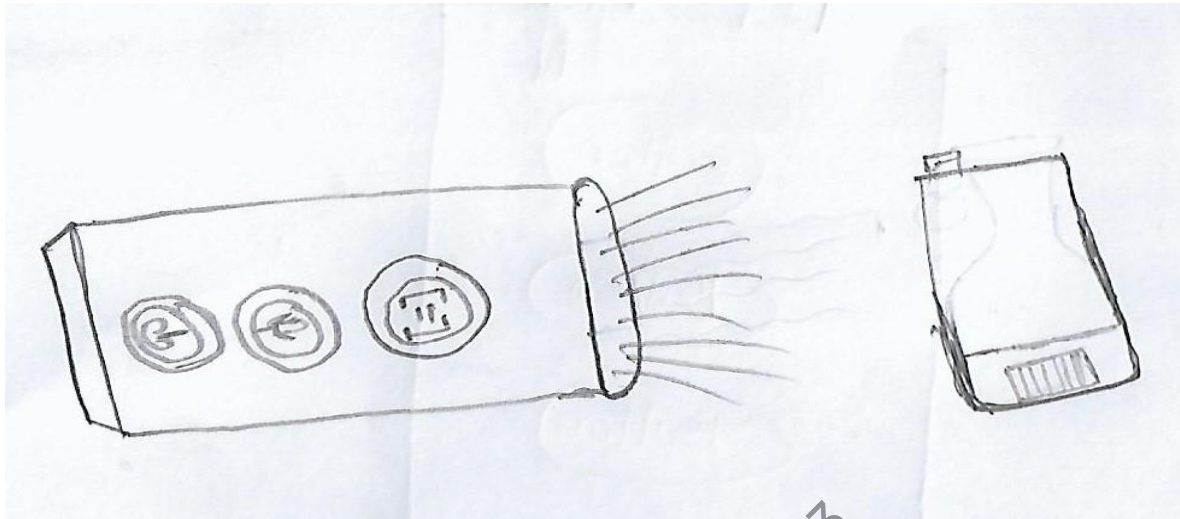

Figure 23: Scanning Bar code through bar code scanner

items. It uses radiofrequency wave to transmit data. And it can easily identify tag items using RFID tag.

So, for this there will be a button with RFID icon in the device and RFID scanner will be attached with the device. For the button a good color will be used to get the attention of user. Color will be used circular the button using blinking light. When user will be attracted with the color an icon of scanning will be placed middle of the button which will help user memory to recall the scanning icon from the brain this will make less memory load to the user memory. Button has

created because user will perceive to get a button to scan the products. And if the button is
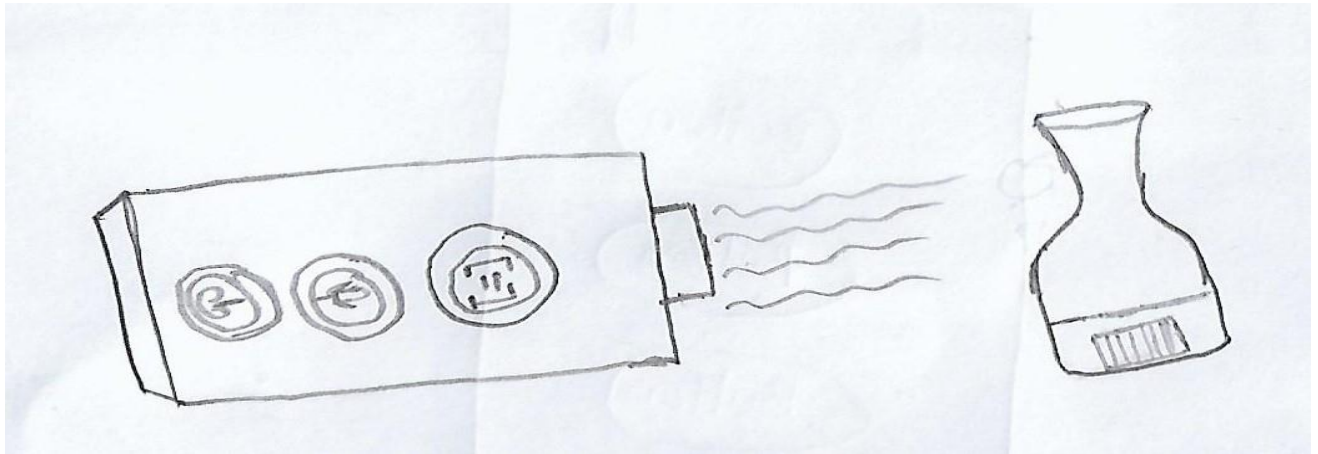
similar to other button than they will easily understand the work of it.

5. Prototyping

As interaction design of the app will be for a particular operating system and the chosen OS is Android for this coursework. And the version of android OS will be for designing interaction design android follows some rules or principles to create the user interface more affordable and user friendly. Rules are applied in all the elements of user interface like text, icon, button, typography, layout and sound. Prototype of the given coursework are developed following the material design of android.

Layout: Layout is where all the elements for the functionality of the system are placed. So, layout should be predictable and the grid system should have enough consistency and padding for the elements. In course work prototype consistent layout have used.
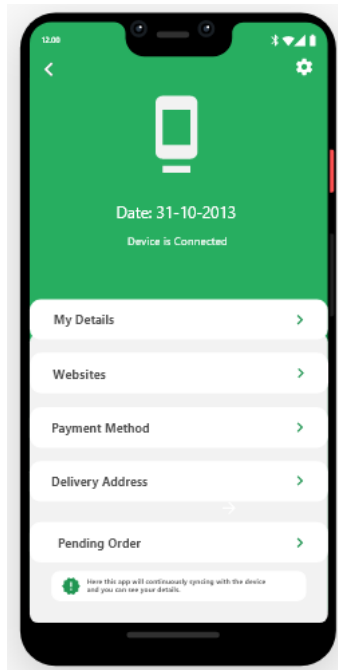
Figure 25: Layout of the mobile app

Navigation: Navigation which helps user to move from one interface to another. There are types of navigation and from that, reverse navigation is used coursework.
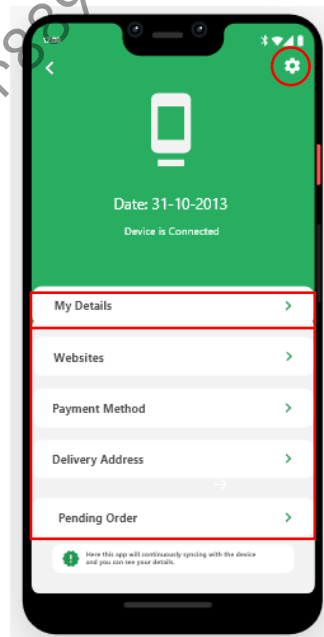

Figure 26: Navigation of the system shown

Buttons: Buttons are used to do some actions. And this button should be clear and effective to the user. Size of the button should be visible and text in the button will be clear from the background color. And size of the button should maintain a standard. All discussed elements are applied to the coursework prototype.
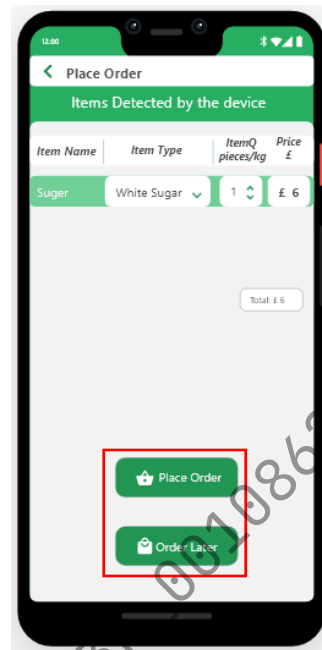

Figure 27: Buttons have shown of mobile app

Colors: Color represents the branding. For any system there will be a specific color palate and that color palette should use one primary color and one secondary color with their variants. In the coursework prototype there used a specific color palette with primary and secondary color.
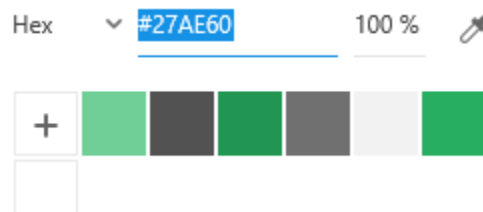

Figure 28: Used color pallet

Typography: Typography is representation of text in the design. This make the design more efficient. So, there should be certain instructions for every element to use text. Expressive fonts cannot be used in button, body and subtitle. For android text there are particular size units like **sp**. In the coursework there used Roboto fonts for headings.

Figure 29: Roboto text used in mobile app

Sound: Sound should be used to provide great user experience that need to be informative clear and soft sound system to the user. In the coursework there will be soft sound for notification and for voice command will be used to communicate with the interface and that voice format will be in MP3(MPEG v2).
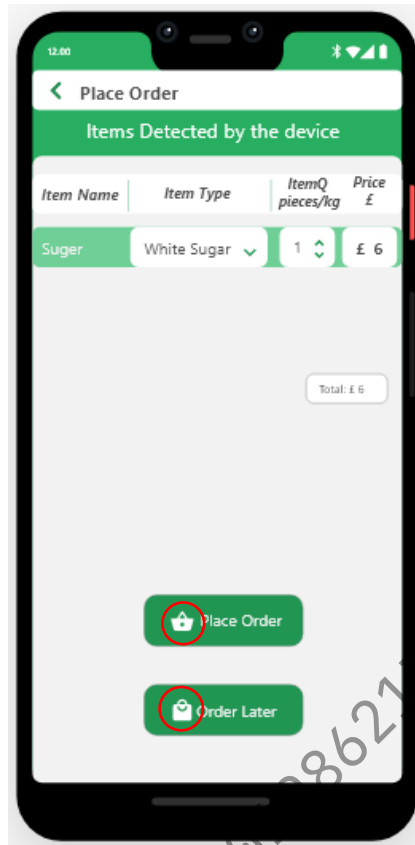
Iconography:

Figure 30: Icons used in the mobile app

Icons used to identify the work and action for a particular work and express it meanings. Icons have three section product, system and animation. And in the coursework system icon have used which does a particular action for each icon.

Final Prototype

Here the final prototype will be shown from low fidelity to wireframe and from that high fidelity. At first the protype of detecting and ordering products proto type will be shown.
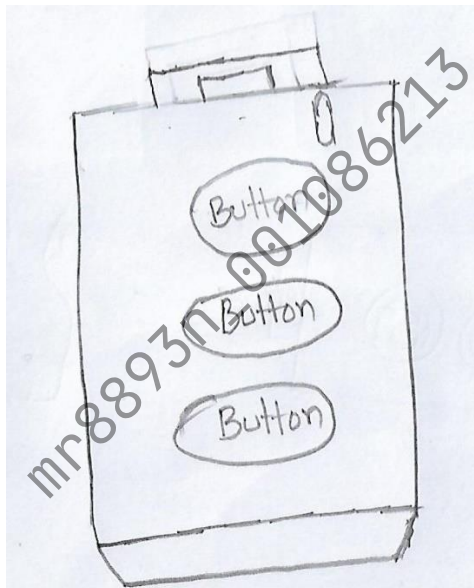
Low Fidelity

Smart Device

Figure 31: Sketch of smart device
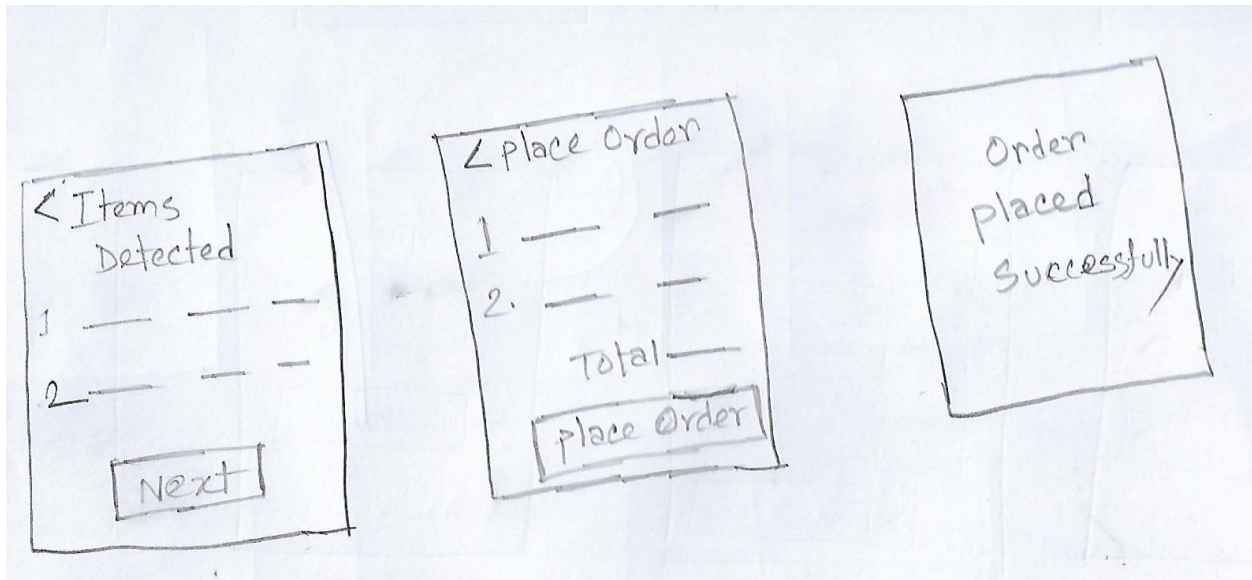
Mobile App

Figure 32: Sketch of mobile app detecting items and place order

Wire-frame

Smart Device
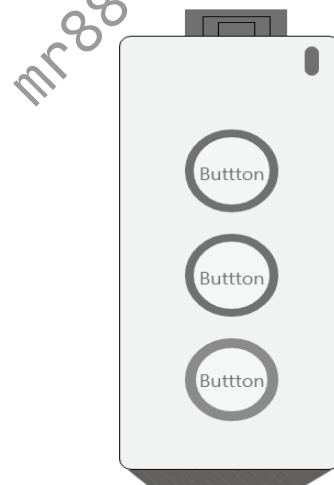
Figure 33: Wireframe of Smart Device

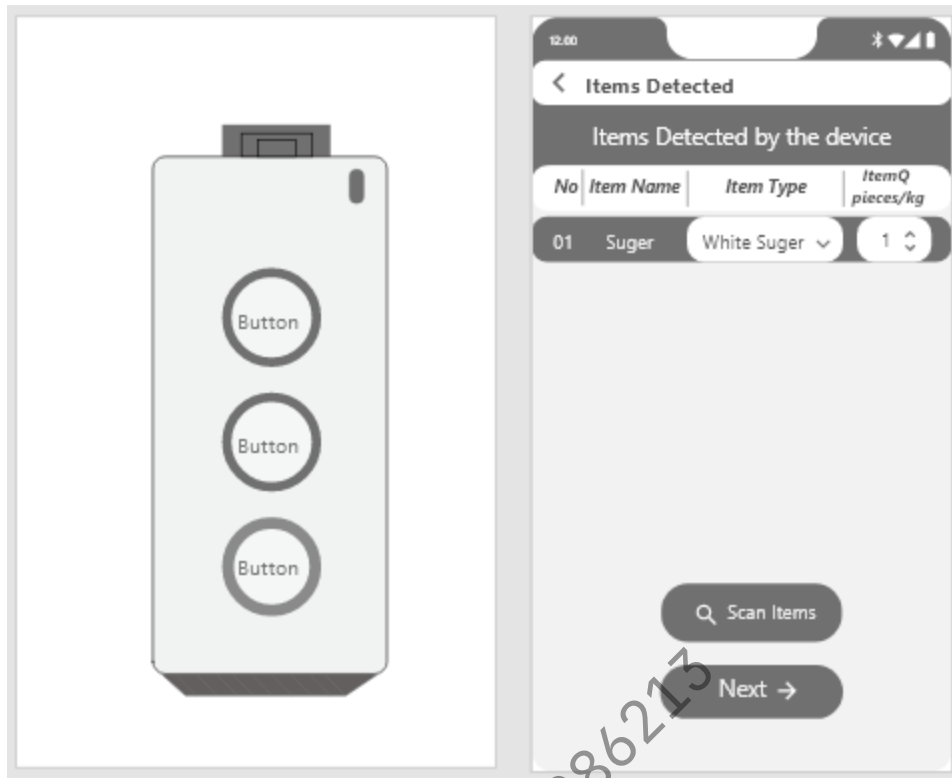Mobile App

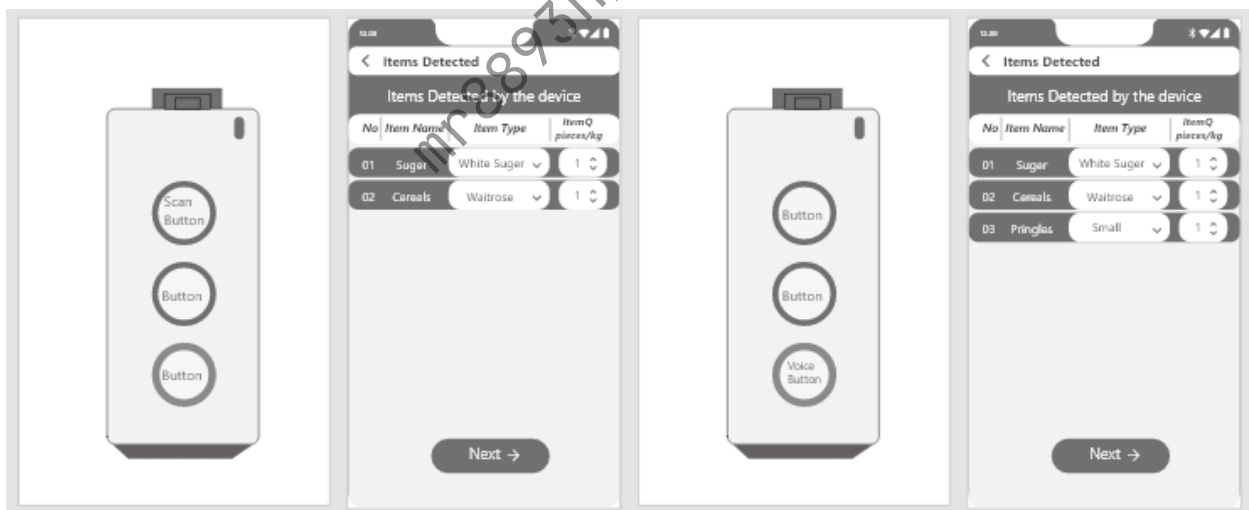*Figure 34: Wireframe of detecting items using smart device*

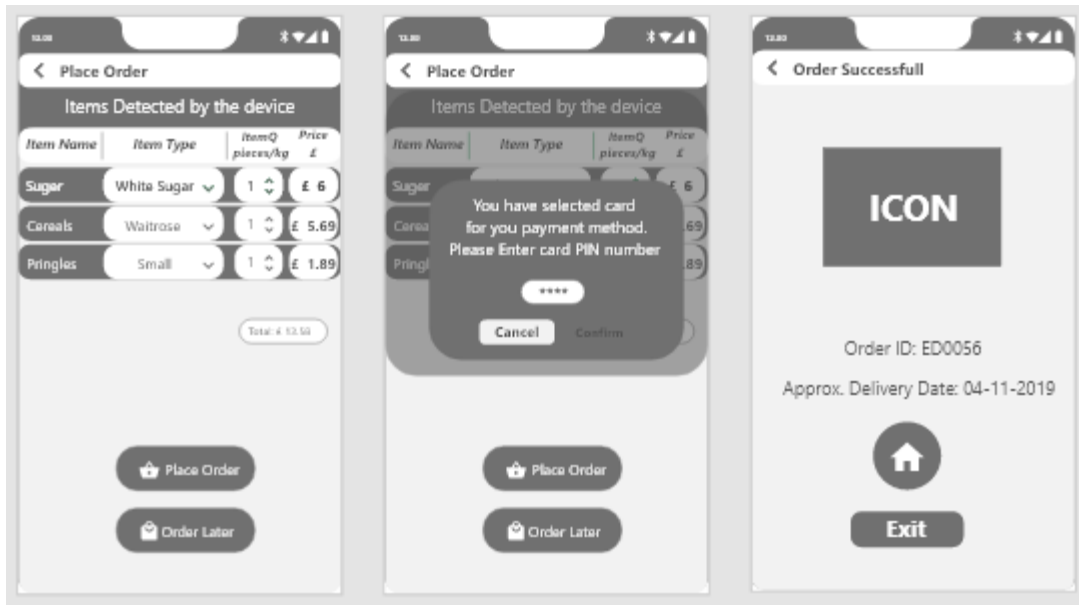*Figure 35: Wireframe of Detection of items through scan and voice*

Figure 36: Wireframe of Ordering detected Items
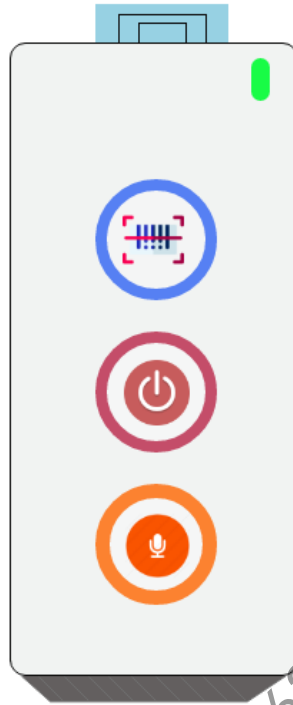
High-Fidelity

Smart Device

Figure 37: Hi-fidelity of Smart device

Mobile App
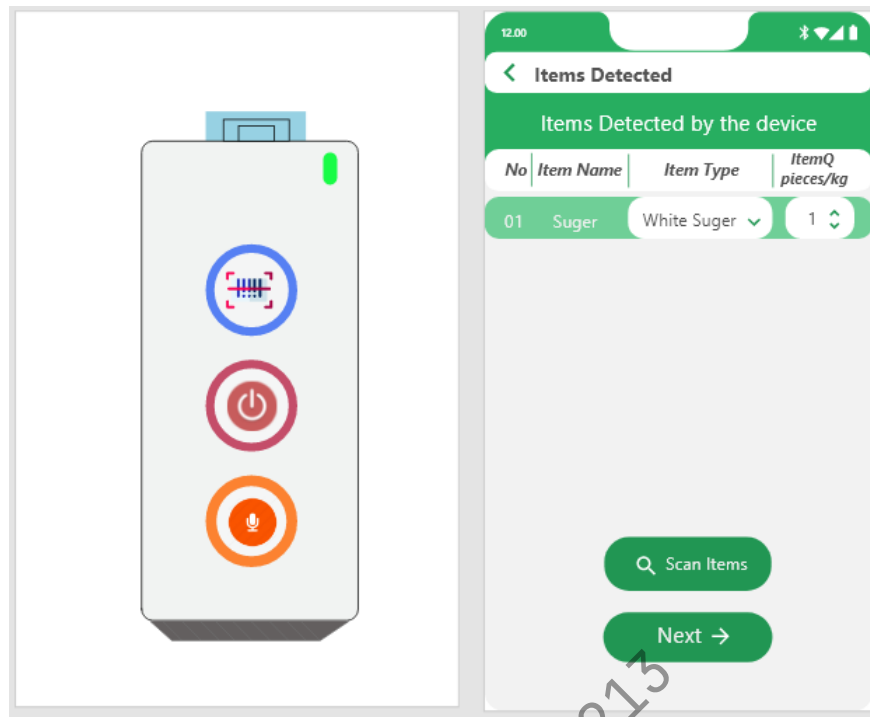
Figure 38: Hi-fidelity of detection of items
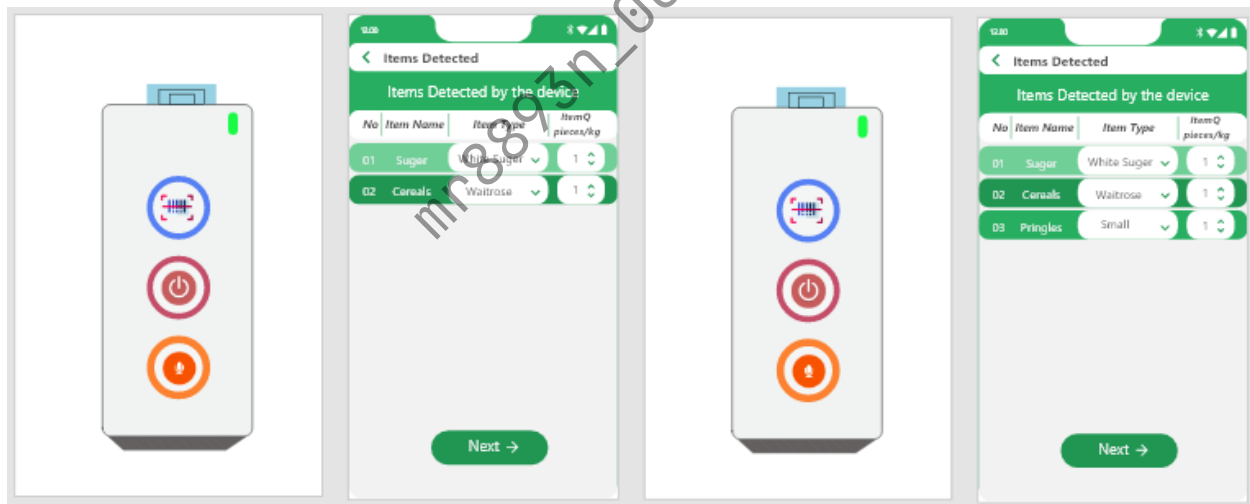
Figure 39: Hi-fidelity of Detection of items through scan and voice
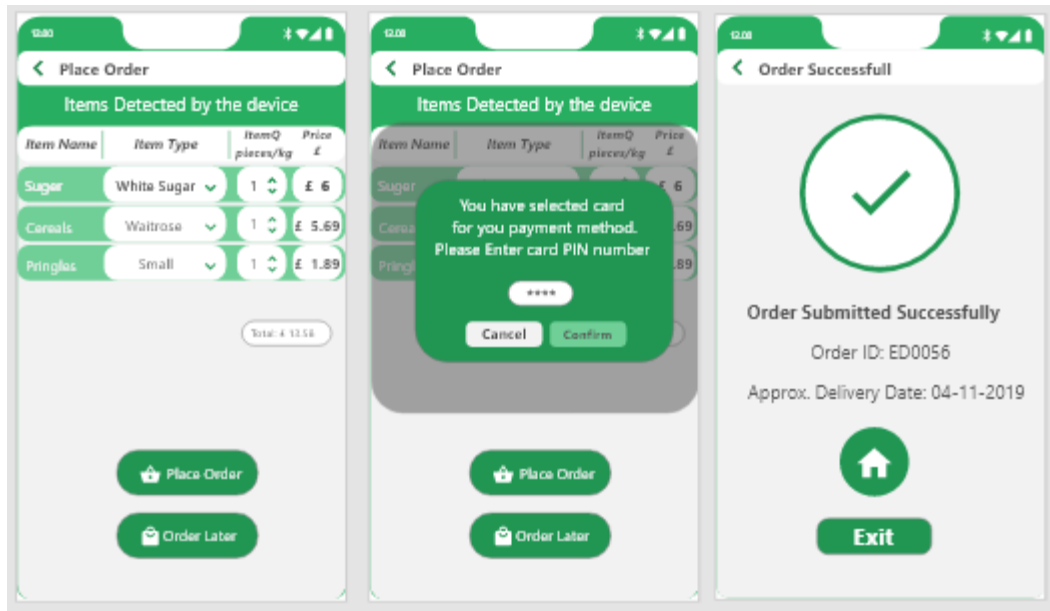
Figure 40: Hi-fidelity of Ordering detected Items

Here the process of detecting items through Smart device and place that items to order. Here firstly smart device will detect the items from the almirah or fridge. Where smart device will be attached with magnet used behind the device. Device will detect the product object using proximity sensor and level sensor to check and identify the inventory. If it found less item in the inventory which is less than the expected number it should remain. Then smart device will send that items to the mobile app to place order. And using mobile app user will confirm the order.

Check Appendix A for more screenshots.

6. Research Study

For doing the research study for the coursework Usability Goals and UX Goals are going to be tested. And for running the test here need to follow some guidelines. And guidelines which will be followed for Usability Goals is System Usability System (SUS). And for UX goals HEART

framework will be followed. System Usability system has some questionaries' that are asked to the user for evaluating system usability. And the feedback result is evaluated with a tricky calculation. And that calculation result helps to find out the usability of a system. (Thomas, 2015). HEART framework which measure the user experience by applying like Happiness, Engagement, Adoption, Retention and Task Success. All metrics will not apply to all projects. Only according to the required outcomes metrics will be chosen. (Matters, 2014)

The assumptions of performing the research study, the participants for usability test and UX goal test will be people who have no usability and UX tester but want to test his system. Besides usability and UX tester can do the test. They just need to choose a feature from their system and applying this test to evaluate usability and UX.

For research study the chosen features of placing order for items. The usability goals of the feature are if user find in easy to place an order and understand every elements action. And UX goal will be measures on happiness and adoption.

7. Conclusion

The hardest part of this scenario coursework was making prototype of a smart device which will be connected with a mobile application for ordering any products from online shop. Firstly, it was difficult to think about the prototype. But after time being with the research of similar device helps to create a primary sketch about the device prototype. Then by creating a wireframe a structure comes out and then prototype have created. Same process followed for the mobile app.

Lastly, by completing all the objectives the aims of the coursework have accomplished. Besides, in further development with implementation of some features like Alexa or Google Assistant to the device will make more efficient and reliable to the user. And in mobile app discount and best affordable price suggestion can be shown. Adding new feature to the device will give more user experience.

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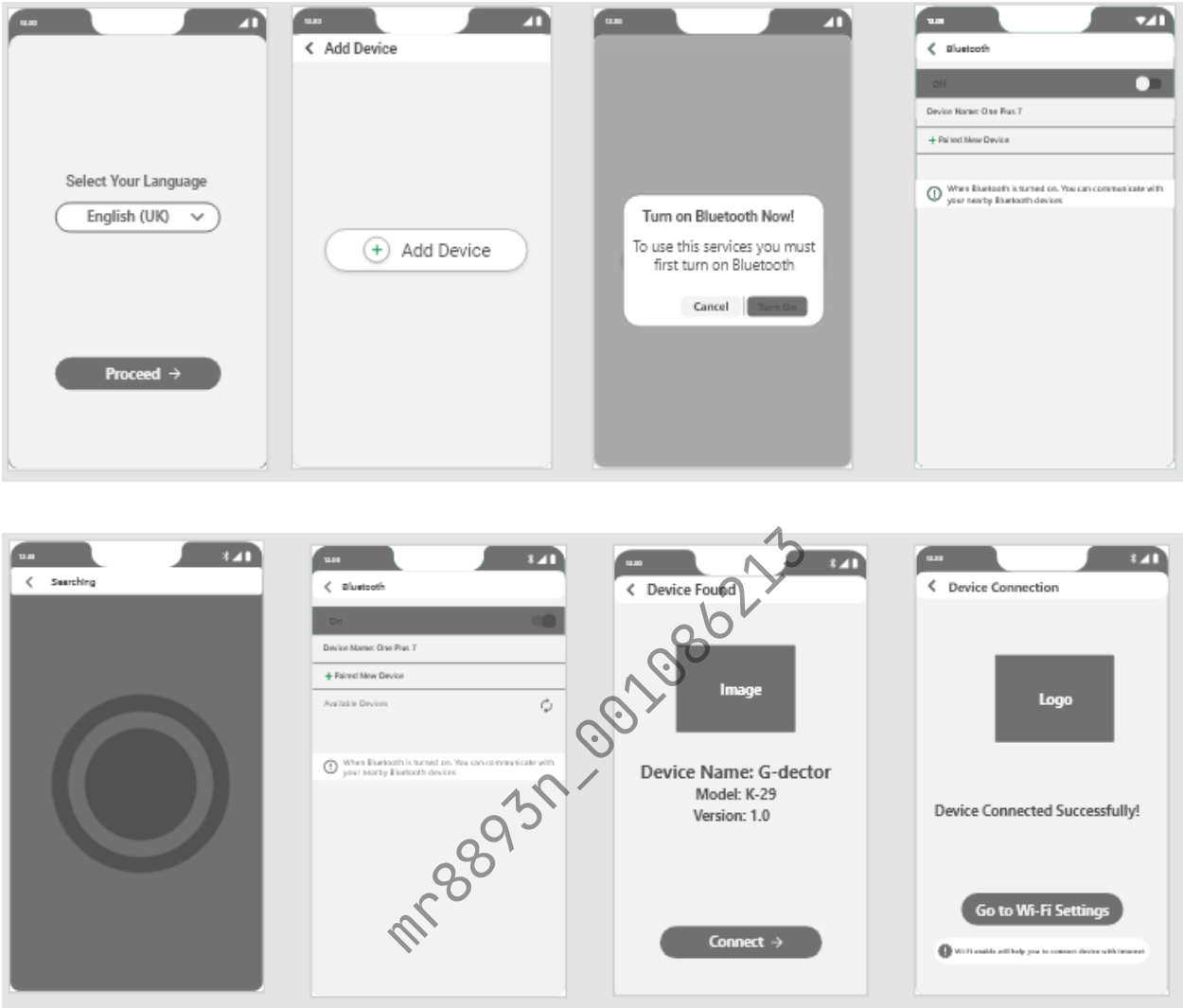[Accessed 17 October 2019].

9. Appendix A

Screenshots

Connecting the device feature

Low-Fidelity

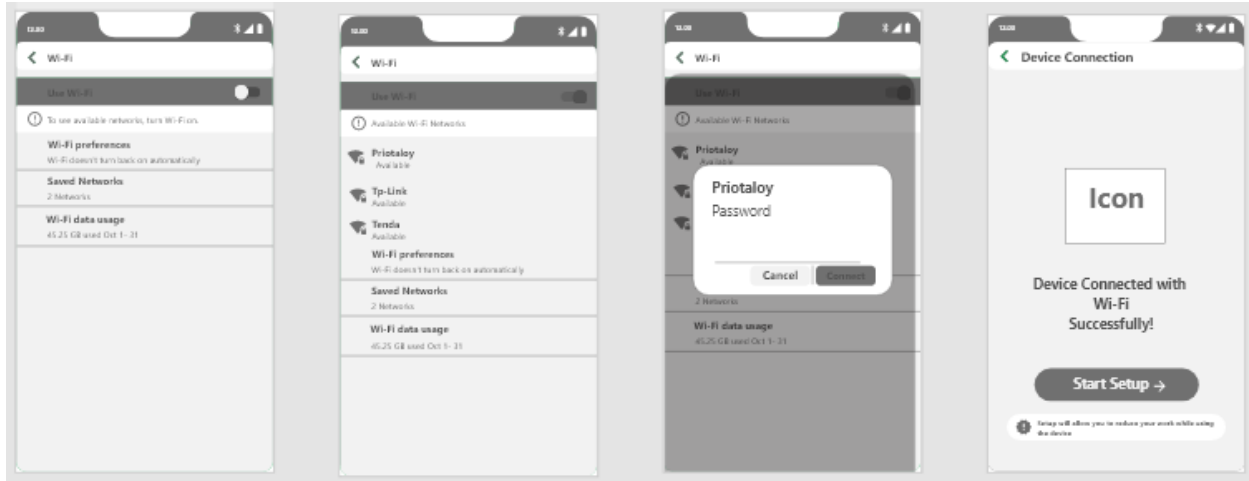*Figure 41: Sketch of connecting device steps*

Wireframe

Figure 42: Wireframe of connecting device steps.
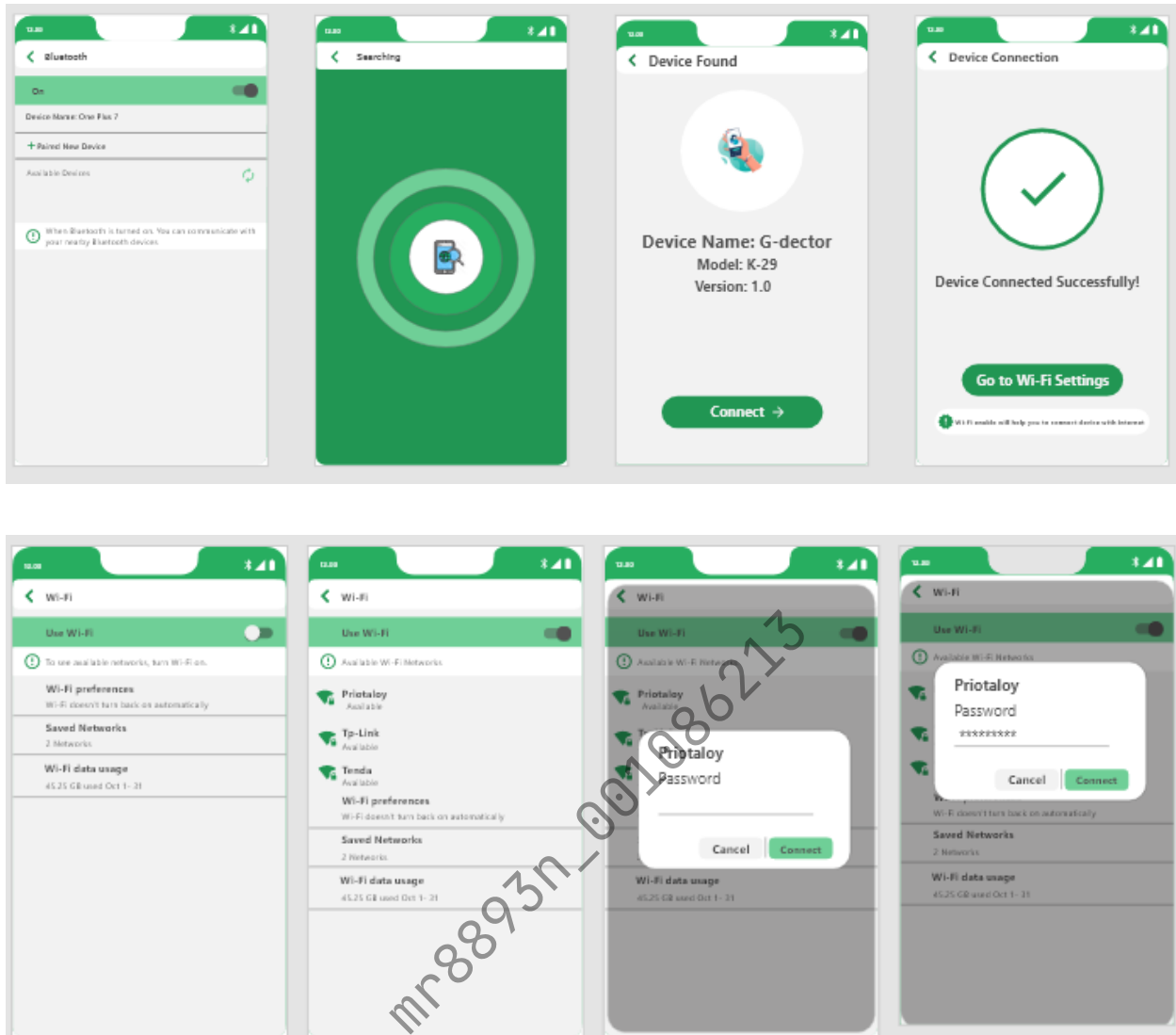
High-Fidelity

Figure 43: Hi-Fidelity of connect step with device

10. Appendix B

10.1 Participatory Design

Participatory is the design process in which user are involved while developing the system with a collaborative way. The benefits of using participatory design process is to get the best final by continues feedback of user with full time involvement with development team. The process of participatory design is involving user while developing. This involvement will be in different phase like proposal, development and testing phase. (Moyers, 2018)

11 Appendix C

11.1 Learning

Learning is a process of changing behavior permanently which happens due to practice and experience. This process also uses attention and memory. From memory what user learned they can use that learning if same objects come out in front of them. If new objects come out for user then with the help of attention and retrieving memory, they can apply the learning to solve the objects problem. So, developer should use learning process in developing. To do so developer should make the interface interesting so user get encourage to explore more. There should be facilities to guiding the user when they are learning the interface for the first time. Facilitate user to undo and redo of their command. The more user interface is easy to use user will explore more. (Cherry, 2019)

12 Appendix D

12.1 Theory of Action

Theory of action is combined of two things Gulf of Evolution and Gulf of Execution. These two are used check the effectiveness of the system design. Accomplishing any system design goal by the action is Gulf of Execution and evaluating that system design is Gulf of Evolution. They are interdependent. In the scenario while designing the device or interface there will be use of these gulfs. Evolution will help in final design outcome and execution will applied in accomplishing final task by breaking it into sub task. (Whitenton, 2018)
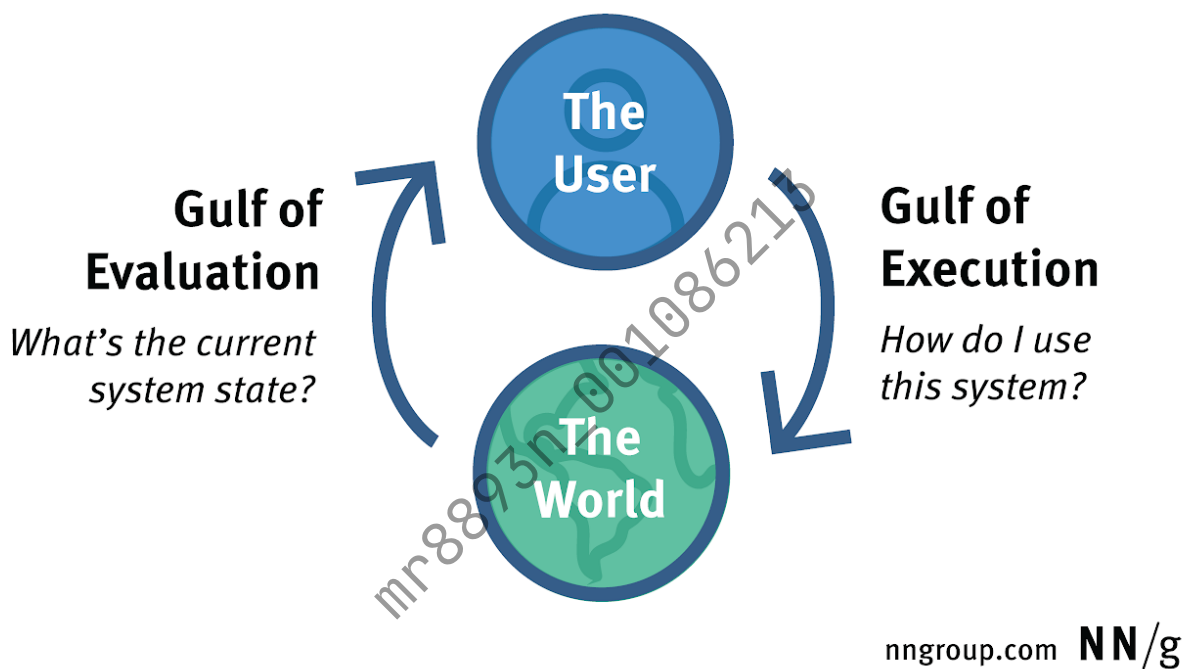

Figure 44: Gulf of Evolution and Gulf of Execution

13 Appendix E

13.1 Interviews

No	Question	Answers
01	What is your name?	Amelia Jackson
02	What do you do?	I am a Nurse.
03	How old are you?	29
04	Are you married?	Yes
05	Do you have any kid?	I have 3 kids.
06	Do you use smart phone?	Yes
07	Do you have any idea about smart device?	Yes, device which do the work of people smartly.
08	What are the most frustrating things do you face these days?	Going for grocery shop for shopping grocery item for my family
09	If a smart device helps you to do the work of grocery shopping using a mobile app how it would be?	It will be great. I would like to use that device.
10	Thanks for the interview	Thank you so much.

14 Appendix F

14.1 Questionaries'

To accomplish the goal the required criteria should be followed. Total number of Yes will indicate that your interface accomplished the usability and UX goal and No indicates system fails. And tie will indicate is it could improve.

No	Criteria	Yes	No
01	Does the interface contain enough user-friendly elements?		
02	Does the interface use relevant elements?		
03	Does the interface create pressure on your memory while using?		
04	Do you feel mental satisfaction using the interface?		
05	Will you suggest anyone to use the system?		
06	Do you feel anything need to be added to the system?		