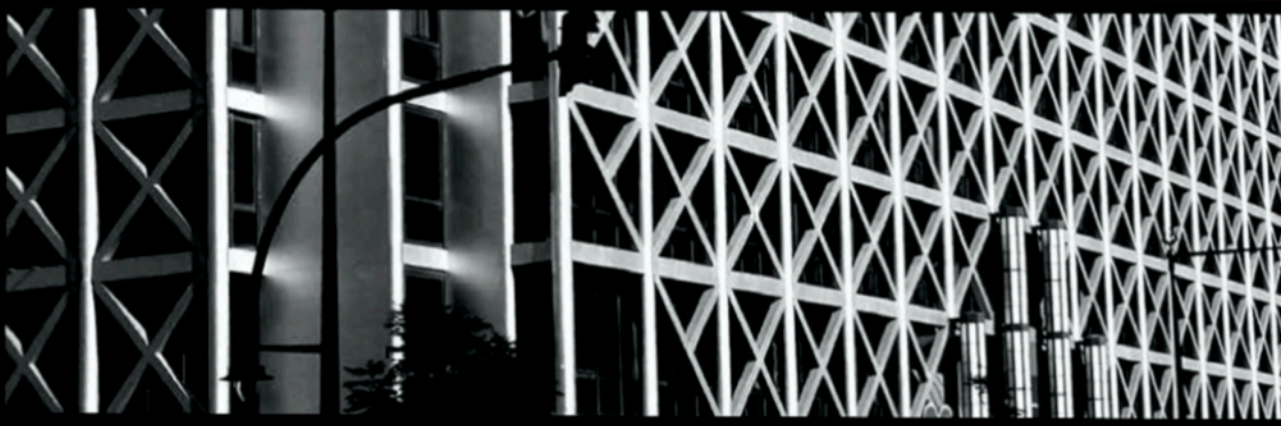
2020

MESTRADO EM **DESIGN E CULTURA VISUAL**



Faculdade de Design,
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Raviraj Jadeja

Localike: Promoting Business via Mobile Technology

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Project presented to IADE – Faculty of Design, Technology and Communication of Universidade Europeia, to fulfill the requirements necessary to obtain the Master's degree in Design and Visual Culture carried out under the scientific guidance of the Professor Rodrigo Morais of IADE.

Acknowledgement

We as Localike team are whole heartedly thankful to many people for being a backbone support in this journey of building up this amazing idea. Right from the start with the help of our close reference Pradhyuman Jadeja, the conceptual side of the project got some shape. Thereafter discussing the semi-shaped idea with few more colleagues at the University including Luis Garcia and Edoardo Ambroggi boosted our confidence to go ahead with it and give it a full shape during the academics at IADE.

Revising the subjects of design principles, methodologies and cognitive approach in design thinking; from the academics helped us lot in implementing this project which also includes the knowledge sharing from many professors at IADE. Not only the professors but also the director of Master In Design and Visual Culture, Flavio Almeida, was discussing out things about design. We remember him saying in one of our initial conversation: “Don’t worry guys you are free to travel to any place and finish up your final project if required.” It doesn’t seem to be a big deal but it was much more thriving to experiment newer things during this research.

Finally we would like to mention my tutor Rodrigo Morais who has been constantly pushing throughout this project. Starting from planning the project, techniques to approach the project and supervising the content with agility of constant inputs in betterment of the project.

We shall remain in touch with everyone for the future enhancement of this project.

Keywords Localike, Advertising, Mobile Application, Interface Design, Prototyping

Abstract The main objective of this thesis is to design a prototype interface for a mobile application which will promote businesses through advertisement within the application. The essential phase of the study was to find out the need for such an idea with the help of findings from statistical data, book references on the similar subject and surveying by collecting qualitative and quantitative data. Furthermore, based on the findings, the need for such application was validated and proceeded further for the development phase. The development phase went through more study on Interface Design and Interaction design to develop the structure from paper prototyping as a low fidelity application to the final prototype as a high fidelity application. The prototype is further expected to be carried out for making a working model. Any future arguments or newer findings will be an enhancement part of this study.

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1. INTRODUCTION

"LOCALIKE" sounds very local, doesn't it? What brings this word into existence is an entire study and a part of this project. The quest for this idea implementation was to bring equality in the advertising market, where a business which doesn't have enough budget (or no budget) could still promote their adverts by having an accessible space on Localike platform.

> Revising on how times have changed by going through the notes of Jon Agar. While today, anybody and everybody, at least in the Western world, can be a mobile user, things were very different from half a century ago (Agar, 2004). In the same book, he talks about how the mobile phones gained importance in one's life, to remain in touch with people around and the exponential growth it gained in the 21st Century to that of a few decades before.

Alongside having updated statistics of total mobile users worldwide, which is around 3.5 billion [1]. It was a viable option for this project to use mobile technology as a platform, by making an application for Android and iOS mobile phone users.

Going back to the beginning of the introduction, consider Localike to be a mere thought of promoting businesses with the help of mobile technology. The very moment this application idea came into existence, this study had many questions rising. Like knowing the advertising industry, isn't it costly to promote a business having online or offline ads? Is there a niche market space for such an idea? Doesn't a similar product already exist? What newness do we need to introduce to attract the users or create our market?

Knowing the scope of the study it was important to find out the requirement in executing this idea. The study begins with the findings of some statistical data from the books and articles of advertisement. These findings are mentioned in the next section (Literature Review, sec. 1.1) which consist of the citation-related to Advertising.

1. Smartphone User Worldwide: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide | Last access: 09-08-2020

Post these findings there was a research study made to cross-validate the requirement by conducting a questionnaire having qualitative as well as quantitative questions. Collecting the data from 20 business owner/ individuals having differences in age and business type led us to a better conclusion of the need.

Proceeding with the development of the project in the next phase, more studies were made for user interface and user interaction design, to create the Prototype for Localike. This stage involved many layers of study, having conceptual study(from books and articles), references guideline(shared by Apple Inc. and Google LLC for application design), Flowchart, Paper Prototyping, Wireframing(Low Fidelity Prototyping) and Application Design(High Fidelity Prototyping).

Having the hi-fidelity prototype at the end of this research for Localike, we examined the project in-hand with all the origin requirement to validate the product.

1.1 LITERATURE REVIEW

For the project Localike we had two areas of study, where on one hand our challenge was to find out all the possible details about the advertising industry and on the other hand, we needed to have more knowledge on Mobile Interface world. Before getting to know the interfaces, it was important for the idea to be validated, which could only happen by going through the study on the advertising industry and its reachability. Thereby, we begin this literature review by starting with the initial section of the World of Advertising and further talking more on the Insight of Mobile Interfaces.

1.1.1 WORLD OF ADVERTISING

To understand the world of advertising, one has to understand the psychology behind those advertisements. One of the first applied psychologist Walter Dill Scott (1869-1955), applied psychology to various business practices such as personal selection and advertising. In his book on “Psychology Behind Advertising", he talks about memory, feelings and emotion, appeals to customer sympathy, human instincts, habits and lot of other advertisement reflection concern on consumerism.

In the initial chapter on Memory, he mentions about the four principles of improving one’s own memory i.e. by repetition, intensity, association and ingenuity (Scott, 1908, pp. 8-9)

> We believe that most persons would choose magazine advertisements that present only the most cheerful aspects of life. If such is the case, it is the duty of advertising managers to see to it that the advertising pages of their publications are rendered attractive. (Scott, 1908, p. 51)

Collecting similar knowledge based on experiments and theories the advertising industry had moved to many mediums from the flyers, magazine, newspaper, television and now mobile. But having the knowledge on the psychological end of advertising, it is also important to have findings for the money involved behind these advertisements.

> Having the base figures directly from Digital Advertising Bureau through the medium of Emarketer, Leonara Fuxman published the article "Digital Advertising: A More Effective Way to Promote Businesses' Products". According to the article the industry of Digital Advertising had surpassed already the broadcast television and other mediums in the year 2013. There has been the compound growth rate of 18 per cent including the mobile and internet since 2004, whereas the spending was expected to be $180 billion in just the US market by 2014. Following the same medium of Emarketer, we got to know that the spending on the digital medium has been constantly growing every year which is expected to be $384.96 billion in 2020 referenced from Global Digital Ad Spending blog statistical notes[2].

Thus we see with the emergence of technology in the past decade and the vast change in preference of the readers and the growth in the digital advertisement. People nowadays prefer to spend more time on their devices reading news compared to that of reading a newspaper. Also, the study by few scholars at University College London revealed in their article exploring mobile news reading interactions for news app personalization[3], the reason they like to spend more time is because of the 24-hour of digital news service, having personalization option and getting notifications each time the news is streamed. We also see that the big newspaper industry does have its mobile applications to reach masses.

Advertisement these days are not limited to the only newspaper but we see many other online platforms such as Google, Facebook, Instagram, LinkedIn, etc. providing the advertising facility

2. Global Digital Ad Spending: https://www.emarketer.com/content/global-digital-ad-spending-2019 | Last access: 06-08-2020
3. Exploring mobile news reading interactions for news app personalisation : https://core.ac.uk/reader/110905872 | Last access 07-08-2020

to any business holder. These online advertising also has many types which are mentioned in Online Advertising (Bundeskartellamt, 2018) as Search Advertising, Display Advertising, Mobile Advertising and Social Media Advertising. These advertising are versatile in terms of their formats such as covers graphics, texts, images, animations or videos.

To design, this advertisement one need specific skills, more elaborated in the article German Town School District[4]. So expecting someone interested in publishing advertisement needs to have these skills personally or they need to hire someone owning these skills. Furthermore, the average cost of hiring an Advertising Designer is USD 43,000 as per the Payscale[5]. It is an online platform sharing real data collected by individuals sharing a similar job title. This helps us understand that unless there is a lack of knowledge about advertisement and not having enough budget may not allow us to host these advertisements directly. On the alternative option, many of these sole proprietor, small and medium enterprises will rely on Word of Mouth Promotion.

These finds in the literature part we could see a scope of giving equal importance to every business and the business expanders are not limited to having a budget of promoting the ads, that's where we find Localike to be a perfectly suited idea. The platform we opted for Localike was mobile because it's a huge market (having 3.5 billion[1]), but the huge market didn't build on its own indeed it went through its own evolution.

1.1.2 BEHIND MOBILE EVOLUTION

Most of us would have encountered the changes in the Technology industry and especially Telecom and Mobile industry, which has been exponentially growing since a few decades now. It is the right way to begin by quoting Craig McCaw's in his measured words as "*Change occurs because there's a gap between what is and what should be*."

4. Advertising Design: https://www.gsdwi.org/SKILLS_USA/AdvertisingDesign.pdf | Last access: 07-08-2020
5. Advertising Designer Salary: https://www.payscale.com/research/US/Job=Advertising_Designer/Salary | Last access 07-08-2020

Reading the quote gives us a deep knowledge of the reason why evolution takes place. It is indeed by someone's mere thought on the present and planning the future. While studying it mobile interfaces how can we ignore the evolution of the mobile industry from the pixel-based cordless dials to the multi-touch smartphones. This evolution has been marked very interestingly by Brian Fling into five different eras, starting from Brick Era, Candy Bar Era, Feature Phone Era, Smartphone Era and Touch Era in his book on Mobile Design and Development.

> Modern mobile phone is a distant cousin to the telephone, it is a communication and information device, which is connected to the Internet, allows to send and receive voice and text messages, can also purchase goods and services and similarly providing many services to make one's work easier. (Fling, 2009, p. 1)

Continuing to the era section the Brick Era is considered to fall in between 1973 and 1988 where cordless receivers were connected to a portable radio which had a limited range of connection. Going ahead from 1988 to 1998, he defines it as Candy Bar Era, where network operators (providers) started to see the clear value in the burgeoning cellular networks. The Candy bar phones commonly associated with 2G GSM(2nd Generation Global System for Mobile Communication) included SMS(Short Message Service) and phone calls. Approaching the third era which was a leap from the other Era defined as Feature Phone Era from 1998 to 2008, this usually had all the user popularity needs fulfilled, whether it was music, taking photos, accessing Internet, calls, SMS and MMS(Multi-Media Services), with many other small applications. Along with it the network improved as well promising internet speed through 2.5G or halfway between 2G and 3G. In between 2002 a parallel era is also define which is called to be the Smartphone Era which provided a larger screen, QWERTY keyboard, stylus, had capability of accessing Wi-Fi(Wireless Fidelity) for high speed network connectivity. And finally Touch Era was mentioned which is an ongoing era, where we have much easy interfaces with millions of application on our fingertip to make our work simpler

and easier. It allowed more technology and features addition with each year progressing, crammed into smaller and smaller packages. (Fling, 2009, pp. 4-12)

Not staying limited to the outer side of the Eras but what differed each Era was the experience it kept on adding. From big changes to even small changes started mattering to the researchers, mainly the User Interface Design and experience changes. Having the same Brick Era phone with big keys, to Smartphones Qwerty keys and now the touch keys with precision and guidance. Sharing the detailed interface diagram shared by Brian Fling which was allowed to be shared in his book by Jesse James Garrett (Fling, 2008, p. 91)

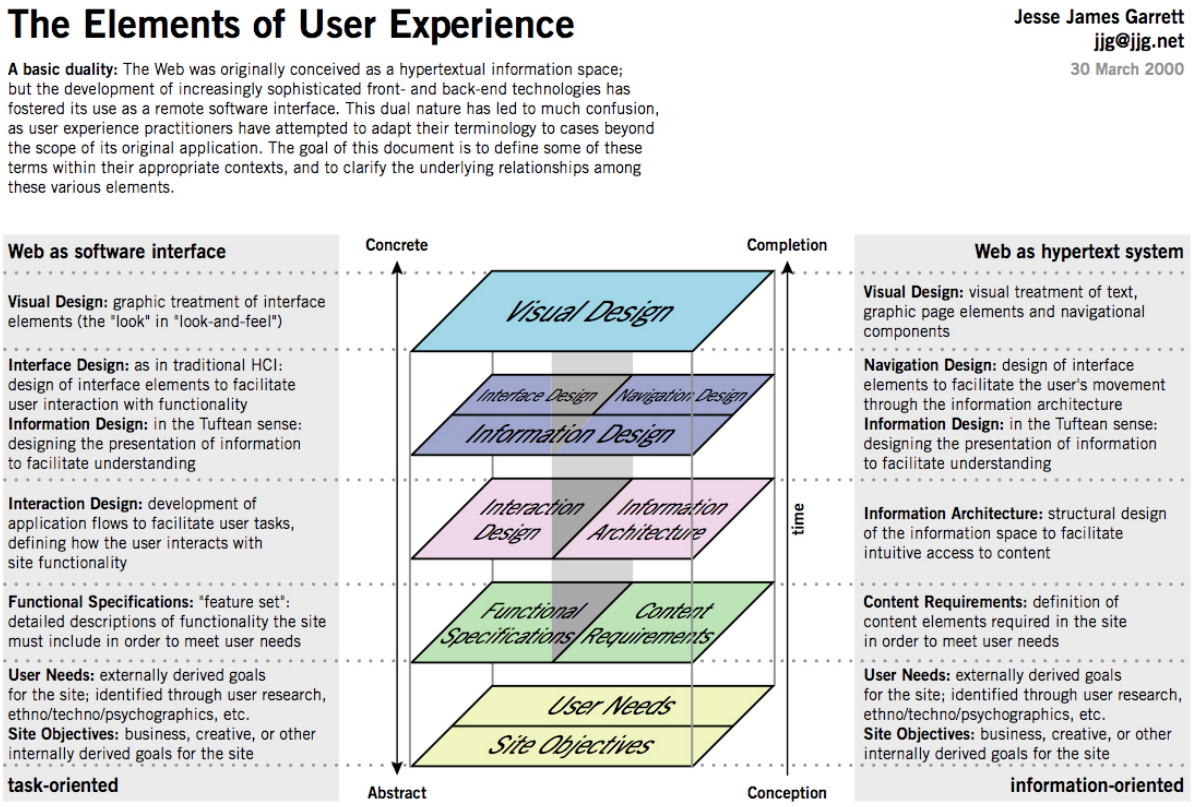

Fig. 1: The Element of User Experience
Source: Fling, 2008, p. 91

When we talk about the experience it is important to have set the user needs and site objectives in the conception and the abstract stage of building a product. Each layer has its importance in order as well explained by Jesse James Garrett. Continuing to the note of Literature Review, please also read section 3 i.e. background study on User Interface and User Experience, which will add more to your understanding about Interfaces.

1.2 PROJECT BRIEF

This section is more on the fundamentals of this project in terms of the objective on ‘what was the need, developing the hypothesis, the initiative to solve the specific problems by generating questions for the study, going through the existing system and thereby proposing the new system’. The challenge looked simple to create which was to create the user interface for an application having a good experience. We wish it is as simple as it sounds, but to validate every step is in support and favor of the application was a new challenge. Let us take you to the insight into the formation of this idea.

1.2.1 OBJECTIVE

The objective of Localike as a product was to act as an equalizer in the advertising industry with the use of technology adopted by the masses i.e. mobile handsets (which is commonly known as smartphones). As one might have noticed that the highlights are more on the advertising sector but in real the focus was more on the end-users. For Localike the end-users or the viewers were themselves considered as the advertisers.

We had to draw our target audiences, for one set of user it was to give an easy and simple interface so that they can create an advertisement, whereas for another set it was to give access to these ads which are close to their location. More brief on these set of users is defined in a later section (Personas, sec. 5.3).

1.2.2 PROBLEM WE SEE

Showcasing what a business does in a small ad square is too expensive for many businesses when it comes to a newspaper advertisement. Let us look into the real figures to understand the problem size which a business may have to face for that square size in a newspaper or magazine.

> "The cost of a newspaper ad depends on the publication's location and circulation size, as well as the color, frequency, and day of the week your ad is published. For example, a local paper may charge $12 per inch for a black and white ad, so a 4-inch by 10-inch ad would cost $480." The figures were shared in the study done by Fits Small Business[6].

Similarly for online advertising, it varies on mainly two factors mentioned in an article Pricing models for online advertising: CPM vs. CPC[7], which is Cost Per Thousand Impression depending on the number of times the advertisement is showed to a user and Cost Per Click depending on the number of times a user clicks an ad. Thus in a way, both structure will share the ads but nothing is for free and have a cost involved.

These costs are most affordable for the business who have such a budget but for the rest, they still need to go with the old trend of promotion, which is Word of mouth promotion or in today's time social media sharing (which is limited to your friends, or their friend in case if someone re-shares your post).

It is not that there is no similar new system pushed before, for promoting advertisement with the use of technology. There are competitors like Google My Business for example, which provides a similar informative platform for these businesses to bring their identity in front. But the problem with Google My Business the way these businesses are promoted, their main focus is on Search Engine Optimization for Google Page Ranking which could be referenced from The Complete Guide To Google My Business[8]. Indeed it doesn't have advertisement structure like its other platform which is Google Ads, similar to that of Facebook Ads.

6. Fit Small Business: https://fitsmallbusiness.com/newspaper-advertising-costs/ | Last access: 12-08-2020
7. Pricing Models for Online Advertising: https://doi.org/10.1287/isre.1110.0391 | Last access: 12-08-2020

Having noted the above points it could be said the bigger problem for the businesses to rise and compete with other bigger businesses is because of the budget required for promoting their respective businesses through advertisement.

1.2.3 HYPOTHESIS

There are two sets of users, out of which one are advertisers and the other are viewers. The advertisers are expected to come to our Localike mobile application platform to host an advertisement. Having low design skill they are still expected to create good advertisement through our interface and host at no cost or low cost.

Whereas the viewers are considered to be attracted to Localike because it gives them access to so many small businesses around and viewing the advertisement for attractive offers. Indeed if they have a business to start, at zero cost they can also publish their advertisement.

8. The Complete Guide To Google My Business: https://ardentgrowth.com/google-my-business-guide/ | Last

1.3 RESEARCH QUESTIONS

Having the advertising market saturated with agencies and freelancers working on marketing plans and good strategical advertisement through online and offline. Does that reduce the opportunities for sole proprietor and SMEs to promote the business? In the limited space do these individuals and businesses have a certain set of skills making and promoting advertisement to attract more customers? If in case they can make advertisement are they much aware of their target audiences? As we also talk about today's market which is more of the online market, reaching masses through social websites, the question arises is the conventional approach of promoting business still relatively useful like word of mouth promotion?

Based on the above questions this project still needed to know and validate by the means of methodologies if there is still a market for Localike platform. Also if the platform is applied through the mobile application, can we create a sub-platform to allow its users to make advertisement inside the application? Is the idea stronger enough to bring equality by simply giving it for free, what are the thoughts of the proprietors and business owners on it?

And finally, we had a bigger question of knowing the ways to reach both the advertisers and the users. Will we be using the same platform to promote Localike by paying to social websites for online advertisement?

2. PROJECT PLANNING

Project planning guided us better to have a good study, analyzing and based on validations to further develop the design. We have highlighted the process to be carried out in the making of Localike in below steps:

- For knowing the perspective of the sole proprietor and SMEs a survey will be taken into consideration to know whether it's easier for them to promote their respective business, what are the options they opt to promote it and if not will they be interesting in having a new concept in place to help them grow their business and promote it to users in their area. Also if given the options how good are they with mobile technology.
- Collecting means of communicational adverts from the newspaper, online websites and other sources and understanding the required data to post an ad.
- After collecting all the required data we will analyse it, and also create a plan of what is required for the application and what is not. Let's say it like brainstorming to be more precise.
- Set of requirement guideline will be made which can act as principles or specification of entity roles in the development of the application.
- Creating functional flow diagram to understand the advertiser and end-user interactions in the application.
- Designing the paper prototype based on the diagram flow and collected data essential on both the ends.
- Once we see the structured prototype with good interactions on paper we implement a digital prototype and process it for further evaluation.
- Rectifying the flaws and weak interactions, and making User Interface Design of the entire application.
- Implementing the Navigational flow in the development stage of the application. Post which Google Firestore cloud database will be used to integrate web services for the

data involved in the application.

- Thorough testing of User Experience will be executed with a beta live users, analysing the response final improvements will be done to make it launch-ready.
- Finally, we shall be able to launch the application on iTunes Store.

3. BACKGROUND STUDY ON UI AND UX

The importance of User Interface and User Experience Design got more attention with the introduction of Xerox Algo as a first computer having Graphical User Interface (GUI) supporting Operating System ("Xerox Alto", 2020) allowing users to interact with the machine through GUIs. [9] It consisted of graphical icons and audio indicators such as primary notations, instead of text-based user interfaces.

> For Designers it is always good to dive deep to understand the product brief well, before starting to design it. Similarly it is equally important to know how this GUI functions. It is presented on a computer screen which is the result of processed user input and usually the primary interface for human-machine interaction. The touch user interfaces popular on small mobile devices are an overlay of the visual output to the visual input ("Graphical User Interface", 2020). [10]

Knowing the User Interface surface well, it will also be nice to know what importance doesn't this Interface possess for designers to focus on it. As we all have accepted the fact that design plays important role in our daily life, but few people went on discussing about the importance of design and the effect it leaves on us.

9. Xerox Alto - Wikipedia: https://en.wikipedia.org/w/index.php?title=Xerox_Alto&oldid=952414401 | Last access: 21-08-2020
10. Graphical User Interface - Wikipedia: https://bit.ly/2Zl5ZVz | Last access: 21-08-2020

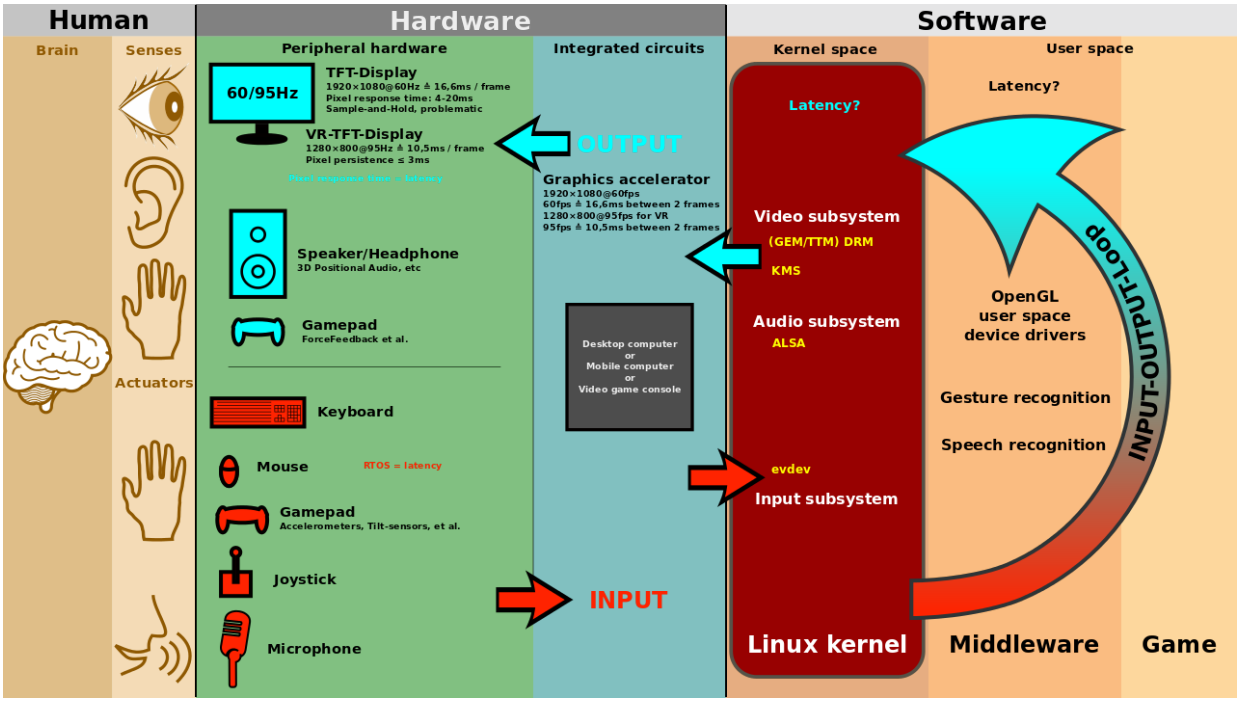

Fig. 2: Human Interaction with Graphical User Interface

Source: https://bit.ly/2Zl5ZVz

In an article by Norman, D. A. (Emotion & Design, 2008), attractive things work better, have reached to many advances in our understanding of emotions and affect having implications for the science of Design. Products designed for more relaxed, pleasant occasions can enhance their usability through pleasant, aesthetic design. Starting with the Affect and Design section he shared an example about him not understanding the popularity a Coloured Monitor gained when they were introduced. So he went on to buy it and observe the difference it may bring to him, but in real colour added no discernible value for every day's work. However he refused to give up on colour display, his reasoning told him that colour was unimportant, but his emotional reaction told him otherwise further proving that pleasing things work better as you are engaged and connected to it.[11]

11. Emotion & Design: https://jnd.org/emotion_design_attractive_things_work_better/ | Last access: 25-08-2020

After the beginning of our adoption to User Interfaces, there has been vast growth in Technological industry. It led us to many touch interfaces like laptop, smartphones, surface technology, smartwatches and many others. This evolution has been very well explained by Danielle Reid in one of her blog (The World Is Our Interface, 2020) staging the evolution into four segments as the age of tools, the age of machines, the age of software and the age of self. Thereby letting us know how much essential the human interaction with machines has become in present time which is expected to even grow by time as the machines are made smarter by self-learning.

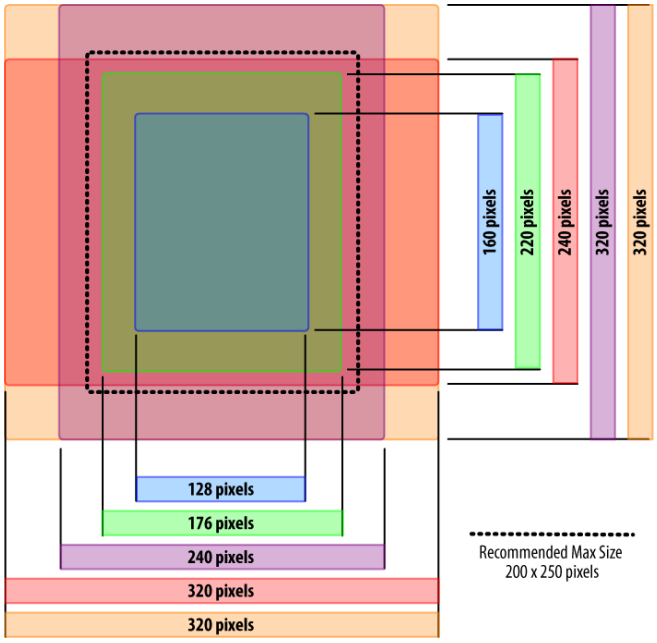

Fig. 3: Types of mobile screen resolution

Source: Fling, 2009, p. 129

The changes are not only happening in the software but the hardware is also changing with times. Going back to the Smart Phones Era mentioned in section 1.1.2 which had capabilities of accessing the internet, in the same book writer also talks about the way the websites were handled back in time using just one device font compared to having all kind of fonts now integrated as we can refer in below diagram (Fling, 2009, p. 129). The writer also explains on what basis these rendering of font takes place in devices which is

dependent either on having pixel-based screens or having a great pixel density of pixels per inch. He also shares a diagram to mention the screen resolutions as we see in the attached image (Fling, 2009, p. 139). In the past decade because of the improvisation in the screen quality, nowadays the same pixels are almost 5 times higher comparably. For example, iPhone X resolution is 1125x2436, having 375x812 points with the native scale of 3.0 according to the resolution shared by its manufacturer Apple).[12]

Getting to know what the origin is and how important it is, nonetheless it for Likenone project it was also important to follow the guidelines shared by Apple and Google. The reason it is important for our project is because we are strictly making this application for their smartphone products on iOS(an operating system for iPhone's and iPad's owned by Apple) and Android platform(an operating system for Android Phones owned by Google).

"User Interfaces have gone a major transformation since 1970s, all this was possible because of the advances in HCI(Human Computer Interaction) and related technologies. The Principles of User Interface design has contributed much to the change that we see in the present day user interfaces and predominantly the web interfaces of various websites along with mobile user interace.". It was well defined in the article of General Principles of User Interface Design and Websites by Uday Bhaskar and Pratap Naidu (Bhaskar & Naidu, 2011). The article has taken more statistical approach of mentioning the usability tests of User Interface in many aspects considering the clarity, comprehensibility, configurability, consistency, control, directness, efficiency, familiarity, flexibility, responsiveness, simplicity and grouping.[13]

12. The World Is Our Interface – The Evolution of UI Design - https://www.toptal.com/designers/ui/touch-the-world-is-our-interface | Last access: 25-08-2020
13. iOS Device Compatibility Reference - https://apple.co/32l1yea | Last access: 25-08-2020

3.1 APPLE HUMAN INTERFACE GUIDELINES

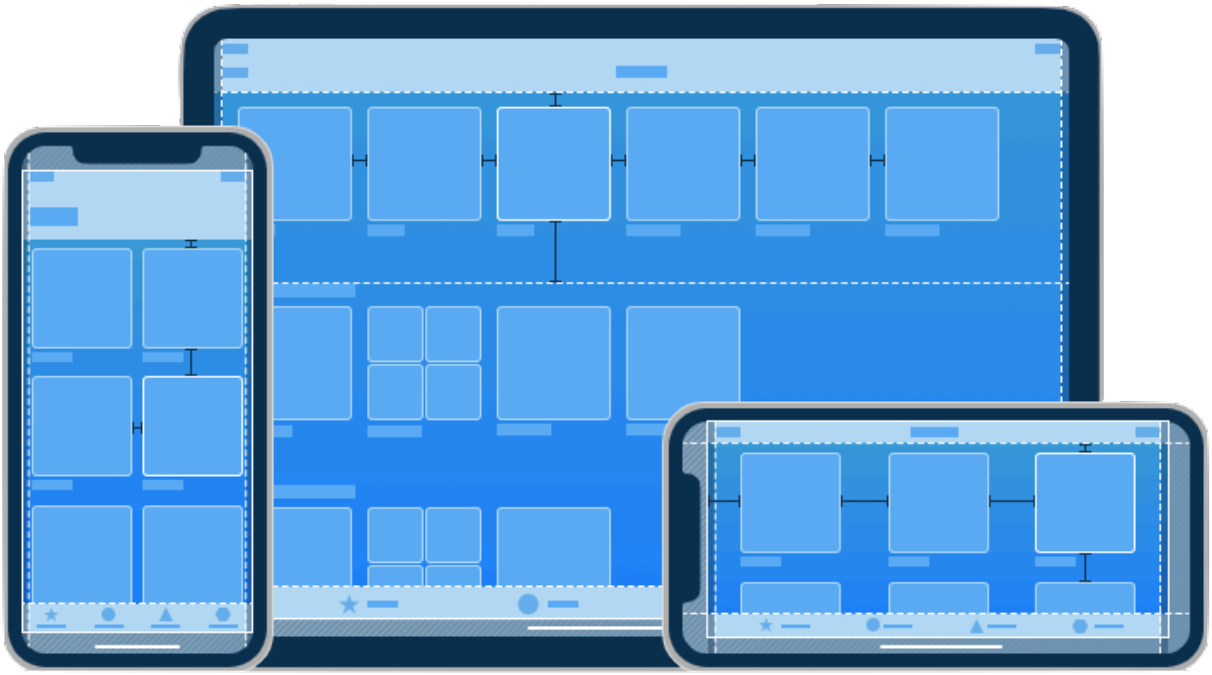

Fig. 4: 4. Mockup for Apple guide
Source: https://apple.co/34whhcW

As our focus is mainly towards the mobile application development including iOS, so it was important to go through the design guidelines shared by Apple for the reference of understanding the important subject. This entire section is in reference to the guideline shared by apple in their book (IOS - Human Interface Guidelines, 2019) .

As an app designer, one have the opportunity to deliver an extraordinary product that rises to the top of the App Store charts. To do so, one needs to meet high expectations for quality and functionality. The set of design principles which apple follows and expects designers and developers to follow are as below:

14. Human Interface Guidelines - https://apple.co/34whhcW | Last access: 25-08-2020

Aesthetic Integrity: Aesthetic integrity represents how well an app's appearance and behavior integrate with its function. For example, an app that helps people perform a serious task can keep them focused by using subtle, unobtrusive graphics, standard controls, and predictable behaviors. On the other hand, an immersive app, such as a game, can deliver a captivating appearance that promises fun and excitement, while encouraging discovery.

Consistency: A consistent app implements familiar standards and paradigms by using system-provided interface elements, well-known icons, standard text styles, and uniform terminology. The app incorporates features and behaviors in ways people expect.

Direct Manipulation: The direct manipulation of onscreen content engages people and facilitates understanding. Users experience direct manipulation when they rotate the device or use gestures to affect onscreen content. Through direct manipulation, they can see the immediate, visible results of their actions.

Feedback: Feedback acknowledges actions and shows results to keep people informed. The built-in iOS apps provide perceptible feedback in response to every user action. Interactive elements are highlighted briefly when tapped, progress indicators communicate the status of long-running operations, and animation and sound help clarify the results of actions.

Metaphors: People learn more quickly when an app's virtual objects and actions are metaphors for familiar experiences—whether rooted in the real or digital world. Metaphors work well in iOS because people physically interact with the screen. They move views out of the way to expose content beneath. They drag and swipe content. They toggle switches, move sliders, and scroll through picker values. They even flick through pages of books and magazines.

User Control: Throughout iOS, people—not apps—are in control. An app can suggest a course of action or warn about dangerous consequences, but it's usually a mistake for the app to take over the decision-making. An app can make people feel like they're in control by keeping interactive elements familiar and predictable, confirming destructive actions, and making it easy to cancel operations, even when they're already underway. [14]

3.2 ANDROID DESIGN GUIDELINE

Similar to that of iOS we have also gone through the android phones design guideline shared by google for Designers and Developers, to have a piece of deep knowledge about the process and helping to make better Design for mobile application. All the important concepts are noted and shared in this section from the introduction of material design for Android Application Design by Google. (Introduction of Material Design, 2020)

Android users expect your app to look and behave in a way that's consistent with the platform. Not only should you follow material design guidelines for visual and navigation patterns, but you should also follow quality guidelines for compatibility, performance, security, and more. Material Design layouts encourage consistency across platforms, environments, and screen sizes by using uniform elements and spacing.

Create: Create a visual language that synthesizes the classic principles of good design with the innovation and possibility of technology and science.

Unify: Develop a single underlying system that unifies the user experience across platforms, devices, and input methods.

Customize: Expand Material's visual language and provide a flexible foundation for innovation and brand expression.

Material is the metaphor: Material Design is inspired by the physical world and its textures, including how they reflect light and cast shadows. Material surfaces reimagine the mediums of paper and ink.

Bold, graphic, intentional: Material Design is guided by print design methods — typography, grids, space, scale, color, and imagery — to create hierarchy, meaning, and focus that immerse viewers in the experience.

15. Introduction of Material Design - https://material.io/design/introduction/ | Last access: 25-08-2020

Motion provides meaning: Motion focuses attention and maintains continuity, through subtle feedback and coherent transitions. As elements appear on screen, they transform and reorganize the environment, with interactions generating new transformations.

Flexible foundation: The Material Design system is designed to enable brand expression. It's integrated with a custom code base that allows the seamless implementation of components, plug-ins, and design elements.

Cross-platform: Material Design maintains the same UI across platforms, using shared components across Android, iOS, Flutter, and the web.[15]

3.3 HUMAN AND ERGONOMIC FACTORS

The design of computer interfaces that are usable and easily learned by humans is a non-trivial problem for software developers. As information technologies mediate many of the activities we now perform routinely, the process of human computer interaction is of fundamental importance.

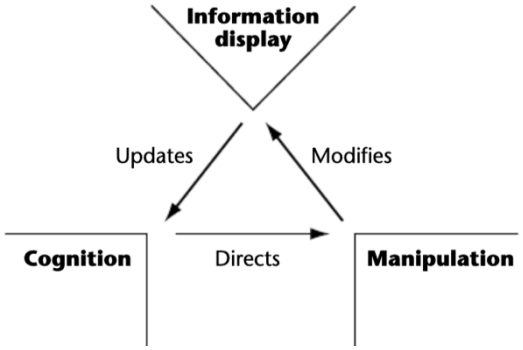

Fig. 5: Human Computer Interaction Flow
Source: (Dillon, 2006)

Figure 5 shows Human-computer interaction as an iterative process. We can usefully understand HCI as a cognitive process by considering the human as possessing general knowledge structures (e.g. mental models or schemata) which organize the user's task-oriented information exploration and use. This exploration, which may involve a variety of psychophysical actions such as key presses, scrolling, link selection, or command input, exposes the user to samples of the information space contained within the software, the perception of which must be interpreted and categorized, before it, in turn, can influence the subsequent actions of the user, and so on iteratively. (Dillon, 2006)

Subsequently for the study, we carried out an iteration of design objects implementation while designing and finalizing on the best outcome which helped us in bringing out the best solution to further modify and finish the system.

Visual design is often dismissed as eye candy. In fact, we can use four key principles of visual design to create more usable interfaces. These principles are Contrast, Repetition, Alignment and Proximity. It was originally defined as Visual Design principles by Robin William further explored more by various scholars for their study. The principle is often referred to as CRAP, which makes the user interface more attractive and easier to use. We will be following the same principles shared by David travis in his article A Crap Way To Improve Usability (A CRAP Way to Improve Usability, 2020).[16]

16. A Crap way to Improve Usability - https://bit.ly/3b871Jv | Last access: 25-08-2020

4. RESEARCH METHODOLOGY

Based on the explanation about the need and the requirement of the project in section 1, we planned to have more facts on the need of the application. Further, these facts will help us to validate the problem existing and thereby proposing the newer system Localike.

To address the key research objectives, this research used both qualitative and quantitative methods. The qualitative data support the quantitative data analysis and results. For the execution, the survey was built having 20 participants with differences in their business, age, experiences with mobile technology and monthly expenditure(budget) for the advertising. The questionnaire included several questions focusing on the needful data to measure the effectiveness and worth of proposing this newer system.

The method to get the basic idea of research questions a qualitative and quantitative survey was held in two parts. The first part was made in the beginning to help in understanding all the important aspect to start developing the product. It was questionnaire-cum-personal interview allowing us to understand the point of view for existing business owners for the existing market. And on the other side also helping the business owner to understand the application and also look for their interest in the idea.

Asking for the right questions and also taking the project hypothesis into consideration below pre-questionnaire was developed.

Pre-Questionnaire

Pre-Questionnaire is for our better understanding about the ways small businesses adapts to promote their business. Whereas it will eventually help us in understanding the requirements,

existing ways of advertising, good or bad experiences with advertising agencies, money involved, enhancing suggestion and overall idea. The questionnaire was build using the Google Forms with below format.

Business/ Owner Name : For keeping the record of there unique identification

Age : Helping us to know our target audience of advertisers

Type of Business : To know the varied businesses and the thoughts pertaining to answering the question. Also helping us to find out the common points raised by the owners.

1. Are you interested in promoting your business?

2. What are the ways you have adapted to promote your business in past?

3. How much are you willing to invest behind promoting your business?

For questions 4,5 and 6, please select one of the given option

1 Strongly Agree | 2 Agree | 3 Neither agree or Disagree | 4 Disagree | 5 Strongly disagree

4. Is mobile technology helping you to resolve many of your daily problems?

5. Are you comfortable in making your own design for promotion?

6. Will this mobile application help in resolving your need of promoting your business?

7. Have you come across similar idea for promoting business?

Additional question was asked to note down their understanding regarding the application and suggestions to be included to help in supporting your business.

4.1 RESULT OF CONDUCTED SURVEY

While having the pre-questionnaire we got the result of asking questions to the business owners. The sampling was carried out among 20 business/individual owners. Having a strong review in support of the application development led us to initiate towards the next step of noting down the concept. The collected response from google forms is shared to get a better insight understanding of our approach at the initial stage and what values the methodology brings to the application.

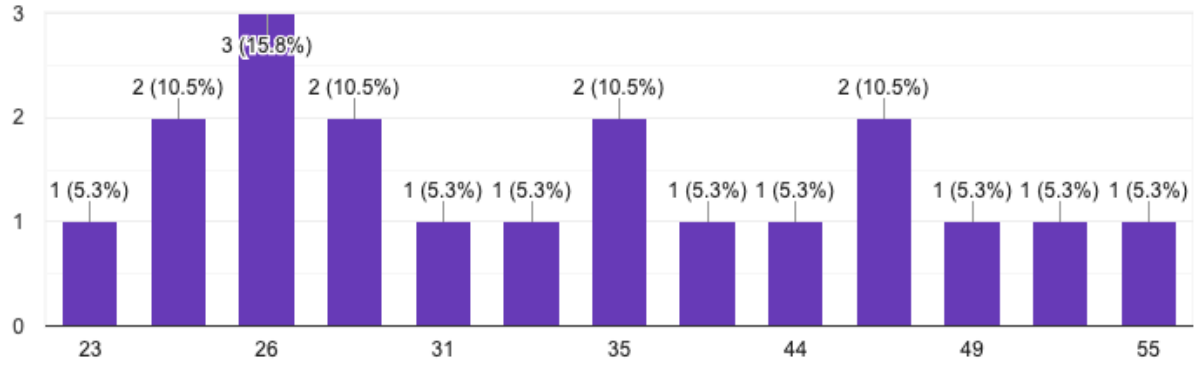

Fig. 6: Age Group of Survey Participants

Source:Own author

The above figure shows the age group of the participants, the group seems to be more of a young generation ageing from 23 years to 55 years old. Having the data collected from the business type it was very different from each other's business. The businesses they are running varied from a Grocery store, Gift Store, Bakery, Record store, Printing shop, Freelancer, and many others. The variation among thought has not led to the variation in their requirement.

The concept had a strong base on its first question's response i.e. "Are you interested in promoting your business?", around 90% of the participants show their interest in promoting the business. For the next two questions which are 2nd and 3rd from the same form, the response was in the favor of the new system. Some of them have already tried methods like word of mouth advertisement and also digital advertisement using Facebook and Instagram platform but

the conversion was not much as the target audience was mostly irrelative. Some of the participants already had the spending figures from the profit earned at the end of the month which was in the range of 50 euros to 250 euros for a month.

This actually made a clear understanding for us that there has been and is still a scope of promoting a business where the owners are willing to promote the business to reach the right target audiences.

For collecting more facts about the quantitative end of this survey, it had many variations in the responses. From question 4 to 6 in the survey we asked more about how much participants are comfortable in using the technology. Whether they have a skill set in making a design for ads and will like to adopt the new proposed system. The responses of these questions are mentioned in below figure starting from left to right, where left is the response of 4th question, the center one is for 5th question and the right one is for 6th question. Ranging from 1-5 in colors to know the level of agreeing or disagreeing of participants.

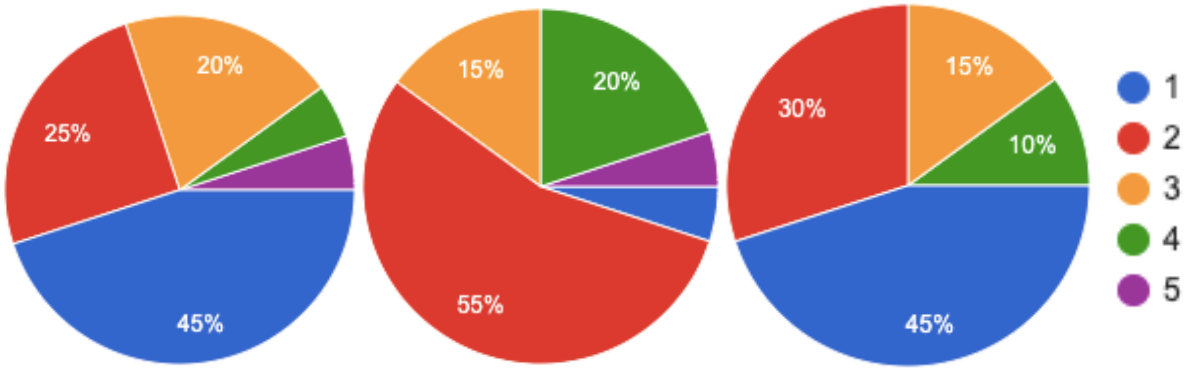

Fig. 7: Quantitative result of conducted Survey

Source:Own author

1 Strongly Agree | 2 Agree | 3 Neither agree or Disagree | 4 Disagree | 5 Strongly disagree

Looking at the above graph it looks like most of the user think mobile is playing a helpful role in resolving their daily problems. Also half of the sampler are comfortable in making their own design but still, 30-45 per cent of people need help to design. After sharing the application concept to them, around 85 per cent of the sampler agree that it will help their respective business in promoting throughout app having only 10% of the people disagreeing.

Thus leading to our final question about asking whether they have come across such similar idea in which 10 per cent of the people said yes whereas 50 per cent said ‘No’ and remaining 30 per cent said maybe.

Looking at the need in the questionnaire and the scope for such idea in the existing market, led us to the conclusion that people are looking forward to such ideas and such system could be useful to them to manage their business advertisement.

5. SYSTEM PROPOSAL

Now that the need for the newer system Localike was confirmed, we started going through ideation in building the scope of the application in terms of information and design. The system is supposed to consist of the main two sections of posting an advertisement and viewing the advertisement. Each of these sections has more brief information and divided into further sections.

> Now the question is “How do we design this new system which we are proposing?”, it has to go through the findings and the results of the research. Having referred from the book “Designing the iPhone User Experience”, in the chapter 6 i.e. Developing your app concept, the writer talks about how important it is to apply the methodology of briefing, sketching and prototyping in the making of application which gives opportunity to think through some of your design choices before implementing. After having the research findings (user needs, scenarios and competitive analysis), it is the time to step further for brainstorming and sketching the application. (Ginsburg, 2010, pp. 109 - 125)

Following the similar architecture in the making of design, we have undertaken the steps of Brainstorming, noting key features and user types, further sketching the prototypes on paper and proceeding for high fidelity prototyping.

5.1 BRAINSTORMING

For the concept exploration, this step was very much helpful as we went through a group discussion, to check out all the possible data we have, further bifurcating them into smaller parts as our target audiences and their needs inherited from the research part. This allowed us to know that the users on our platform will be of two sides out of which one is the advertiser and the other one is the viewer. These two roles of our system users will be assigned the functionalities of activity they would be doing on the system. Like e.g. both the types need to register, get the authentication to use the system if it is the advertiser they should be able to create the ads, design it and post it. And the viewers will be able to see these ads when they arrive in the geofence of the business location entered by the advertiser.

We also experimented in creating a word cloud by attaching the activities with these users and getting to note down the conceptual side with each question raised and the addressed answer. There was a lot of clarification happening at this stage to let us note down the concept.

5.2 CONCEPT NOTES

Conceptually building the application to process it to the next step of sketching with a set of rules was important. For the time being, we have noted down all the possible features and roles of the user (viewer) and advertiser. The subtraction of fewer points from the conceptual note will be a future enhancement part. Following agile methodology to develop the concept note, we have shared the notes in the coming subsection.

5.2.1 UNIQUE FEATURES

- User earns reward points for viewing ads that can be redeemed for local offers/ deals or can be donated to causes
- Advertiser gets targeted audience for effective local marketing. They can also opt for guaranteed unique ad views delivering better rate of interest.
- Causes get the support they need (real money donations) through this unique business model
- Easier call-to-action for immediate response benefiting users and advertisers
- Even ads that are not live anymore can appear in search results (using specific keywords). Hence platform additionally acts as a directory/ listing service.

5.2.2 USERS

- User has to register with us using mobile number or email id. This is to create an account for them to earn reward points. They have an option to use the app without registering
- App will always use user's current location. If it is off, they can't earn reward points while viewing ads. They can however continue to use the app with all it's features

- One reward point is earned when user stays on a particular ad for 10 sec. There will also be ads without reward points but those will be clearly demarcated
- User earns reward point on a particular ad only once. Not for multiple viewings.
- We will ask for payment info only when they want to post an ad not otherwise. Hence any user can be an advertiser on this platform. There is no separate registration
- User can redeem reward points earned for some local offers/ deals listed in the Redeem section or donate to causes in Donate section
- User can deselect the categories or sub-categories of ads they don't want to see in Settings section as per their preferences
- User can directly call or save contact in address book. They can also save the ad in their favorites section

5.2.2 ADVERTISERS

- Advertiser has to submit the ads strictly as per the guidelines including format, what is allowed and what is not etc. It can be downloaded or viewed in the language of user's choice
- Portrait ads are compulsory. Landscape can be submitted optionally for users who will tilt their phones.
- Advertiser can post ads by selecting category/ sub category, keywords (maximum 5 tags), location (for multiple locations they can put additional pins– maximum 10), schedule, contact info and finally make the payment
- One more optional feature is to get assured ad views. Advertiser can bid for this feature (min. 50 paisa for India and 1 cent for overseas market). The higher the bid, better the ad placement. i.e. their ad will appear on top in their respective sub-categories. Also their money will be spent only when a user stays on the ad for min 10 seconds. If this feature is not enabled their ad will be placed accordingly. Ideally FIFO will be followed for two ads with same budget.
- Advertiser's user registration contact/ email can be different from what they want to

show for ads they have placed and remains hidden. Ideal for not just advertisers but also agencies (middle-men) posting ads on their behalf. They can post multiple ads using single account but all ads will have different contact info.

- If the advertiser is giving exclusive deals/ offers or is a cause (NGO, local body etc.), they can post their ads for free. However they have to register separately with additional details . Their ads will be screened for genuinity and would be posted after thorough background check and written agreements.
- Anyways all ads that are posted will be screened for content, format, listing in proper categories, proper keywords/ tags etc. before they go live.
- Advertiser has to submit ads minimum 12 hours before they want them to go live
- Advertiser can schedule the ad on specific date and time (we will auto select the time zone based on the ad location). Once the ad goes live, they can stop, restart it anytime they want during the scheduled period. However we won't refund the listing fees. The variable fee (assured unique ad views) will be calculated accordingly
- Advertiser maintains a wallet with us and any unused budget from the previous ads can be used as advertising credits for their future campaigns. Even though they wish to not save their payment details (use one-time payment option for security reasons), they are allowed to do so.
- If the advertiser is giving exclusive deals/ offers or is a cause (NGO, local body etc.), they can post their ads for free. However they have to register separately with additional details . Their ads will be screened for genuinity and would be posted after thorough background check and written agreements.
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- Advertiser maintains a wallet with us and any unused budget from the previous ads can be used as advertising credits for their future campaigns. Even though they wish

to not save their payment details (use one-time payment option for security reasons), they are allowed to do so.

- Advertiser can manage all their ad campaigns in Manage Ad section.
- If the advertiser edits the ad before it goes live or when it is live or post it and re-submits it, we will screen it again before posting it.
- Advertiser can also view and download reports
- They can add more funds to their wallet, change their saved default payment method etc. in the Billing section

5.3 PERSONAS

Knowing the target audience gives more insight into the usage of the system. To approach towards the design step we created some personas about our users having differences in their needs and how would they be using the system.

Pedro Desouza: An 46 years old guy living in Lisbon, Portugal - who is the owner of an art gallery. He has hosted many artists so far, but the conversion of their art into sales have reduced since the past few years due to the decrease in traffic of visitors. He has hired a designer and a marketer to create and publish the advertisement. As due to less traffic he wants to approach a way to save his spending in making advertisement and is looking for cheaper options. Localike resolves his issue by allocating a space for his ad which could be viewed by many users.

Melissa Hunt: A 35-year-old women from London, United Kingdom – is on her business trip in Porto, to meet a client. When she arrives in the hotel room accidentally her smartphone slips from her hand and the screen breaks up. As her meeting is about to start in half an hour she plans to find a quick resolution to her problem. Unfortunately, google gives her the result of the stores i.e. Worten and Fnac which is 3-4 km away from her place. Localike resolves her issue by showing her the mobile repair store which was just 100 meters away from her location.

Manuel Toscas: A 26-year-old men from Sao Paulo, Brasil – is living in Lisbon for 3 years now. After finishing his post-graduation degree in Design, he plans to set up his own Brand Consultancy firm. He invested all his savings in setting up the business and has only calculated money for expenses. How could he reach more people with no budget for marketing. Localike resolves his issue by giving free space for his very first ad and he could also design the ad by himself in few clicks as he owns the skill set of design.

5.4 FUNCTIONAL FLOW DIAGRAM

Having the concept note and the guideline towards its main entities it was simpler for us to create the functional flow diagram. Even creating the personas helped in understanding the need and interaction of different kinds of users we could have using the system. The functional flow diagram usually gives brief on the user being a part of the system and the activities they could carry out throughout the system.

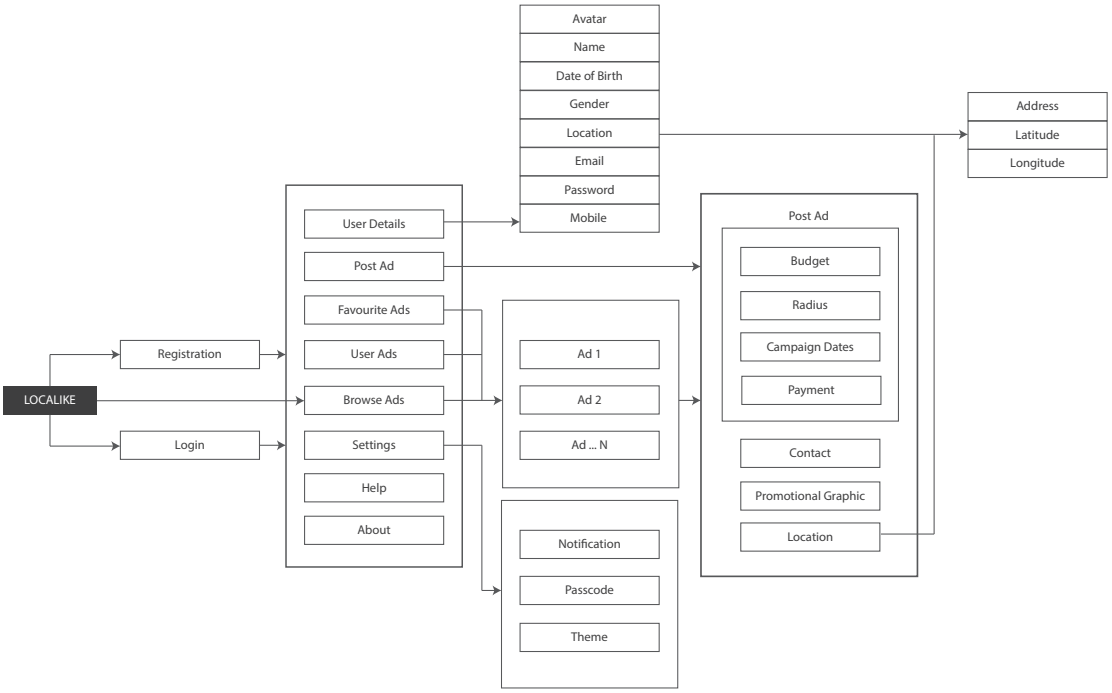

Fig. 8: Flow Diagram
Source:Own author

There are two ways of accessing the application which is through registration or without registration(with limited control). With Registration, they are allowed to browse through ads, post an ad, manage their own ads, mark ads as their favourite, manage their own details and also change some preferences through settings. Whereas without registration the user can only browse through ads.

Each ad is made up of content including the contact details of the advertiser, promotional graphic in form of an image, Location (having address, latitude and longitude), managing the bid budget, deciding on the radius and further confirming the dates and payment.

This functional flow diagram was good enough for us to start doing the paper prototyping with help of which we would able to make the application wireframe design.

5.5 PAPER PROTOTYPING

The Localike application was now in the design state of carrying out some test cases using a paper prototype method. This method is commonly known as low fidelity application in design world which create a low-quality application but with the fewer requirement. As the design is created on the paper we could keep experimenting the layout until we reach for the best approach.

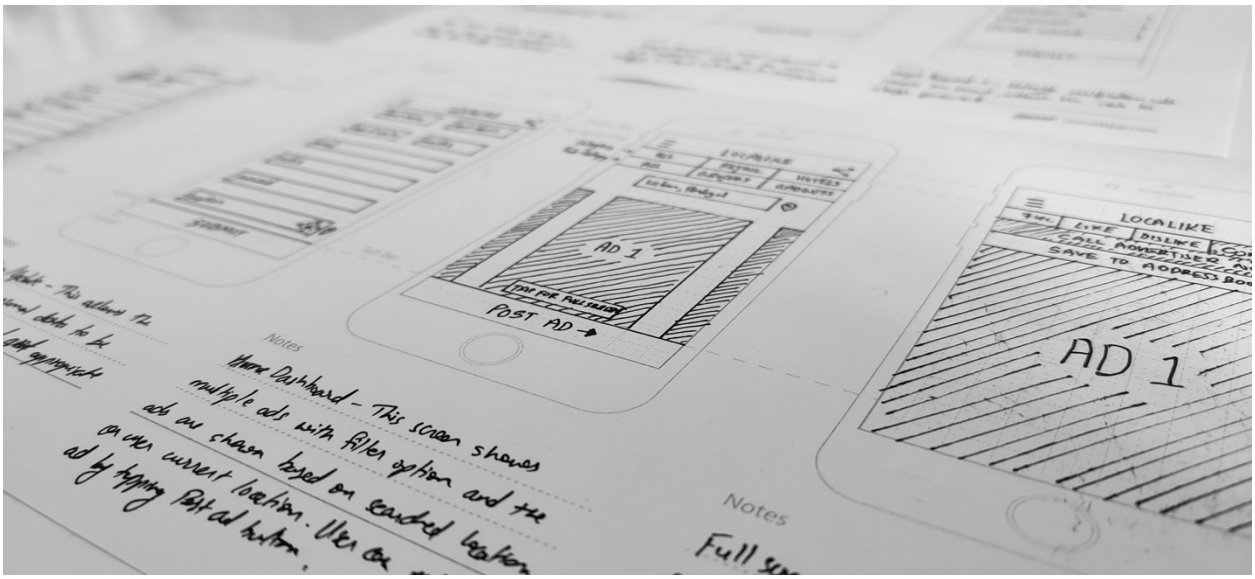

Fig. 9: Paper Prototyping
Source:Own author

From the article 7 myths about paper prototyping we got to know about the concept and how to create these low-fidelity application. As per the article the author points out the way it allows us to involve users early in the design process, shows us how people will use your system before you've written any code, and supports iterative design. After one has been able to create a strong paper prototype they can lead the interaction further towards the Application prototype. It cannot directly jump to this step else more effort

17. 7 myths about paper prototyping - https://www.userfocus.co.uk/articles/paperprototyping.html | Last access: 04-09-2020

will be pushed to create an intuitive design with lot of iterations. (7 myths about paper prototyping, 2020).[17]

With the detail features of the app, doing some brainstorming and having the functional flow of the application, it was time for us to start prototyping our application model. Keeping our-self flexible in terms of design and not staying limited to follow Apple and Google design guideline gave enough room for creativity. Rough sketches were made on paper and kept on adding features and information which effectively showed the result in a shorter time than expected. It is considered an essential part of our design making process.

Making the registration, login screen was just a start of using our cognitive ability of testing. But the complication increased when we came to the dashboard. We kept on thinking about the best approach for showing ads, whether to follow the list structure of an application or to create a grid of two columns in the screen. In the list form and the grid form, we figured out that the ad which is the main content to promote decreases in size and the focus is diverted. From the understanding, we used that entire space and made big portrait ads which could be accessed by simply swiping using touch gestures either left or right. Similarly while making other screens it was the same fundamental we kept on implementing. This resulted in the completion of all the screen with a lot of personal test being a user and also being an advertiser for posting the ads.

The results of the paper prototype gave us a clear picture of our result and findings aligned with our idea to formulate the structure of the application.

5.6 WIREFRAMING THE SYSTEM

In real creating the wireframes of the system did not take much time compared to that of spending time behind making the paper prototyping. The work was more on creating the groups of the screens and cross verifying the navigational flow of the application.

Fig. 10: Wireframe

Source:Own author

In the book The Guide to MockUps by Jerry Cao (Ta, 2020) mentioned wireframes as typically a low-fidelity, bare-bones blueprint, usually represented with gray boxes and placeholders for detailed content. Their goal is to help establish what goes where, without consuming too much time on aesthetics just yet. A good wireframe should explain:

- How the content is grouped
- How the information is structured
- The most basic visuals involved in the UI interaction

Referencing from what the writer has considered being a good wireframe, Localike satisfies all the need as it is well grouped with structured information and the usability is thoroughly tested.

5.7 APPLICATION DESIGN - PROTOTYPE

Now that we had all the low fidelity design on hand it was time for us to give life to the application by giving it an identity referring to the font, color, shape and space. Reviewing from what we learned in user interface guidance about consistency, flexibility, user involvement and other factors, our approach was the same of defining all the scope of the application. This section will give you an entire brief on the resources used inside the application.

> Again referencing to The Guide To Mockups book (Ta, 2020) writer mentions the prototype to be the end of the beginning stages, the prototype can be a low- or high-fidelity representation of the product that includes functionality and the finer point of the UI design. In addition to the information structure and visualizations of the previous two phases, the prototype introduces more depth to the early UI, allowing users to:
>
> - Experience actual content
> - Interact with the UI in a way similar to the final product
> - Predict and solve usability problems before further development

When it comes to finding the right fidelity for prototypes, remember that going low-fi will let you test and tweak faster, while going hi-fi will get you as close to the final product as possible without sinking resources into development.

For Localike with the limited scope of time, we preferred to follow the hi-fi prototype approach composing the application design as final product design. Having the wireframe with us we selected the correct font, implemented color variation, improved user interfaces, connected the missing dots and did the branding at our final stage.

5.7.1 FONTS

As the content in the system is more important we tend to use something which is easily readable and thereby selecting Myriad font family for the application. And for the identity, we preferred to adapt something bold to make the brand more prominent, by selecting Gobold.

Font Sample:

MYRIAD PRO SEMI-BOLD

MYRIAD PRO REGULAR

MYRIAD PRO ITALIC

GOBOLD

Myriad Pro is the OpenType version of the original Myriad font family, for Localike we are mainly using Semi-Bold and Regular Types from this family. "Myriad is a humanist sans-serif typeface designed by Robert Slimbach and Carol Twombly for Adobe Systems. Myriad was intended as a neutral, general-purpose typeface that could fulfil a range of uses and have a form easily expandable by computer-aided design to a large range of weights and widths." (Myriad Typeface, 2020)

Gobold which is also sans-serif typeface and with its strong weight we found it to be perfectly suited for branding Localike giving some character spacing indent to make it read nicely and stand out.

5.7.2 COLOR

“Color filters humanity’s perception of the world and alters people’s relationships with their surroundings. It influences human perception, preference, and psychology throughout the lifespan.” Was described well by Todd Smith in his article Color Psychology and Graphic Design Application (Rider, 2009, p. 3).

Along with going through the book and understanding the importance it plays in graphic design we tried a few variations of color schemes to which we found the best suitable colors like Navy Blue and Summer Sky which are both soothing colors to the eye and were supported by the shade of grey to form a good visual appearance without defocusing on the content which will be covered in the next part of this section.

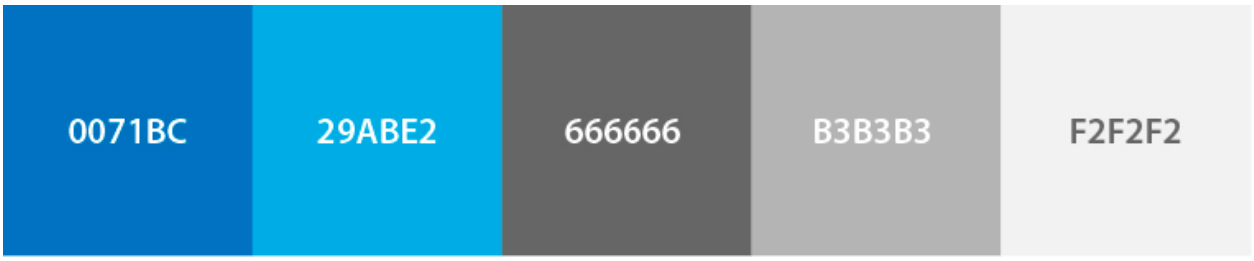

Fig. 11: Application Color
Source:Own author

As trying different color scheme we have done some trial study to get the best fit color for the app and following the present market trend of color schema when used for IT companies.

17. Color Psychology and Graphic Design Application - https://pdfs.semanticscholar.org/43a1/503c21fed0b59576f14a6cc84f6706f07a91.pdf | Last access: 09-09-2020

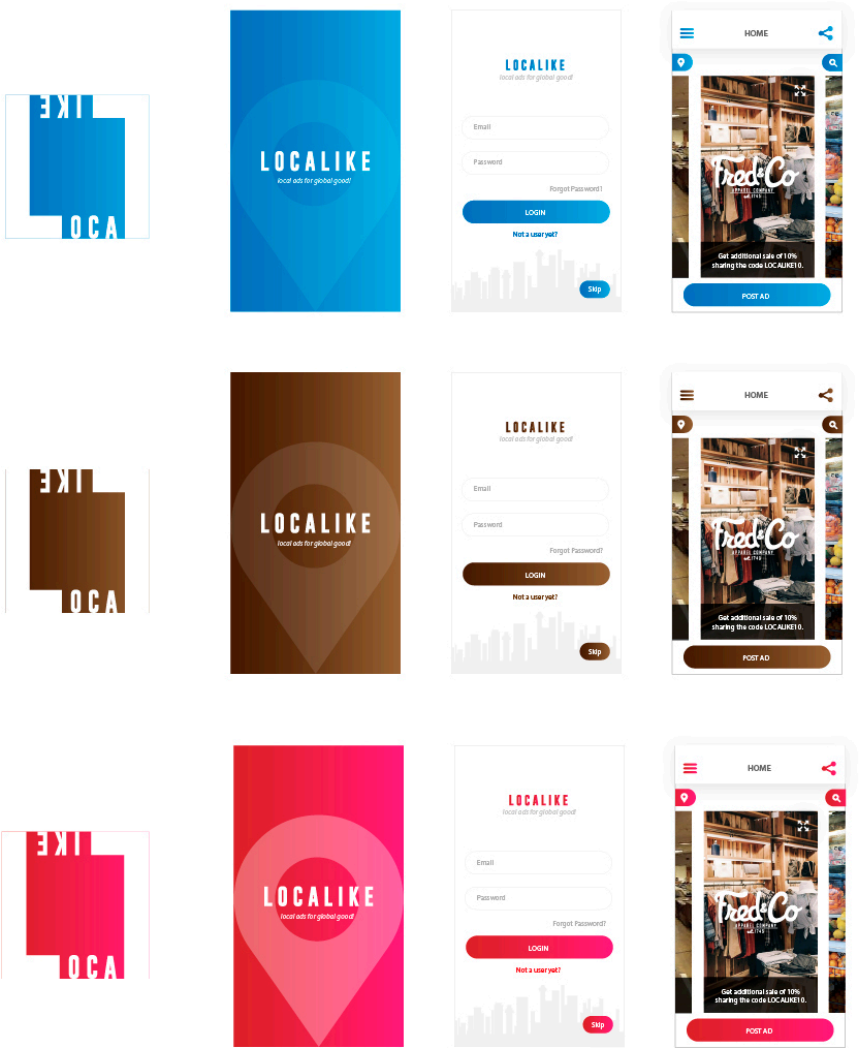

Fig. 12: Color Trials

Source:Own author

We found the dullness and contrast issues in both the other color, because of which the Navy blue and Summer Sky colors were finalized for the application.

5.7.3 LOGO

To be the essential part of branding we are still in the testing case for logo selection as there are variations and customization operating system for android which could support round as well as square design with corner radius. Whereas for apple has a fixed set of guideline for which the logo meets the requirement.

Fig. 13: Logo Trials
Source:Own author

Both the above logo is the perfect fit for the application where the logo on the left stands out in terms of its functionality as something which has something to with user location. Whereas the typeface logo on the right portrays the creativity and has the empty space at the centre for advertisement.

5.7.4 PROTOTYPE

By maintaining the overall structure and following the process of designing the application with different principles and methodologies we were able to see the outcome of it shaping alike to our idea. The design shown in figure 14 is the actual hi-fi representation of our application design. It includes the final version of our design with proper guidelines for its flow. It consists of screens which are Splash Screen, Tutorial Screen, Login Screen, Registration Screens, Dashboard Screen, Ad Screen, Search Screen, Map Screen, Post Ad Screens, Profile Screen, Favourite Screen, About Screen and Terms and Condition Screen.

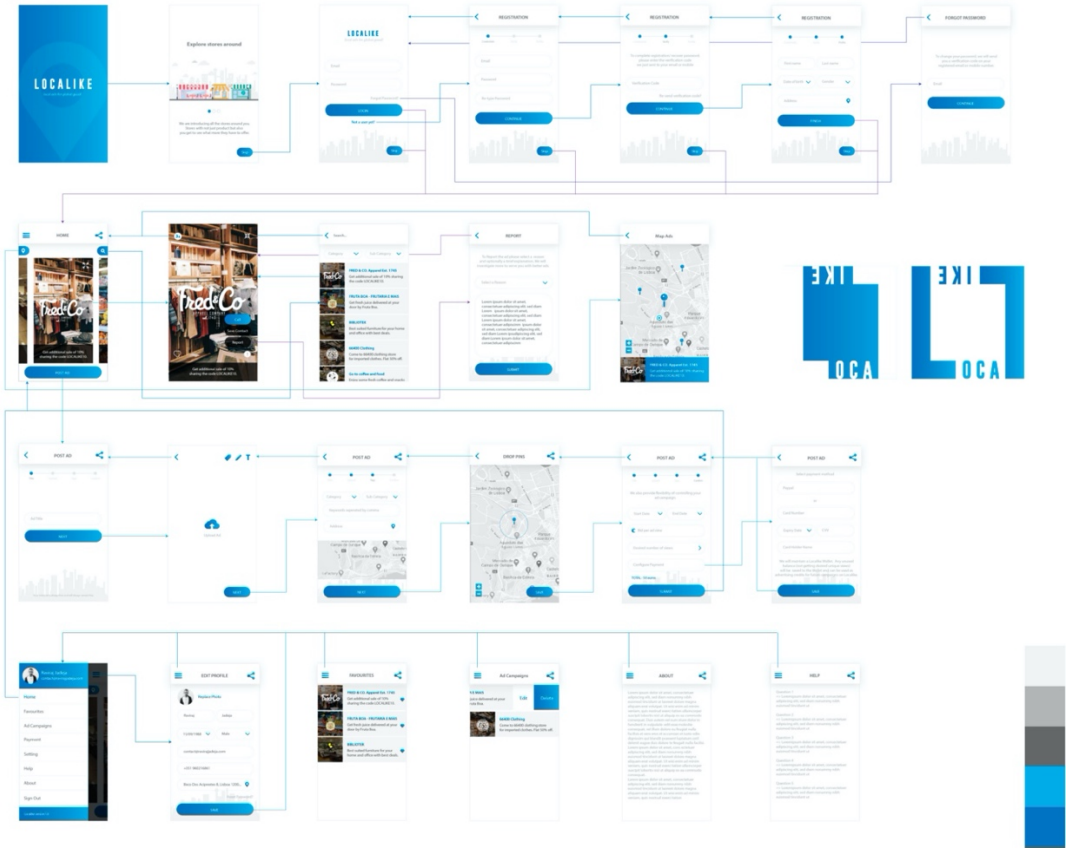

Fig. 14: Hi-Fidelity Prototype

Source:Own author

We implemented the design by using minimum color as possible to give enough space to each functionality and highlighting the key features. Now the explanation makes more sense in terms of the User Interface and User Experience when the design is on hand, which may not have been more feasible in the Wireframe section.

Guiding through the application we would like to share a few screens which will explain the insight of the application. In Figure 14 you will be able to see the guide which is navigated right after the Splash screen of the application.

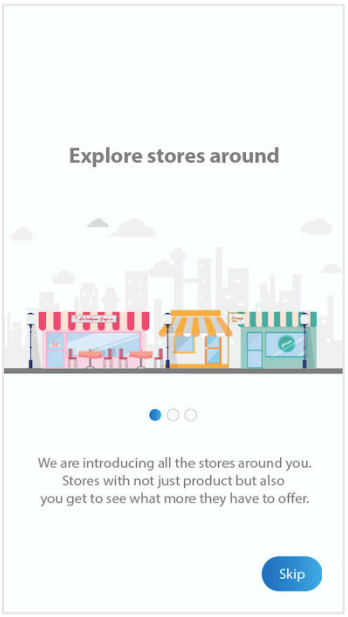

Fig. 15: Walkthrough Guide

Source:Own author

This guide is meant to allow the user to go through the application concept and understand what they would be able to see inside the application. Using two gestures in this screen gives a better experience of navigation i.e. a swipe gesture to navigate other sections of the guide by swiping left or right and in case if the user doesn't want to go through the guide, they can simply skip this step. Right from the beginning while making this screen we understood that it is equally

important to think through all possibilities of what could go in user's cognitive brain while accessing the application and not to force-fit our feature to them by leaving no way to escape.

The next screen is the Home screen, this is the main part of the application i.e. the advertising part also commonly referred to as "allocating space to advertisers in the application" in many previous sections of this study.

Fig. 16: Home Screen

Source:Own author

Now it is about the main content of the application, so following the knowledge by Walter Dill Scott on an advertisement we found out the importance of the content to be highlighted when been placed larger in size and giving all the necessary information will stay in one's memory. So in figure 16, you can observe the ad getting importance along with mentioning required details at the center of the screen. On the other two sides, you will see just a glimpse of more advertisement, which will indirectly push one's interest to tap on it so that it could be viewed.

Not just the tap but also using the swipe gestures user can navigate through the screen. In a similar sense, all the details of the advertisement have been taken care of.

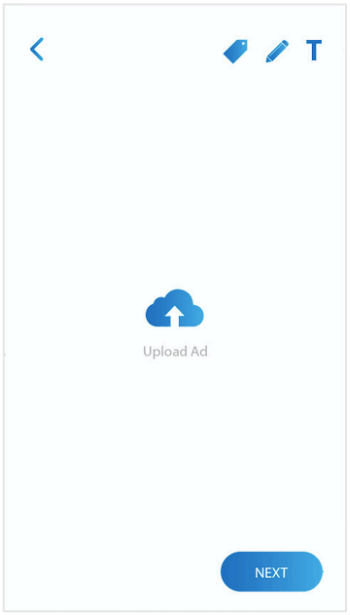

Fig. 17: Create Ad Step 1

Source:Own author

Viewing the ads could only happen when one can create the ad. By simply clicking on the home screen button shown in Figure 16 one can easily navigate to the screen shared in Figure 17. This screen allows us to create the ad by importing the image, adding text, adding discounts and by drawing on the ad for a personal touch. These kinds of User Interaction to create some post has been common in the current Interaction trend which is being also followed by Instagram, Facebook and other applications.

Another interaction simplified was in the next figure i.e. Fig. 18 where a user is allowed to add as many as location pins they wish on the map. This pin will have its diameter of reach, which can push advertisement to the users who pass by this diameter fence. Once all the pins are allocated with location including latitude and longitude along with its radius, user can save the preference by tapping the Save button.

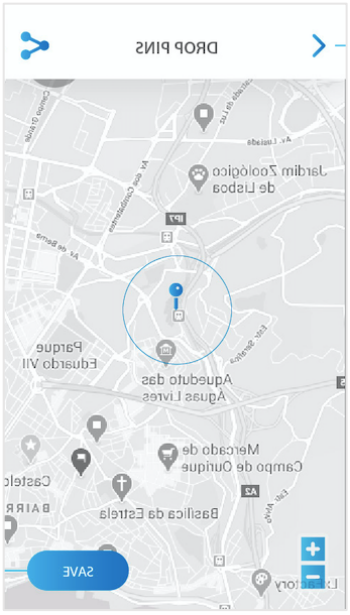

Fig. 18: Create Ad Step 1

Source:Own author

There were two standardized guides be followed for making UI design, it was Apple Human Interface Guideline and Google Material UI Guide, understanding the market coverage of having bigger android smartphone market compared to that of iOS and having a similar UI structure been accepted on websites we preferred to keep the menu option of having a drawer sliding from the left as you can see in figure 19. In the menu, there are all the possible options a user needs to navigate to entire application in just a few clicks.

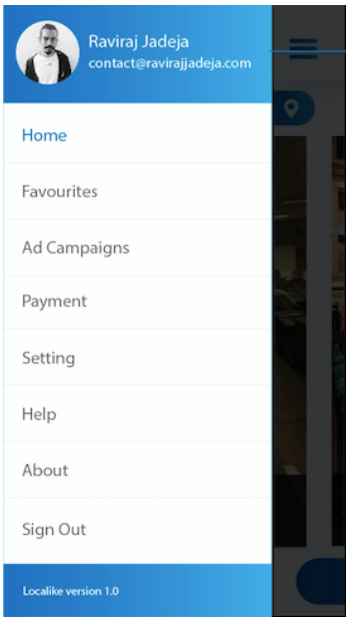

Fig. 19: Menu

Source:Own author

Similarly in this phase of Design, there were many measures been taken, to deliver the best acceptable product in terms of interface and experience. With the help of this entire research, the application looks very well toned and ready to take further for the next step.

5.7.5 CORRECTIONS

During the prototype design phase, we encountered some corrections which are important to highlight. For example, looking at the registration screen and Ad post screen we see a step guide to show the current step in several steps which was not the part of our wireframe and had been an addition to the design format as shared in below image.

Fig. 20: Multiple Step Guide
Source:Own author

Similarly, we have added a Splash screen and have done other minor changes to the layout when required. This was only possible as the core concept along with functional flow was strongly made for enough room of flexibility.

6. CONCLUSION

The research study which started with the findings of space in the advertising industry to bring equality by giving opportunities to all sole proprietor, small and mid-size business owner to promote their business by the use of mobile technology at free cost.

Strictly following the literature review on the advertising industry, mobile technology and further going in detail on User Interface and User Experience has given us enough insight about the existing system. To know the need, surveying to collect qualitative and quantitative data it became easier for us to validate the need.

Concluding the need ‘Localike’ was brought into existence. This conclusion elevated us to the design phase where we had to go through the guidelines shared by Apple and Google and further check on the market trend. Also along with following the set of guidelines, there was more online parallel study over the stages of Mobile application design. The product was tuned from a rough idea to the low fidelity application and by the end of the research, we have an on-hand high fidelity prototype. We expect to do a proper usability testing and take it further to the development phase.

Localike doesn’t end with this research as we plan to follow the agile methodology to keep updating and shaping the application for better experiences and bringing more useful features to the application.

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