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Mobile application linking entrepreneurs to mentors and investors

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A MOBILE APPLICATION LINKING ENTREPRENEURS TO MENTORS AND INVESTORS

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DECLARATION

I declare that this work has not been previously submitted and approaved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Abstract

There is a growing culture of entrepreneurship in Africa with countries like Kenya becoming centers for innovation and entrepreneurship. This is evidenced by the development of world-leading technological innovations like MPESA - a renowned mobile phone based money transfer platform pioneered by Kenya's largest telecommunication company, Safaricom. Despite existing potential, young African start-ups and existing businesses in the technology sector are faced with multiple challenges. Lack of access to capital, mentorship and training stand out among key challenges. This study reviews existing systems employed to address concerns such as limited access to funding, mentorship, and training by entrepreneurs. It identifies these systems' limitations and proposes how they can be improved. The waterfall methodology was used to undertake the reseach and the development of an Android based mobile application that will address the current gap of accessing metors and investors. Out of the total sampled population , 90% of the entrepreneurs confirmed that they had faced difficulties in accessing mentors and investors . The application was validated after development and 95% of the sampled population highly welcomed the adoption of a mobile application that had been developed to address the gap. The developed mobile application will facilitate entrepreneur's access to mentorship allowing them to gain the skills needed to run their businesses and investors who can inject capital to actualise their ideas and stimulate growth. This is likely to promote entrepreneurship in Kenya and lead to a more stable economy. There is a possibility that most of the African countries will adopt the use of the Android based mobile application.

Keywords

Android, SMS, Push Notifications, Entrepreneur, Mentor, Android Application, Incubators

List of Abbreviations/ Acronyms

HLR – Home Location Register

MSC – Mobile Switching Centre

SMPP - Simple Messaging Peer- Peer

SMS – Short messaging service

UML - Unified Modelling Language

VLR – Visitor locator register

Definition of Terms

Android- This is an OS created by Google for mobile devices, smartphones, and tablets (Kenney & Pon, 2011).

Entrepreneur - this is an individual who chooses to run a small business and assumes all the risks and rewards that come with such a venture. He is often seen as a business leader and innovator with good ideas and frequently creates new business (Pinchot, 1985).

Investor -an investor is someone who funds an idea, project and company using his own money and hopes to make a financial return out of this kind of venture (Barberis, Shleifer and Vishny, 1998).

Mentor- A mentor is an experienced person who supports and encourages people to develop specific skills and knowledge that will help them to maximize their business potential and improve their performance (Kram, 1983).

Push Notifications- A push notification is a message that pops up on a mobile device. App publishers can send them at any time; users do not have to be in the app or using their devices to receive them. They can do a lot of things; for example, they can show the latest sports scores, get a user to take an action, such as downloading a coupon or let a user know about an event, such as a flash sale (Bell, Bleau and Davey, 2011).

SMS – Short messaging service which is a service for sending short messages of up to 160 characters (Lai, 2004).

SMS Shortcode – These are special telephone numbers significantly shorter and more memorable than full telephone numbers (Brown,et al , 2007).

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CHAPTER 1: INTRODUCTION

1.1 Background

There is a growing culture of entrepreneurship in Africa with countries like Kenya becoming centers for innovation and entrepreneurship. There are world leading technological innovations that have been developed in Kenya. Examples include the mobile phone based money transfer platform M-PESA, the mobile microfinance service MSHWARI and "pay-as-you-go" home solar systems from M-KOPA. These have put Kenya on the globe as a world leader when it comes to the mobile money ecosystem (Berger, 1991).

Kenya has consistently proven itself to be an exceptional start-up ecosystem and an enabler of brilliant talent which continues to be on the frontline of innovation due to initiatives like creative entrepreneurship, incubation spaces such as "iHub" as well as companies like Google, IBM, and Intel strengthening their operations in Nairobi (Urban, 2006).

Despite the above, setting up a new business and running it successfully in various African countries, including Kenya has remained a difficult task. This is due to the number of challenges that are encountered by start-ups. Some of these challenges include insufficient resources and lack of sound business skills that are important to successfully run and manage a business. Equally, lack of capital which acts as the fuel to run the business inhibits growth actualisation of this business (IT News Africa, 2015; Mite, 2015).

The biggest challenges that entrepreneurs face is limited access to capital, training and mentoring. He stresses the need to come up with creative ways to promote entrepreneurship given that 122 million young Africans will enter the labor force by 2020 and tens of million are already unemployed. He urges the Government to employ user-friend technology solutions to facilitate business start-ups (Elumelu, 2015).

The presence of incubators is of great importance to entrepreneurs because it provides them with the tools that they require to formalise and grow their businesses. With the lack of entrepreneurship training in schools, incubators play a vital role in addressing the gap in

entrepreneurial capability. However, existing incubators are insufficient in numbers to support the launch of new firms in the respective African countries (Omidyar Network, 2016).

There is need to come up with a more structured approach to making the process of seed financing and angel networking, which are very important when it comes to boosting financing for small-scale ventures, more efficient and cost effective. More awareness should also be created to ensure that the entrepreneurs benefit from the existing support structures (Omidyar, 2016).

This proposal aims to address existing access limitations and to leverage on this existing technologies to develop a platform in the form of a mobile application that will link entrepreneurs with mentors and investors. The developed mobile application will facilitate entrepreneur's access to mentorship allowing them to gain the skills needed to run their businesses and investors who can inject capital to actualise their ideas and stimulate growth. This solution will enable entrepreneurs to be up to date with major entrepreneurial activities happening in their countries as well as globally.

1.2 Problem Statement

Starting a new business and running it successfully in Kenya and within the continent of Africa still remains difficult due to the number of challenges that are faced in this process, with limited access to capital being a major challenge. Most entrepreneurs lack the skills and knowledge vital to run a business due to lack of access to training and mentoring (Omidyar, 2016).

Incubator programs are of great importance to entrepreneurs because they provide the tools that they require to formalise and grow their businesses. With the lack of entrepreneurship training in schools, incubators play a vital role in addressing the gap in entrepreneurial capability. There is also the lack of a structured approach to making the process of seed financing and angel networking more efficient and cost effective (Elumelu, 2015).

There are also limited creative ways and user-friendly technology solutions to accelerate entrepreneurship even with the great number of young Africans who are unemployed and entering the labor force (Elumelu, 2015).

1.3 General Objective

The purpose of this research is to establish the gap and develop a mobile application for linking entrepreneurs with mentors and investors. It will streamline the process and enable entrepreneurs to easily have access to mentors and investors.

1.4 Specific Objectives

i. To investigate the factors that affect access to mentors and investors by the entrepreneurs.

ii. To analyse how technology has been used earlier in linking entrepreneurs to investors and mentors.

iii. To develop a mobile application that facilitates linking of entrepreneurs to mentors and investors.

iv. To test if the application developed has solved the gap in terms of linking entrepreneurs to mentors and investors.

1.5 Research Questions

i. What are the factors that affect access to mentors and investors by entrepreneurs?

ii. How has technology been used earlier in linking entrepreneurs to investors and mentors?

iii. How can one design and develop a mobile application that facilitates linking of entrepreneurs with mentors and investors?

iv. How can one test if the developed application can bridge the gap by linking entrepreneurs to mentors and investors?

1.6 Justification

There is a great number of unemployed young Africans with many expected to join the labor force. Entrepreneurship is both a viable alternative to and a source of further employment opportunities. This study is very relevant as it seeks to promote entrepreneurship by employing a user-friendly technology solution informs of a mobile application. This application will facilitate entrepreneurs to access mentorship thus gaining the skills needed to run their businesses and access to investors with the ability to fund their businesses and ideas.

1.7 Scope and Limitations

This study will be conducted within the urban areas of Nairobi County. This is due to the presence of incubation centers and many young start-up businesses that will act as the case study for this research. The application will be developed on the Android platform and will leverage on SMS and Push notifications to send notifications and updates to users.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter dives into the factors affecting access to mentors and investors by entrepreneurs. It outlines the extent to which existing system models automate the process of linking entrepreneurs with mentors and investors. It describes the technologies that have been used and details their deficiencies. It also analyses how a model that will improve the process of linking entrepreneurs with mentors and investors will be built.

2.2 Factors Affecting Access to Mentors and Investors

2.2.1 Entrepreneurs

An entrepreneur is an individual who chooses to run a business and assumes all the risks and rewards that come with such a venture. The entrepreneurs are often seen as a business leaders and innovators with good ideas and frequently creates new businesses. They need to have good market understanding, establish the needs of their customers and then aligns them with the market requirements (Bariso, 2014; Business Case Studies, 2016; Investopedia, 2016).

An entrepreneur stimulates growth and generates demand for new products, introduces new technologies and ideas. They generate social impact by extending solutions to less prone areas through the provision of essential basic goods and services such as access to reliable energy, clean water, and financial services (Allen et al, 1997).

2.2.2 Investors

An investor is someone who funds an idea, project and company using his own resources and hopes to make a financial return out of this kind of venture (Michel, 2015).

2.2.3 Mentors

A mentor is an experienced person who supports and encourages others to develop specific skills and knowledge that will help them to maximize their business potential and improve their performance. He acts as a guide towards the right direction and to develop solutions. Mentors are very vital especially for early stage start-ups (Elemelu, 2016).

2.2.4 Growing Interest for Entrepreneurship

Entrepreneurship is on the verge of growth with the culture growing in Kenya and the Sub-Saharan Africa. It is of more relevance now with tens of millions of youths who are unemployed and many others expected to enter the labor force by the year 2020 (Elumelu, 2015; Omidyar Network, 2016; (Elumelu, 2015).

There is need to come up with creative ways to promote entrepreneurship given unemployment rates and urges Governments to employ user-friend technology solutions to facilitate business start-ups (Elumelu, 2015).

The African continent, and especially Kenya, has become a center for innovation and entrepreneurship. This is because of the world leading technological innovations that have been developed in the country. Innovations like M-PESA, the mobile microfinance service MSHWARI and “pay-as-you-go” home solar systems from M-KOPA have put Kenya on the globe as a world leader when it comes to the mobile money ecosystem (Junemann & Ball, 2015)

2.2.5 Challenges Faced in Accessing Mentors and Investors

The biggest challenge that entrepreneurs face is the lack of access to capital, training and mentoring. First, there is very limited entrepreneurship training in schools. The existing education systems tend to focus more on theoretical education and imparting skills that are most useful in corporate firms. They fail to offer more practical curricula that can adequately prepare youth to work in entrepreneurial enterprises hence killing the culture of innovation. Among colleges and universities in Sub-Saharan Africa, only 7% have an entrepreneurship center

dedicated to entrepreneurial development; 28% offer courses specializing in entrepreneurship; and only 10% offer a course in innovation and technology (Bierema, & Merriam, 2002).

Incubators and accelerators programs which are of great importance to entrepreneurs because of the tools that they provide such as access to mentors and funding required to formalise and grow their businesses, on the other hand, are few in number and not enough to support the launch of new firms in respective African Countries. There is also the lack of a structured approach to making the process of Seed financing and angel networking, which are very important when it comes to boosting financing for small-scale ventures, more efficient and cost effective (Charalambos, Michalinos & Chamberlain, 2004).

Most entrepreneurs lack sufficient resources and sound business skills that are required to successfully run and manage the business. They lack the knowledge on where to get funding for their businesses. Lack of capital which acts as the fuel to run the business inhibits the growth and the actualisation of the business (Miten & Michel, 2015).

Small and Growing Businesses (SGBs) often lack the talent management and business development services they need to grow. There also exists the lack of creative ways and user-friendly technology solutions to promote entrepreneurship even with the great number of young Africans who are unemployed and entering the labor force (Elumelu, 2015).

2.3 Technologies Currently Used Internationally

2.3.1 Gust

This is a platform that provides entrepreneurs with tools that they need to manage their startup funding process. It allows them to upload their pitch videos, team description and allows them to connect with investors. It is an early stage investment platform with a vast network of capital suppliers and sophisticated internal functionality. It serves as a world-class resource for entrepreneurs seeking to establish relationships with investors (Ott & Gust, 2007).

Gust is a web application developed using java script and python programming languages. Gust connects entrepreneurs to investors. According to Zimmerman (2014), Gust does not curate the

deals presented to investors by reviewing applications and then picking which companies' investors should see. This limit is the visibility of a potential idea from standing out from the rest.

The researcher plans to address the gap in this study by having a review committee who will review the applications and connect entrepreneurs to the right mentors and investors. Gust is not widely accessible to many entrepreneurs being a web based platform. This study seeks at developing an application in Android that will enhance accessibility to entrepreneurs, mentors and investors.

2.3.2 FundedByMe

FundedByMe is an online platform that provides investors access to European startups and small businesses by offering both equity and debt-based investments. This is web based platform that was created in Stockholm, Sweden, in March 2011 to address the need for a user-friendly crowdfunding solution for European entrepreneurs and everyday investors. It offers several methods of crowdfunding, including Equity, Loan, and Reward-based crowdfunding, to investors and entrepreneurs (Crowd, 2016).

The main focus of this platform is running crowdfunding campaigns for startups and small businesses to raise capital and funds from potential investors. It requires this businesses and startups to pay an upfront fee in order for this to happen. It also targets European running businesses and startups and requires them to offer shares in exchange for the funding (Gautam et al, 2016, March).

The researcher seeks at developing an Android based mobile application that will not only connect entrepreneurs to investors but also connect them to mentors . The new system will also target African running businesses and startups unlike FundedByMe that targets European based businesses and startups.

2.3.3 Entrepreneur

This is an online website that gives advice, insight, profiles and guides for established and aspiring entrepreneurs worldwide. It carries news stories about entrepreneurship and small business management (Entrepreneur, 2016).

It acts as a great resource for entrepreneurship knowledge tips and trends but does not offer any funding or investment opportunities for entrepreneurs (Bates, 1990). This study focuses on having an application that can do more than the entrepreneur site, by seeking to offer funding opportunities to entrepreneurs and connecting them to mentors and investors. It will be an Android based application hence reaching more users. Entrepreneur is based on European startups but the researcher seeks to have an application that can be used within Africa.

2.3.4 Angel List

The strength of this web application platform is the grouping, organization and combination of businesses for the purpose of common profit. It allows the actual investment to happen through the platform and also allows small investors to join forces and make one unified investment.

It has about 700,000 businesses published , other than raising money, it also acts as a job posting site and sometimes alternative web presence for these businesses (AngelList, 2016).

The main focus on this platform is raising capital and does not have a clear channel when it comes to linking businesses or startups with investors. Money raised from this platform is likely to come from different people hence one is likely to end up with a bunch of investors who do not really have an idea or skills on the type of business (Linna, 2016). The researcher seeks at developing an Android application which is more superior as it seeks to link enterpreneurs with the right investors and mentors, with specific skill set and knowledge on the type of business being persued by the enterpreneur hence increasing the chances of the business succeeding.

2.3.5 Bidx

This is a platform that builds custom portals and sells them to incubators and other startup accelerators. It gives the entrepreneurs the tools to show off their businesses, as well as allows investors and mentors to find those businesses, rate them, give them feedback and invest in them at a later stage. It provides the tools for those incubators and similar local organizations to manage their own platform, do manual and automated matchmaking, and use their own portal to attract more businesses and investors to build local business ecosystems (Osterwalder & Pigneur, 2010). Bidx does not support direct communication to investors and mentors.This study seeks at developing an Android based mobile application that can allow entrepreneurs to communicate directly with their mentors and investors. The application to be developed will adopt the same model as Bidx for sending important news to entrepreneurs. Push notifications will be implemented in order to enhance this (Parse, 2016; Urban Airship, 2016).

2.3.6 Entrostor

This is a funding platform that connects entrepreneurs and investors worldwide. It is a simple platform that allows start-ups to post their proposals and search for registered investors. Users are able to filter based on the market, stage of the project and invite investors to take a closer look at the investment opportunity. Investors, on the other hand, can search for entrepreneurs and proposals. The platform can be used to find partners for any given project (Entrostor, 2013).

Entrostor is a web application that only connects entrepreneurs to investors. The researcher seeks at designing and developing a mobile application that can provide mentorship to entrepreneurs.

2.3.7 Smart Up App

This is a mobile application that runs on iPhone operating systems. Its main goal is to mentor early stage and future entrepreneurs at scale. The application builds up a profile of the user by asking the same questions investors and mentors would if they were advising them in person with the aim of delivering insights and advice to help the users make better decisions. It has

business simulations designed to help early stage and future entrepreneurs make better decisions. As users go through the app, they are awarded points for their decision-making which then puts them onto a global ranking leaderboard (Smartup, 2016).

The application retrieves the data about the user from Facebook and LinkedIn, then asks questions about what one is trying to solve.Finally it delivers targeted advice to help the entrepreneur. Some of the simulations involve how to learn online pricing and marketing . The study seeks at having an application that will be android based hence has the potential to reach more users in Africa. Smart Up application is an IOS based application hence the target population is low, with a majority of users using android based phones here in Kenya. The application to be designed and developed seeks at having a mobile application that can link entrepreneurs to investors and allow the entrepreneurs to commnicates with the mentors and investors.

2.4 Technologies Currently Used in Kenya

2.4.1 **Safaricom Zindua Café**

Zindua is a crowd platform by Safaricom that gives the public a chance to share their innovative business ideas and stand a chance to get funded. It is an interactive portal whose aim is to help innovators and developers countrywide to share ideas, applications, and prototypes with Safaricom which is Kenya's leading telco that invests in potential business startups. The portal serves as a central place to capture innovators ideas and prototypes. This is also aimed at promoting and helping more youth to come up with new ideas, products, and services to encourage innovation in the mobile technology space (Bwaley, 2014).The researcher seeks at developing an application that is based on Android, to be accessed from the mobile devices . The application will allow entrepreneurs, mentors and investors to communicate.

2.5 Conceptual model

Based on the analysis, there is a gap in the use of technology in linking entrepreneurs to mentors and investors. Most applications that were reviewed are web based targeting mostly European based startup and businesses. They lack a streamlined way of connecting entrepreneurs to the right mentors and investors based on their level, nature and type of businesses. They do not support direct communication between the entrepreneurs, mentors and investors. The new application seeks to address these challenges by providing enterpreneurs with a streamlined way of accessing the right mentors and investors by making use of the review committee who will be in charge of reviewing applications submitted by entrepreneurs and connecting them to the right mentors and investors hence making sure that the entrepreneurs receives the right mentorship and investment opportunities from mentors and investors who have knoweledge and experience in the entrepreneurs field of business to help them run and grow their businesses sucessfully. It will provide entrepreneurs with the ability to communicate directly to their mentors and investors and provide them with news about entrepreneurship events and forums happening in the country or on the globe. The new application will be android based hence will be able to target users in kenya who use android based phones. A web platform shall be available to be used to reiew the applications by the commitee. This is a gap in the existing applications.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This study sought to analyse, design and implement a mobile application for linking entrepreneurs with mentors and investors. This study employed the waterfall methodology as the framework. The waterfall methodology was opted for since the scope of the study was clear. The reasercher wanted a model that will be easy to manage by ensuring that each phase has a specific deliverable. This chapter describes the research methodology and system development process that was followed in carrying out this dissertation research. All the processes that were involved in the execution of this dissertation are covered in this section.

3.2 Waterfall Development Methodology

The waterfall model was first defined by Winston W. Royce in 1970 and has been widely used for software projects ever since (Hughey, 2009). The model was adopted for this study since the problem statement was clear to the researcher. Four steps were followed in order to achieve this as shown in the Figure 3.1.

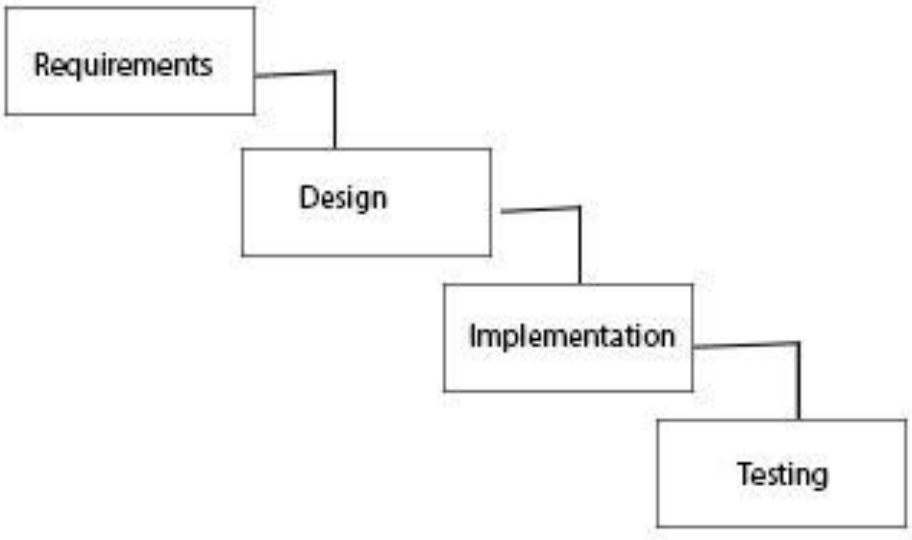


Figure 3.1 Waterfall Model

The four steps covered in a Waterfall Model are as follows:

a) **System Requirement Gathering**

The first step which is requirement gathering involved reviewing existing systems, identifying their weaknesses and establishing the challenges faced by the users for the purpose of data collection. Questionnaires and interview methods were used to collect data and come up with conclusive requirements. Requirement analysis was conducted after the gathering (Pinsonneault & Kraemer,1993).

b) **Design**

The second step involved analysis of the collected data is to determine the viability of the Mobile Application.

c) **Implementation**

The third step is to design the application based on the data analysis done in the previous step, after which, the application development follows in step five, to convert the designs into an actual application (Yin, 2011).

d) **Testing**

The fourth and final step that was applied from this model was to test the application to make sure that the needed functionalities worked as required. Validation of the application was also done after the testing (Binder, 2000).

3.3 System Requirements Gathering

The requirements gathering for the system to be developed was done based on the nature of information and its flow between various entities of the system. Data collection methods were very important for the success of this study, for the researcher to identify the user requirements, motivations, needs, weaknesses in the existing systems and to evaluate the proposed solution. This study employed interviews as the qualitative way of obtaining user requirements and

questionnaires for the quantitative evaluation of the mobile application (Alavi & Leidner, 2001).

3.3.1 Questionnaires

Information from entrepreneurs about the application was collected by use of questionnaires. This method was chosen because it has a high chance of providing accurate information. This was helpful in understanding the current scenario and what is expected from them. The questionnaires were designed in a way to ensure the respondents were able to answer the research questions set and to meet the objectives of the study in Section 1.3. The questionnaires are shown in Appendix A.

3.3.2 Interviews

Interview questions as shown in Appendix B were used in the study to gather the user requirements, motivations, opinions and needs of the users. The researcher used five in-depth interview questions to the mentors and four interview questions to the investors to obtain data.

3.3.3 Target Population

The target population for this research was made up of entrepreneurs, mentors, and investors. There are many mentors,entrepreneurs and investors within the country. This research was narrowed down to the institutions that do mentoring and financing for entrepreneurs within Nairobi. They comprised of 50 entrepreneurs, 10 mentors and 5 investors. Out of the targeted group, a sample of 23 entrepreneurs, 5 mentors and 5 investors was selected for purposes of data collection. The sample comprised of persons based at Ihub and Nailab.

3.3.4 Sample Population

Convenience sampling refers to a method where elements are selected based on their availability (Mugenda, 2003). The method was preferred due to the busy schedules of the investors and

mentors. The sampling method was used to select a sample. Out of the target Population of 50 entrepreneurs, 10 mentors and 5 investors, a sample of 33 respondents comprising of 5 mentors, 5 investors and 23 entrepreneurs was selected. The researcher selected the participants by visiting hubs and incubation centers talking mostly to the entrepreneurs and the mentors. The investors were referred to the researcher mostly by the mentors.

3.4 Design

This phase involved analysis of the collected data in order to determine the viability of the Mobile Application. The specifications of the requirements were studied in this phase leading to the preparation of the system design as represented in the following diagrams: Use Case (Sengupta & Bhattacharya, 2006, June). Entity Relationship Diagram (Chen, 1976). Context Diagram (Whaley & Lam, 2004, June). Sequence and Class Diagrams (Berardi, Calvanese and Giacomo, 2005) as shown in Appendix D, Figure D.1. The application wireframes were also developed in this phase. The use of the tools was important since it clearly outlines the data and service flow (Larman, 2004).

3.5 Implementation

Browser-based error reporting was disabled by turning off the debugging mode using the Laravel framework in the web application to prevent sensitive information about the application or host environment from being revealed to a potential attacker (Humpleman et al., 2001)

Passwords are encrypted by the mobile application before storing them in the database. Laravel which is the main application framework used to build both the web and mobile application program interface, uses a syntax which automatically escapes any HTML entities passed along via a view variable hence preventing cross-site scripting (Vogt el at , 2007, February).

3.6 Testing

The Application was tested after development. The technique that was used for testing was acceptance testing where tests were performed to determine whether or not the software system had met the desired requirements. A mobile application has to be subjected to installation, compatibility, functional and non-functional tests (Afzal, Torkar and Feldt, 2009)

The following tests were performed:

a) **Installation tests** – The mobile application was tested to ensure that it can be installed successfully in different types of Android supported phones. This was done by installing the application into mobile devices from different manufacturers. The version was installed into some test phones which includes: Huawei mate 8, Samsung S7, Infinix X554, Huawei Media pad T3, Huawei Y3 and Tecno phantom 6. Installation testing is done to ensure the version can be successfully installed in the Various devices from different manufacturers

b) **Functional and Non-functional tests** – The system functional and non-functional attributes were tested to ensure completeness of the system. This was tested by 33 end users to measure user satisfaction and obtain feedback which was useful in refining the system. The 33 users composed of 23 entrepreneurs, 5 mentors and 5 investors. The test cases were prepared and shared with the 33 users who were selected randomly from Nailab and Ihub institutions.

c) **Compatibility tests** - The Mobile Application was tested for compatibility with different Android versions to ensure compatibility with all Android versions from the lowest supported version 8 to the highest current Android version with ease. The tests were done by installing the application into various mobile devices running different versions of the Android operating system (Cross & Sudkamp, 2002).

3.7 Validation

The application was validated after testing to verify if it had met its intended purpose. This is part of the Software quality control (Kan, 2002). This was done through a set of questionnaires that were formulated and shared with users as indicated in the Appendix A. Users were able to fill the questionnairs after interacting with the mobile application. A sample population of 33 was use for validation. It comprised of 23 enterepreneurs, 5 mentors and 5 investors.The selection of users was done randomly from Ihub and Nailab incubation centres.

3.8 Conclusions

In a nutshell, this chapter addressed the research methods deployed in the study. Both qualitative and quantitative research methods were employed. Qualitative methods were used to obtain and understand user requirements of the study through interviewing the participants. This was useful for the researcher to come up with an application which meets user needs. Quantitative methods, applied in the form of questionnaires, were used to evaluate user experience with the developed application.

CHAPTER 4: SYSTEM REQUIREMENT ANALYSIS

4.1 Introduction

This chapter focuses on system requirement analysis. It looks at how the research analysed the data collected through the methodology employed.

4.2 Requirement Analysis

The collected data was analysed and presented graphically using graphs and pie-charts. This was data collected after presenting the questionnaires indicated in Appendix A to 33 users composed of 23 entrepreneurs, 5 mentors and 5 investors who were selected randomly from a target population of 50.

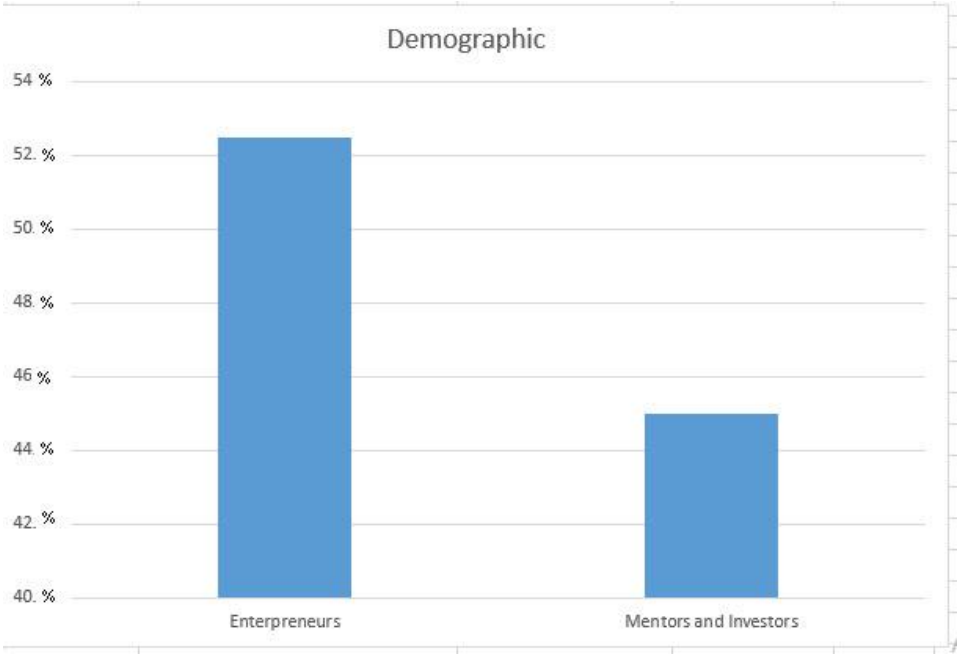
4.2.1 Response Rate

The target population included entrepreneurs with start-ups and business ideas. The study sought to know the accessibility of mentors and investors by these entrepreneurs, the circumstances under which they require to access mentors and investors plus the challenges they face when attempting to accomplish this. The research also sought to find out whether there any existing platforms that the entrepreneurs have used to access mentors and investors and whether they were effective enough. The targeted population also comprised of mentors and investors whose views on the system were sought. They were asked questions to determine the importance, effectiveness and need for such a system. The target population comprised of 50 entrepreneurs 10 mentors and 5 investors out of which a sample of of 33 entrepreneurs, 5 mentors and 5 investors was selected.

4.2.2 Sample Demographics

The sample was spread out as shown in Figure 4.1, the entrepreneurs who are the main users of the application had a response rate of 52.5% which was a good response rate and, the investors and mentors had a response rate of 45% which was sufficient for this research. The results show that the targeted population was well covered.

Figure 4.1 Demographics Analysis



4.2.3 Users Response on Current Systems

The responses as shown in Figure 4.2 was that 30% of the sampled investors had used Safaricom's Zindua café to submit their business ideas but had not obtained any feedback or any form of funding. 25% had tried to search via Google for a platform that would connect them to mentors or investors. 10% of the respondents know only the traditional way of reaching investors by visiting incubators to pitch their ideas in an attempt to secure mentorship or access investors. The remaining 35% had neither used any systems nor had the awareness that they could access mentors and investors via a system.

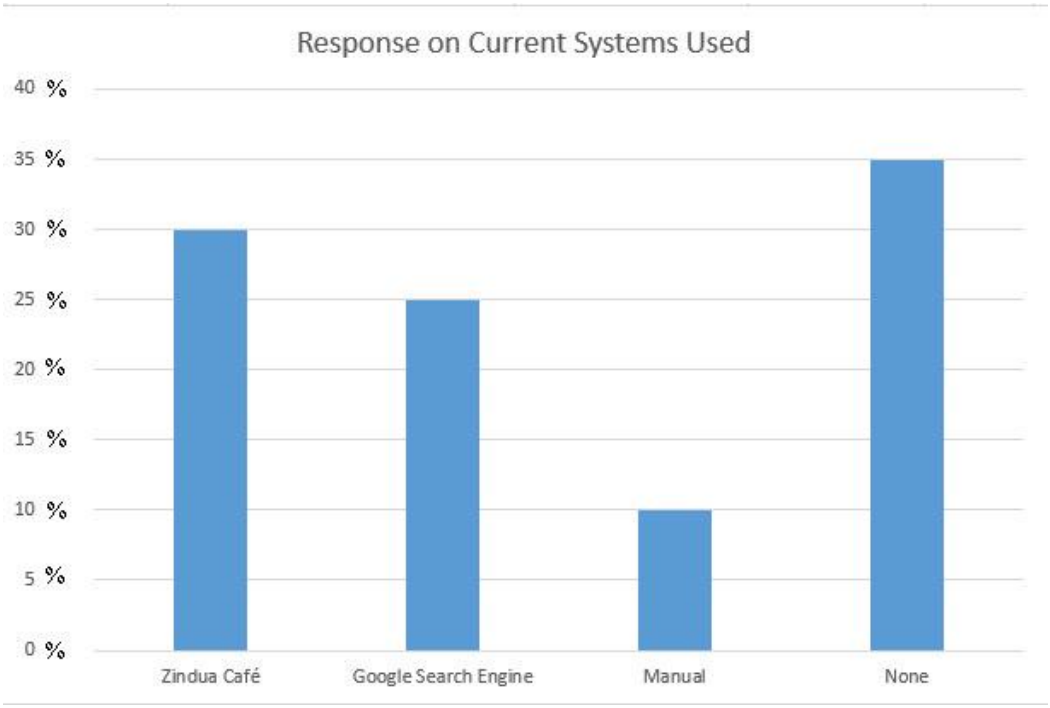


Figure 4.2 Respondents on Current Systems Used

4.2.4 Challenges Faced in Accessing Mentors and Investors

The research sought to establish whether entrepreneurs faced any difficulties or challenges in accessing mentors and investors. Figure 4.3 shows that 90% of the sampled entrepreneurs agreed that they have faced difficulties in accessing mentors and investors while 10% had not tried to find mentors or the investors. The challenges included travelling long distances in order to present a business idea this spending time and money. The target population during the survey mentioned that it is difficult to have access to trusted investors. Nevertheless, entrepreneurs mentioned that they trusted incubators across the country but they dint have ways of accessing them easily.

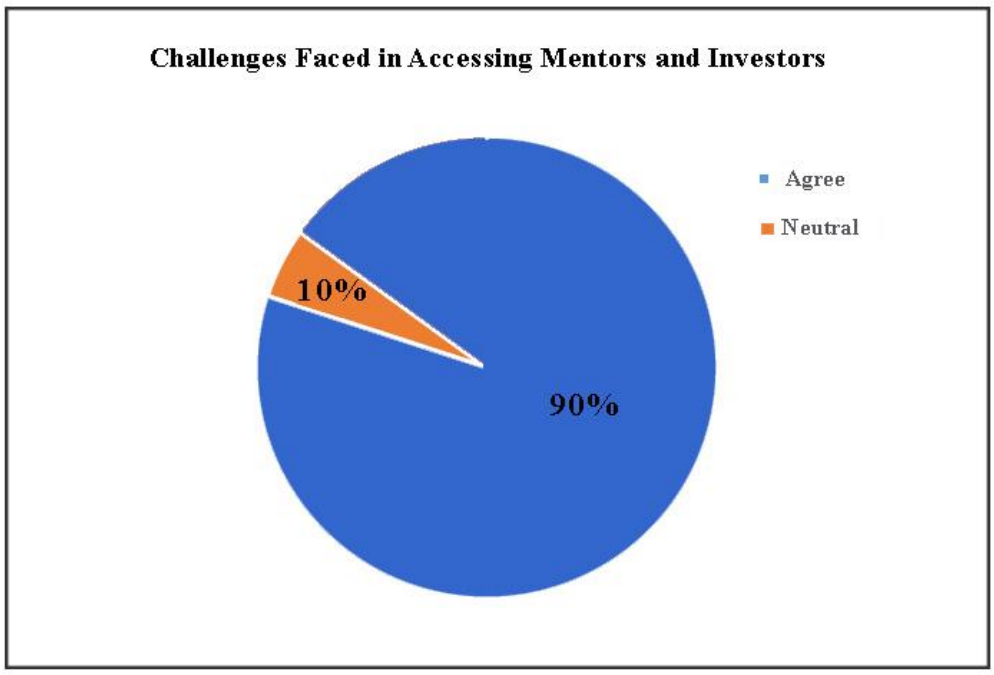


Figure 4.3 Challenges Faced in Accessing Mentors and Investors

4.2.5 Viability of a Mobile Application to Access Mentors and Investors

Questions was posed to find out whether there was a need for a mobile application to link entrepreneurs with mentors and investors.The sample poulation was also requested to indicate the basic requirements that they expected to be factored in while designing the application. Figure 4.4 shows that out of the sampled respondents, 95% highly welcomed the idea by stating the important role that it would play if it successfully linked entrepreneurs directly with mentors and investors. The remaining 5% of the sample preferred a web-based solution to a mobile application. Moreover, 95% of the sampled population indicated that the mobile application should allow the entrepreneur to submit an idea or business model, view assigned mentors and investors and get feedback from their mentors and investors.

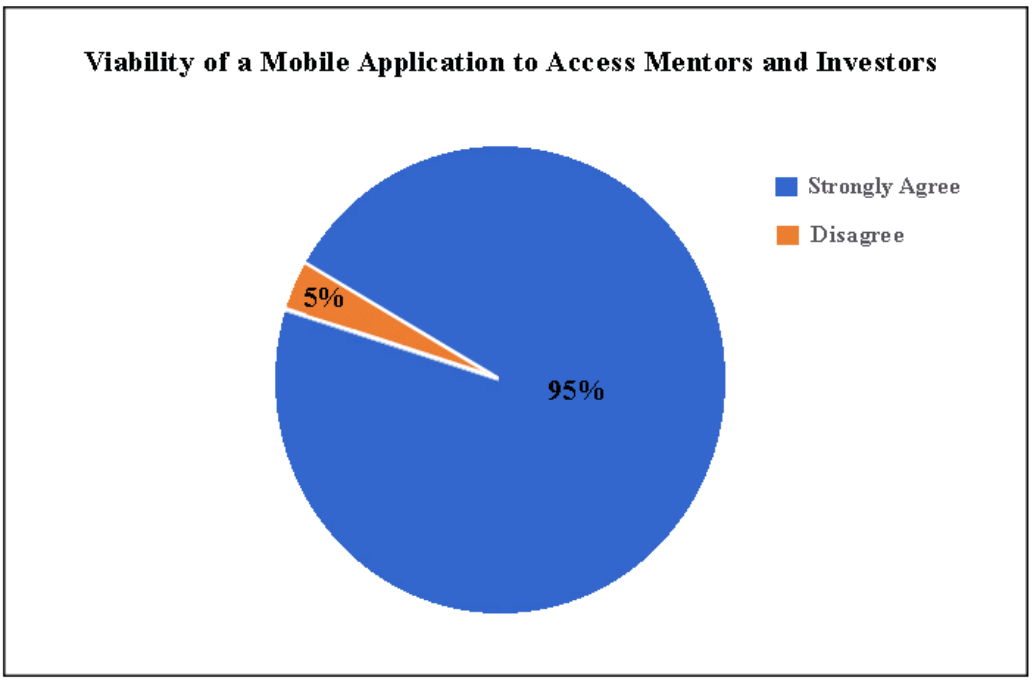


Figure 4.4 Viability of a Mobile Application to Access Mentors and Investors

4.3 Explanation of Findings

This study used two sets of questionnaires to gather valuable information namely, the pre-questionnaire and the Post questionnaire. The pre-questionnaire was used to justify the system needs and test system viability. From the findings, the users showed that the current system was inefficient.

First, 99% percent of the systems were web based and there were no such systems fully dedicated to the mobile platform. This was a major drawback as the majority of users in Africa, use mobile phones. Secondly, most successful working models such as FundedByMe that strive to connect entrepreneurs with mentors and investors are mostly open to the western European countries shutting off the African countries. Incubators and accelerator programs are not enough to support the launch of new firms in respective African Countries.

The existing systems, especially in Africa, also lack a structured approach to making the process of Seed financing and angel networking efficient and cost effective.

Finally, entrepereurs showed interest in having a mobile application that allows them to submit an idea or business model, view assigned mentors and investors and get feedback from their mentors and investors. Mentors and investors were interested in having a mobile appliation that allows them to provide prompt feedback to the entrepreneurs and have the mobile appication easily accessible and usable.

A mobile application was therefore designed as per the feedback received by the researcher.

4.4 Functional Requirements

These are some of the basic requirements that the researcher found were mandatory for the system to meet the purpose for which it is intended:

a) **Submit Idea or Business Model**

This is where an entrepreneur logs in and submits an idea or business model. In the application form, he is expected to enter details about his business or idea, attach supporting documents or a

video as well as to state his reason for using the application. This may be either to get reviews or get linked to mentors and investors.

b) **View Assigned Mentors and Investors**

This happens after an entrepreneur submits his idea and indicates that he needs an investor or mentor. If his idea or business model and is eligible based on reviews, he can view the assigned mentor. This functionality is available to the entrepreneur after login.

c) View Reviews and Feedback

This functionality enables the entrepreneur to view feedback and reviews about his submitted idea or business model.

4.4.1 Use Case diagram

Use cases are used here to describe the functional requirements in a clear and consistent manner. This allows the functional requirements to be described in an easy and synthesised manner. It is considered an excellent tool to clarify the system functionality and helps in determining if the system meets the functionalities defined (Douglass, 2003, June).

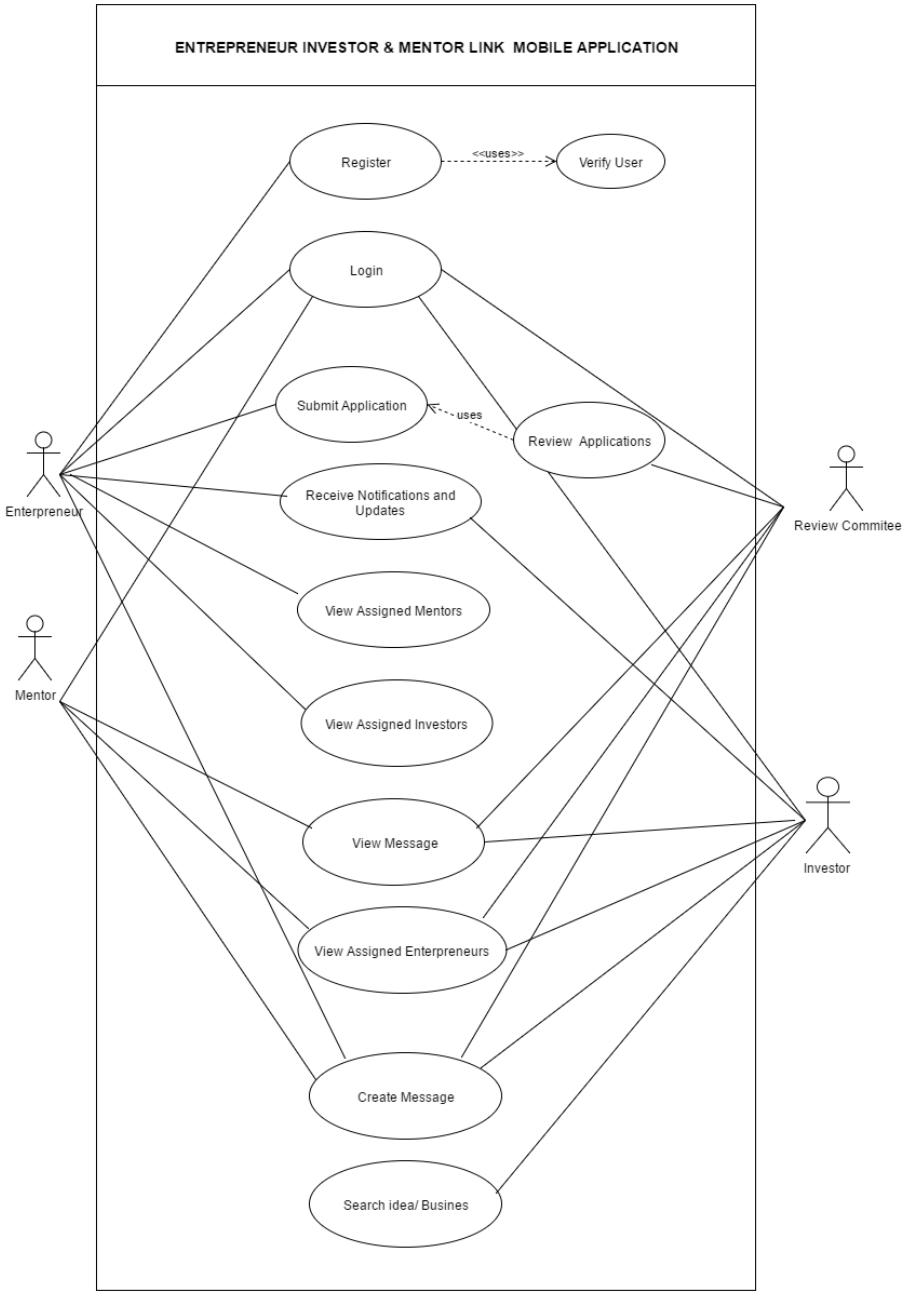


Figure 4.5 Use Case Diagrams

Figure 4.5 shows the intercation among the various elements of the system.It aids in identifying, clarifying and organizing system requirements

4.5 Non- Functional Requirements

These are the requirements that do not affect the way the application works or it is core business. The application can function without them but, they are part of the system. An example included a feedback mechanism which allows the users to inform the developer if the application is working as it should or not.

The key non-functional features of this application as per the researcher includes:

i. The application must run on an Android mobile device.

ii. The application must have quick response time.

iii. The application must be easy to use and intuitive.

iv. The system should be available any time the users need to use it.

v. The interface should be easy to set up and understand.

vi. The system must validate data entered by users for reasonableness.

vii. The application must notify user when errors occur using the GUI.

CHAPTER 5: SYSTEM DESIGN

5.1 Introduction

The researcher came up with a design to support all the needs of the users based on the requirements identified in chapter 4. This chapter, therefore, describes the system architecture model, detailed system design model and wireframes of the proposed mobile application. It is organized as follows. Section 5.2 gives the system architecture design and section 5.3 describes the system design.

5.2 System Architectural Design

Based on the requirements, the system architecture was designed to show the various entities and components in the system and how they interact.

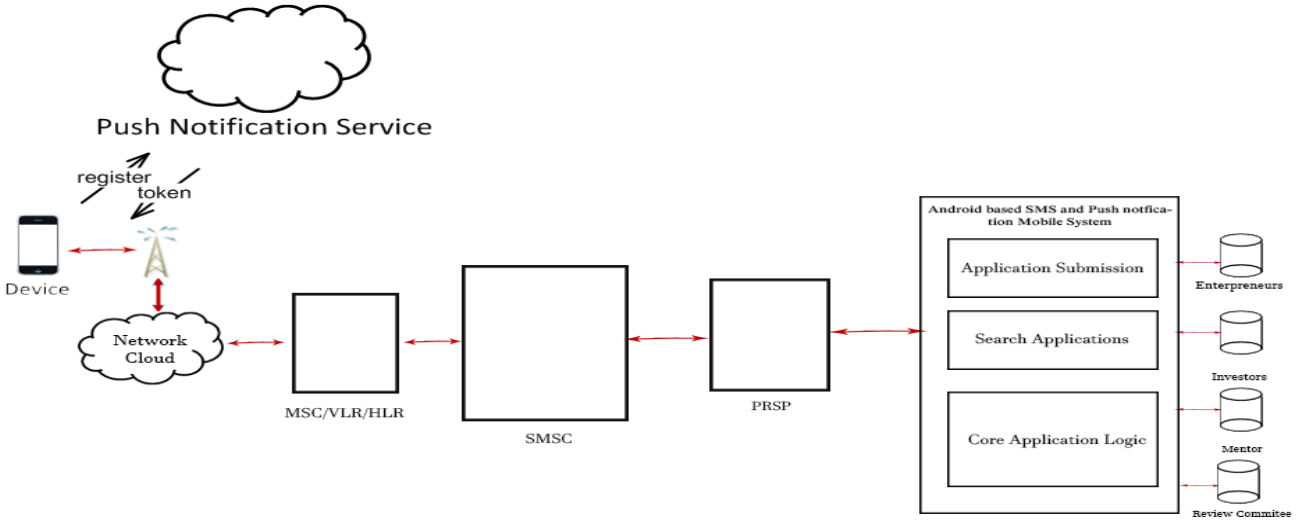


Figure 5.1: System Architecture

Figure 5.1 shows the architecture of the system and how the various components interact. It comprises of four main modules:

i. **Users**

There are three categories of users in the application which includes:

Entrepreneurs: These are users with potential business ideas or working business models in need of investors or mentors. They are able to login to the mobile application and share their ideas or business models with the mentors and investors. In addition, they are able to access tips and reviews to refine their ideas from the mentors, receive notifications and alerts of investors interested in their ideas and receive alerts and notifications on major entrepreneurship forums.

Mentors: These are users who are able to receive and review applications sent by the entrepreneurs and send them feedback. They are also able to recommend the best ideas and business models.

Investors: These users are are able to login to the mobile application and search for great ideas and businesses from different categories that he/she can invest in. They can also subscribe to the application to receive notifications on potential businesses and ideas that they can invest in based on their likes and interests.

ii. Mobile Network Providers- Their infrastructure is used to transmit SMS notification messages to entrepreneurs and potential investors.

iii. **Premium Rate Service Providers (PRSP)-** They are used to provide the SMS channels to be used during message forwarding to the application server. They are also used for the provisioning of bulk SMS for use on the system.

iv. **Android-based SMS and Push notification Mobile System**

This is the core of the architecture and it comprises of the following major modules:

Business Model and Idea submission Module: This module enables entrepreneurs to signup, login and submits their ideas and business models to the mentors.

Search for a business model and Ideas Module: This module enables Investors to signup, login and carry out a search for business ideas and business models that they can invest in.

Core Application Logic (CAL): This module receives entrepreneurs application requests. This enables the mentor to review these applications and submit their feedback. It notifies investors of potential ideas and businesses they can invest in. Moreover, it notifies entrepreneurs through alerts of investors interested in their ideas and on major entrepreneurship opportunities and forums happening locally and globally (Matskin, 2003).

5.3 System Design

This section gives an overall description of the design phase carried out for the development of the proposed system. In the first subsection, the database design is described. Then the different system modules are presented, providing us with a clear picture of what the system will offer to the intended users. Finally, the graphical user interface (GUI) design is described.

5.3.1 Database Design

To provide an adequate environment to manipulate and be able to store data, the latest version of MYSQL Database Management System (DBMS) was selected. Sets of data were obtained during the initial meetings with the users. This information is important in the design of the system database as shown in the ERD diagram in Figure 5.2

Figure 5.2 Entity Relationship Diagram

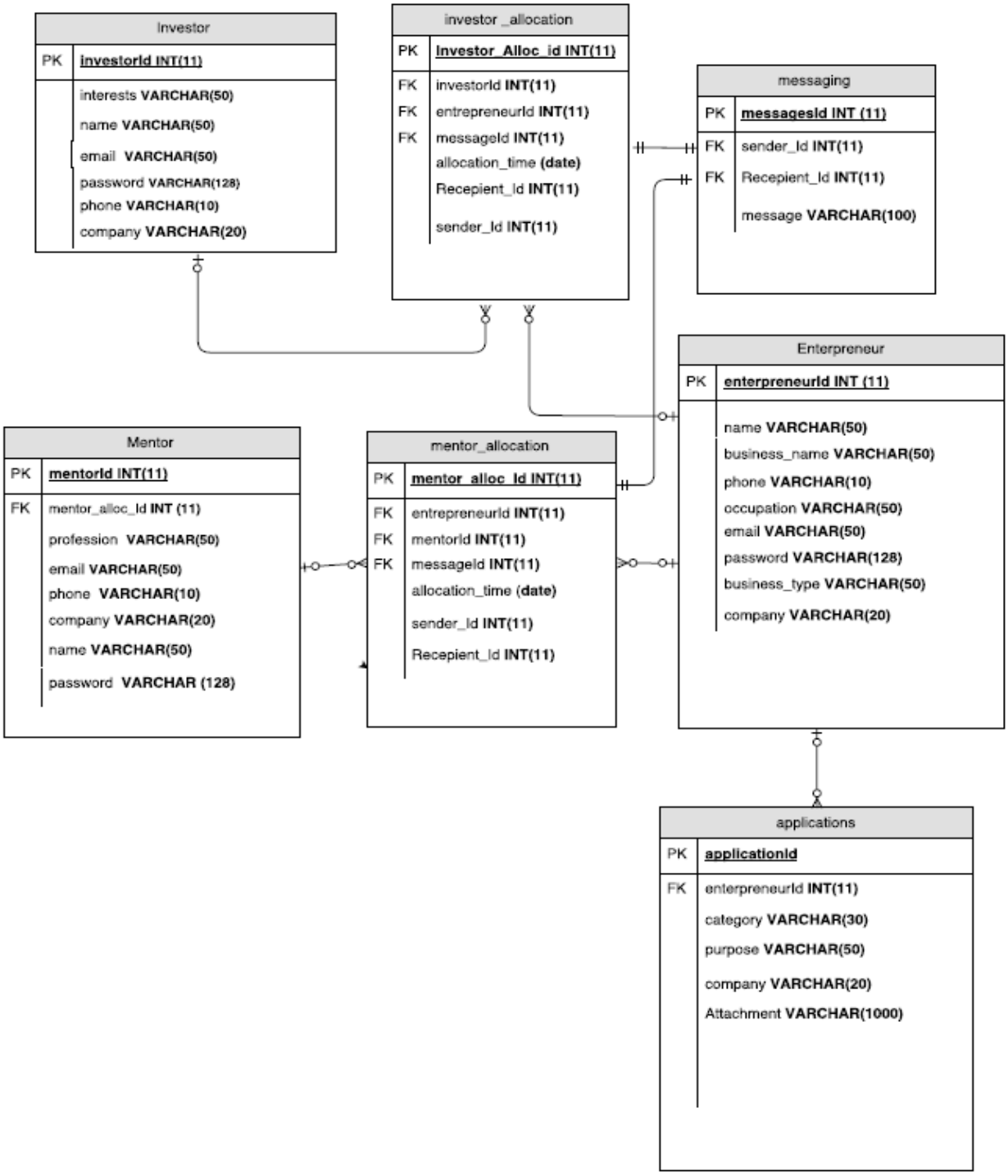


Figure 5.2 shows the entity relationship diagram which indicates the relationship between various entities and the attributes of the system.

a) Mentor

This table stores personal mentor details like name, email, phone and the mentor's profession.

Key	Attribute	Data Type	Description
Primary Key	MentorId	Int (11)	This is the unique identifier for the entrepreneur
	Interests	Varchar (50)	This field indicates what the investor would like to venture into.
	Company	Varchar (50)	This fields indicates the name of the institution that the mentor works

Relationships

An entrepreneur can have one or many mentors assigned to him (one to many relationships).

A notification can be send to a mentor upon a successful allocation.

b) Investor

This table stores personal investor details like name, email, phone and interest as well as mentor's personal details such as name and email.

Key	**Attribute**	**Data Type**	**Description**
Primary Key	InvestorId	Int (11)	This is the unique identifier for the Investor
	Occupation	Varchar (50)	This field indicates the occupation of the entrepreneur
	Business type	Varchar (50)	This category indicates the entrepreneurs field of interest

Relationships

An entrepreneur can have one or many investors assigned to him (one to many relationships).

Notifications can be send to an investor upon a successful allocation

c) Entrepreneur

This table stores entrepreneur personal details.The Primary key for this table is EntrepreneurId

Key	**Attribute**	**Data Type**	**Description**
Primary Key	EnterpreneurId	Int (11)	This is the unique identifier for the entrepreneur
	Occupation	Varchar (50)	This field indicates the occupation of the entrepreneur
	Business type	Varchar (50)	This category indicates the entrepreneurs field of interest

Relationships

An entrepreneur can be allocated one or many mentors.

An entrepreneur can have one or many applications (one to many relationships).

An entrepreneur can be allocated one or many investors

d) Messages

This table contains sent messages and sender id to track the sender. It also contains the receiver's id

Key	**Attribute**	**Data Type**	**Description**
Primary Key	MessageId	Int (11)	This is a unique field that is used to identify the message
Foreign Key	SenderId	Int (11)	This is the unique identifier that is linked to the sender of the message
	Message	Varchar (100)	This field has the notification content
Foreign Key	ReceiverId	Int (11)	This is the unique identifier for the receiver of the message

Relationships

One notification can be send to an investor and mentor upon a successful alocation of an entrepreneur to them.

e) Applications

This table contains entrepreneur applications details such as the category of business, purpose of the application and the various attachments.

Key	Attribute	Data Type	Description
Primary Key	ApplicationId	Int (11)	This is a unique indentifier for the applications
Foreign Key	EnterpreneurId	Int (11)	This is the field that references to the entrepreneur
	Company	Varchar (50)	This field indicates the company that the company of the person applying for mentorship or investment.
	Purpose	Varchar (50)	This is the field that the entrepreneur specifies if they need a funding or mentorship
	Category	Varchar (50)	This field indicates the categorization of the application i.e business idea
	Attachment	Varchar (1000)	This field indicates the attachment submitted by the entrepreneur

Relationships

One or many appications can be submitted by the entrepreneurs for review and assignment of a mentor or investor.

5.3.2 Database Security

Sensitive data that belong to the users such as the user password is encrypted using the bcrypt hashing algorithm to secure it and prevent it from being saved as plain text in the database. bycrpt is an 11-year-old security algorithm which was designed by Niels Provos and David Mazieres for hashing passwords (Provos & Mazieres, 1999). The system has also made use of use of prepared SQL statements which makes injection attacks difficult to undertake. More on the security features used is discussed in Section 5.3.3.

5.3.3 Data Security

Browser-based error reporting was disabled by turning off the debugging mode using the Laravel framework in the web application to prevent sensitive information about the application or host environment from being revealed to a potential attacker (O'connell & Walker, 2010).

Passwords are encrypted by the mobile application before storing them in the database. Laravel which is the main application framework used to build both the web and mobile application program interface, uses a syntax which automatically escapes any HTML entities passed along via a view variable hence preventing cross-site scripting (Vogt et al., 2007, February).

5.4 Data and Process Modeling

This application comprises of a number of entities with the entrepreneurs being the key entity, the investors, mentors and review committee being primary entities. They are able to send data to the application and receive feedback based on their request. The entrepreneurs are able to login to the mobile application and submit their ideas to the review committee for review. They are also eligible to receive review feedback and important updates and notifications. The review committee user is able to receive the entrepreneur's application details. He is also responsible for assigning mentors and investors to entrepreneurs based on the review process.

The investor has the ability to search for ideas and businesses that he can fund depending on his areas of interest while the mentor, once assigned, can communicate directly with the entrepreneurs through the application.

Data Flow Diagram

A DFD shows the flow of data from users to the system and what functions or processes in the system they are interacting with as shown in Figure 5.3

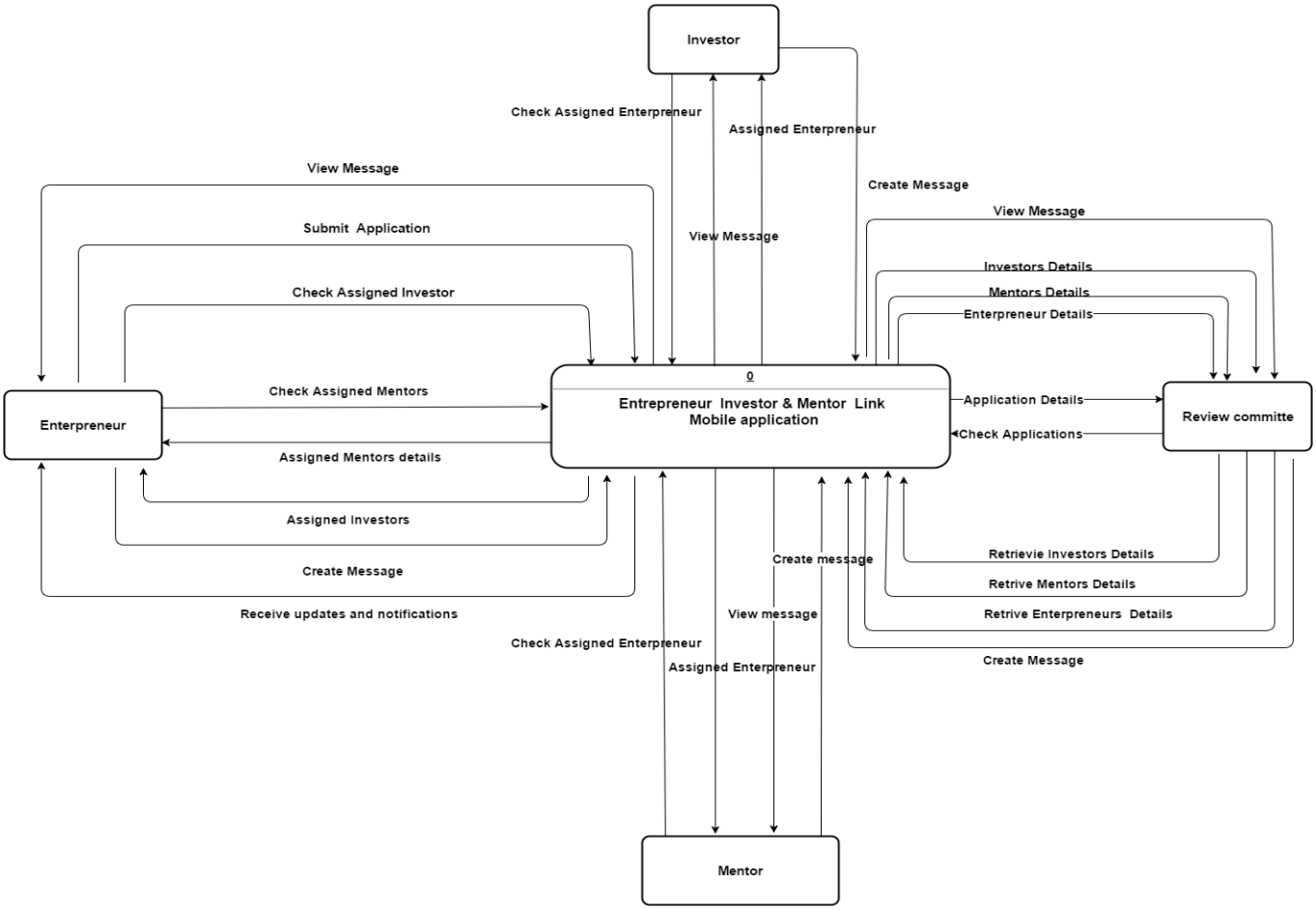


Figure 5.3 Context Diagram

Figure 5.3 shows the interaction between the users and the system including the data that the various users send into the system. The entrepreneur Investor and Mentor Link mobile application is the core of the system and from the Figure 5.3, the functionality of the system is well outlined.

DFD level 1

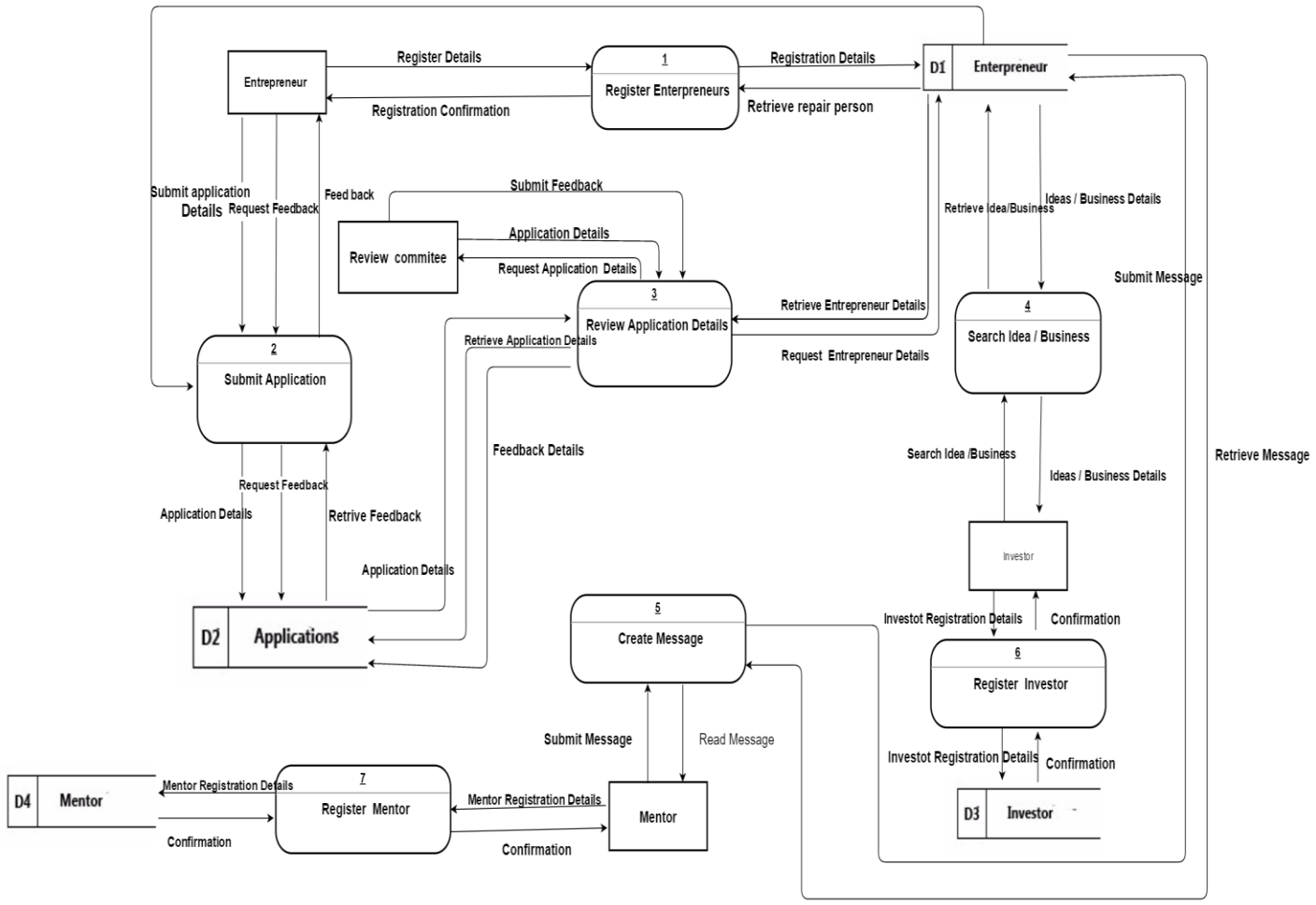


Figure 5.4 shows the exchange of data between the various users and the system. It also shows the responses that are received and the various processes that are working within the system. This is a more elaborate design of the system as compared to context diagram in Figure 5.4. Finally, it shows the data stores available.

Figure 5.5 DFD Level 2

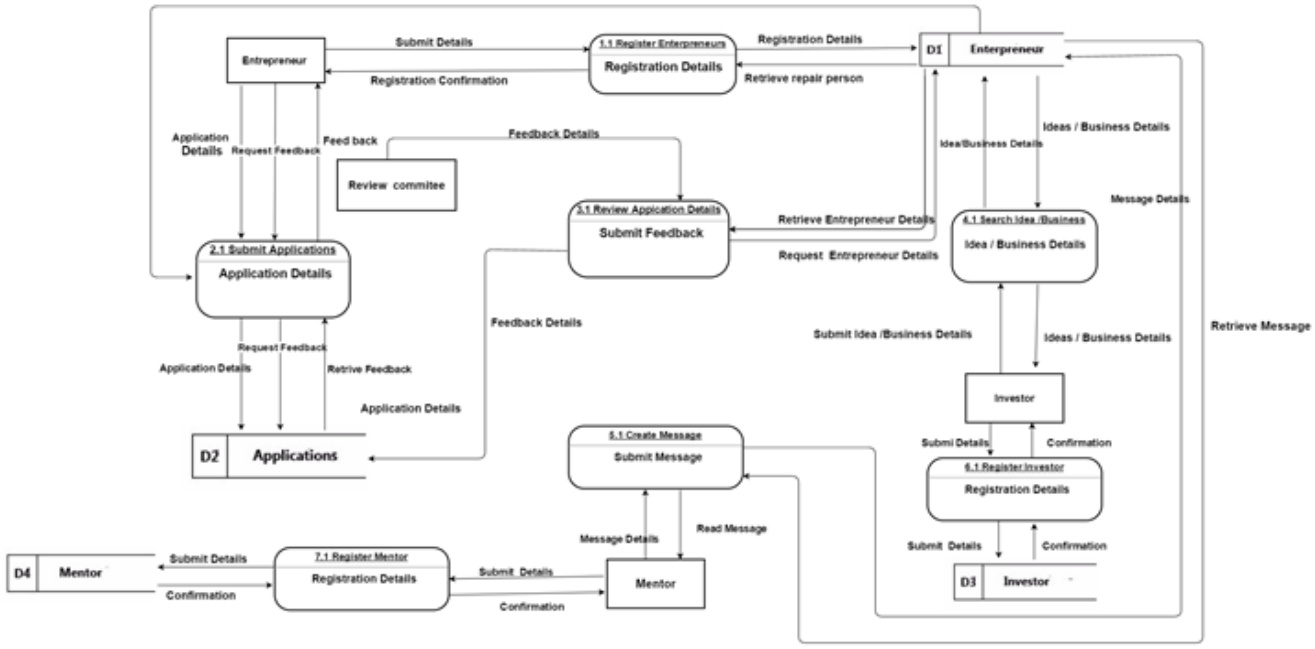


Figure 5.5 shows a detailed view of the process of submitting the applications, the various data that is sent between the processes and the users. The various data stores

Use Case Description

This Section gives a description of the various major use cases in the system, their triggers and the information that is sent by the various uses case as steps occur.

Table 5.1 Submit Application Use Case

Use Case Name.		Submit Application.	
Description		Describes how entrepreneurs submit their ideas or business models for review.	
Trigger		Entrepreneur logins and submit is his idea or business models.	
Type		External	
Major Input.			
Description	source	Description	Destination
Entrepreneur authentication details.	Entrepreneur	Login Confirmation.	Entrepreneur
Submit Application.	Entrepreneur	Reviews	Entrepreneur
Major steps Performed.		Steps	
1.Check if the Entrepreneur is registered and that their details are valid.		Entrepreneur username and password.	
2.Submit Application.		Application Details Form.	
3. If credentials are wrong then inform them to register.		Registration Form.	

Table 5.1 describes the Submit Application use case process and the steps that happen as that process is being executed. It also shows what triggers it. This process is the core business of the application and the data that's being sent as the various steps are executed are given as well.

Table 5.2 View Assigned Mentors or Investors Use Case

Use Case Name.		View Assigned Mentors or Investors.	
Description		Describes how entrepreneurs view their assigned mentors and investors.	
Trigger		Entrepreneur logins and view their assigned mentors or investors.	
Type		External	
Major Input.			
Description	source	Description	Destination
Entrepreneur authentication details.	Entrepreneur	Login Confirmation.	Entrepreneur
View assigned mentors and investors.	Entrepreneur	List of assigned mentors or investors.	Entrepreneur
Major steps Performed.		Steps	
1.Check if the Entrepreneur is registered and that their details are valid.		Entrepreneur username and password.	
2. View assigned mentors and investors.		Assigned mentors or investors status.	
3. If Mentors or Investors are available then display a list of them.		List of assigned mentors or investors.	
4. If credentials are wrong then alert		Registration Form.	

Table 5.2 gives a description of how entrepreneurs view their assigned mentors and investors. The process involves them Login into the system and checking to see whether they have been assigned any mentors or investors. If Mentors or Investors are available, then a list with their details is displayed to them.

Table 5.3 Register Entrepreneur Use Case

<table>
<tr><td colspan="2">Use Case Name.</td><td colspan="2">Register Entrepreneur.</td></tr>
<tr><td colspan="2">Description</td><td colspan="2">Describes how entrepreneurs are able to create their own account.</td></tr>
<tr><td colspan="2">Trigger</td><td colspan="2">Entrepreneur downloads the application installs it click on the register button.</td></tr>
<tr><td colspan="2">Type</td><td colspan="2">External</td></tr>
<tr><td colspan="2">Major Input.</td><td colspan="2"></td></tr>
<tr><td>Description</td><td>source</td><td>Description</td><td>Destination</td></tr>
<tr><td>Entrepreneur details.</td><td>Entrepreneur</td><td>Entrepreneur personal profile details.</td><td>Registration</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Major steps Performed.</td><td colspan="2">Steps</td></tr>
<tr><td colspan="2">1.Downloads the application and install it.</td><td colspan="2"></td></tr>
<tr><td colspan="2">2. Entrepreneur enters their information.</td><td colspan="2">Entrepreneurs Details.</td></tr>
<tr><td colspan="2">3. If username does not exist prompt the user to re-enter password.</td><td colspan="2">Entrepreneur username and password.</td></tr>
</table>

Table 5.3 shows how an Entrepreneur user is able to create their own accounts by supplying their usernames and passwords. If the user gives the correct login details, then they are allowed to access their account and hence perform the given functions. But, if the credentials are not correct then they are prompted to enter the correct information.

Sequence Diagram

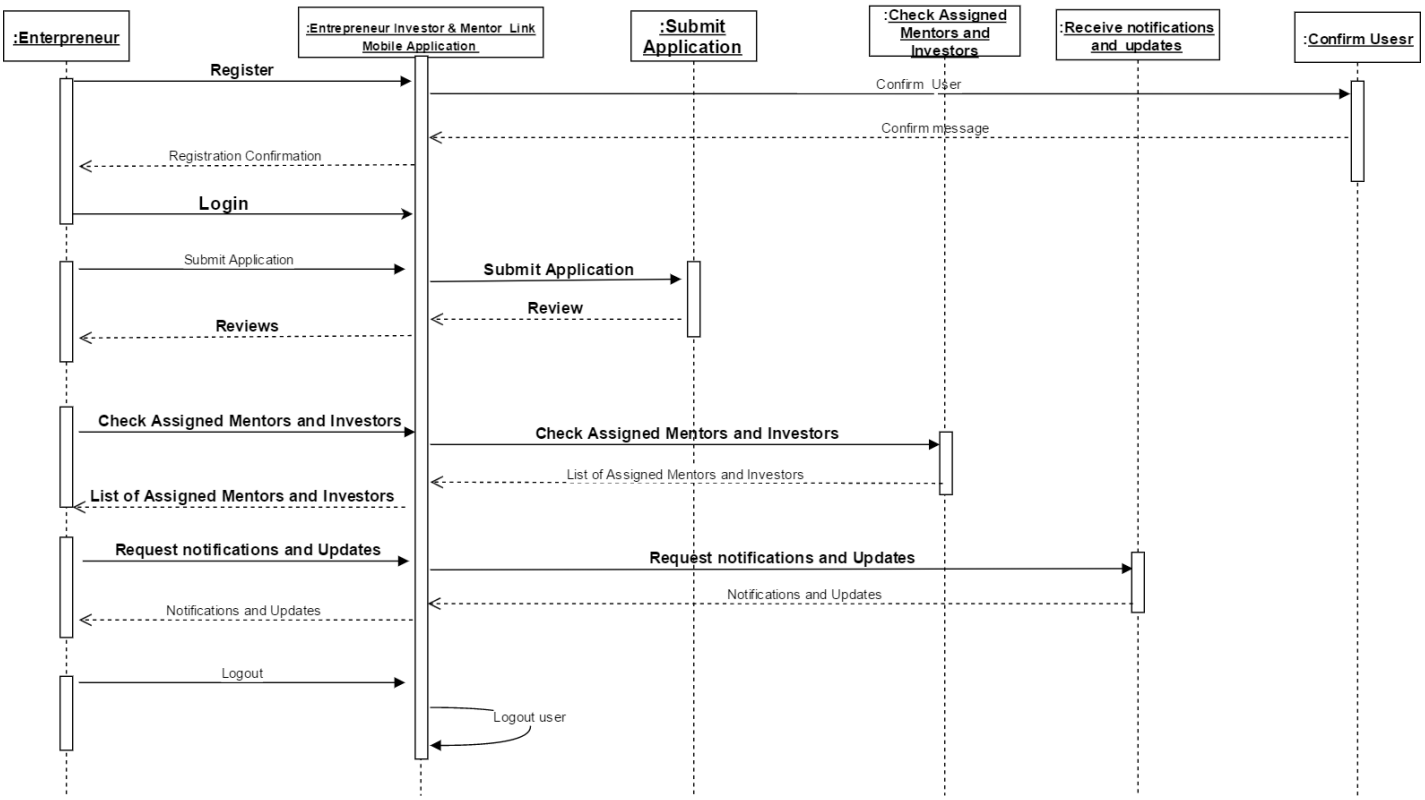


Figure 5.6 Sequence Diagram

Figure 5.6 shows the major sequence of events of the entrepreneur . It outlines the actions done by the entrepreneur from the time they login to the application.

5.5 Mobile Application Wireframes

Figure 5.7 shows the main menu screen for the entrepreneur. An entrepreneur is required to sign up and once verified, he is able to login into the application. The main menu options available for him include the ability to view assigned mentors and investors, ability to view messages from review committee, mentors or investors, create messages and finally to submit their application.

Figure 5.7 Main Menu Screen

Figure 5.8 shows the application form that the entrepreneur fills to submit his idea or business to the review committee for review and feedback. He is expected to state his purpose for application either to access funding, mentorship or just for review and has the ability to upload any supporting documents or videos.

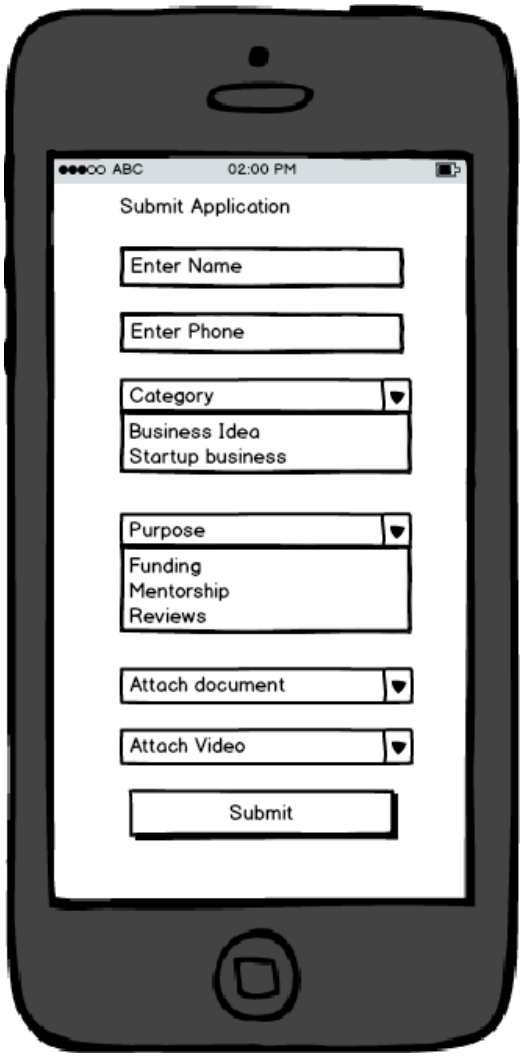


Figure 5.8 Submit Application Screen

Figure 5.9 shows the investor's main menu where the investor has the ability to view entrepreneurs he is willing to invest in, view or create messages and the ability to search for new potential ideas or investments he can invest in.

Figure 5.9 Investor Home Screen

5.6 Web Application Wireframes

Figure 5.12 shows the review committee dashboard where the judges or review committee are able to view submitted applications, send messages to various users in the system, view details for entrepreneurs, mentors and investors.

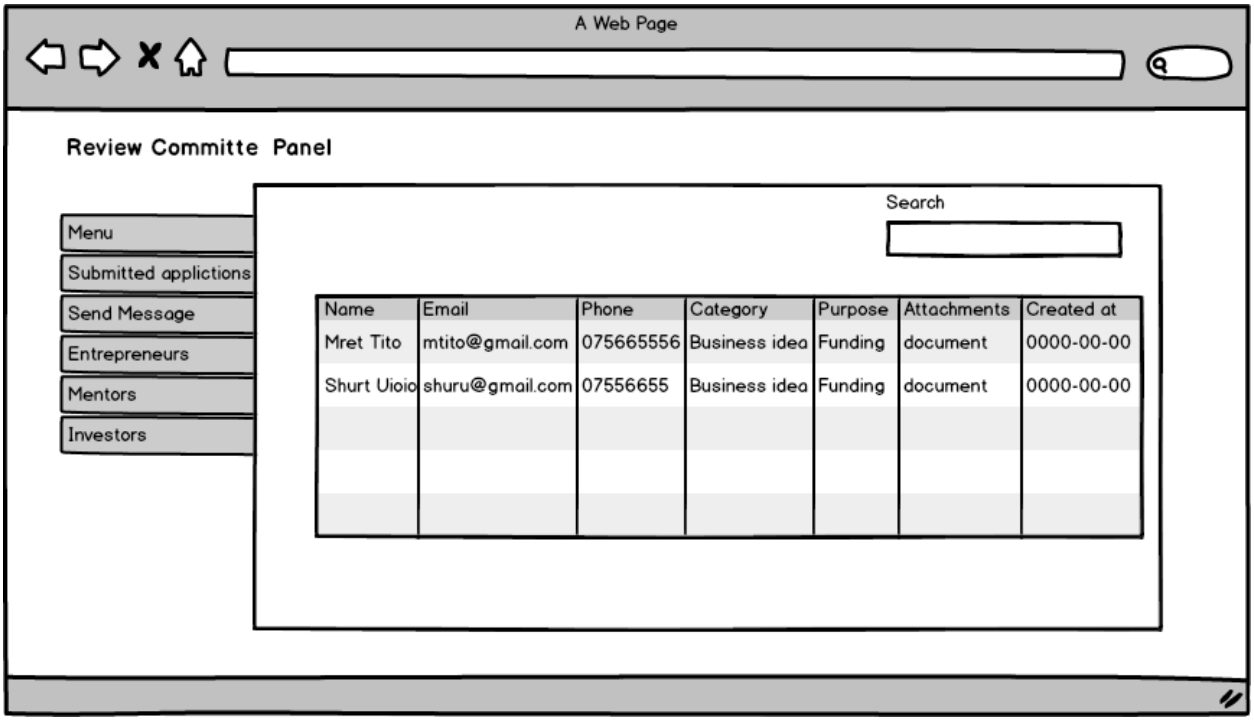


Figure 5.12 Committee Dashboard Screen

Figure 5.13 Shows the overall management is the system administrator who has the rights to edit and update the details of users who in this case are the review committee and other administrators. He can modify their details, add them into the system and also has the rights to remove them if they are no longer needed in the system.

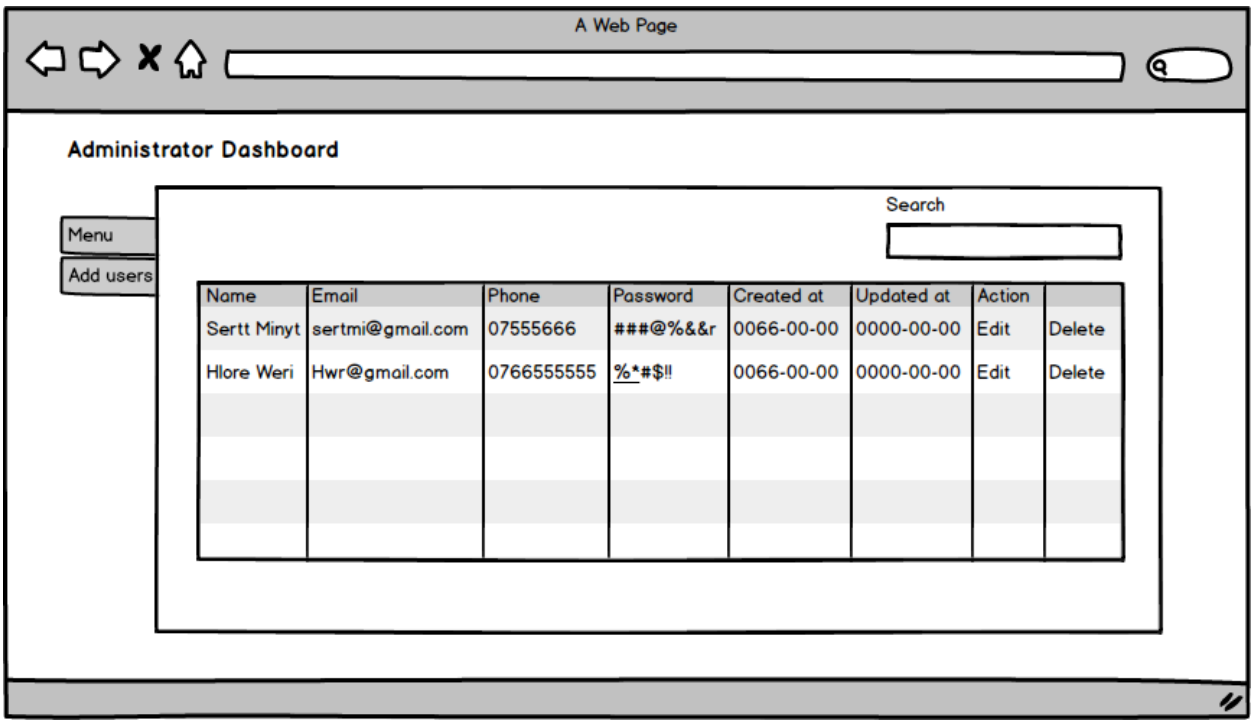


Figure 5.13 System Administrator Screen

5.7 Summary

In summary, this chapter provided the system architecture design. It has also presented an overall design of the different parts of the system; this covered all the guidelines of implementing a functioning and working application.

CHAPTER 6: SYSTEM IMPLEMENTATION

6.1 Overview

In this chapter, the designs were converted into the actual system after the system design discussed in chapter 5, and put on a series of tests to test the workability and whether they meet the requirements as outlined in the actual designs. The figures in this section show these results.

6.2 Mobile Application

The mobile application was built to run on the Android operating system after the research carried out showed the popularity of the operating system here in Kenya. Below are the various screens of the mobile application and their functionalities:

6.2.1 Application Screens

The entrepreneur is expected to log in as shown in Appendix E Figure E.1 to be able to submit his application. Figure E. 1 shows the entrepreneur Login and Home screen.

Figure 6.1 shows the application form that the entrepreneur fills to submit his idea or business to the review committee for review and feedback. He is expected to state his purpose for application either to access funding, mentorship or just for review and has the ability to upload any supporting documents or videos.

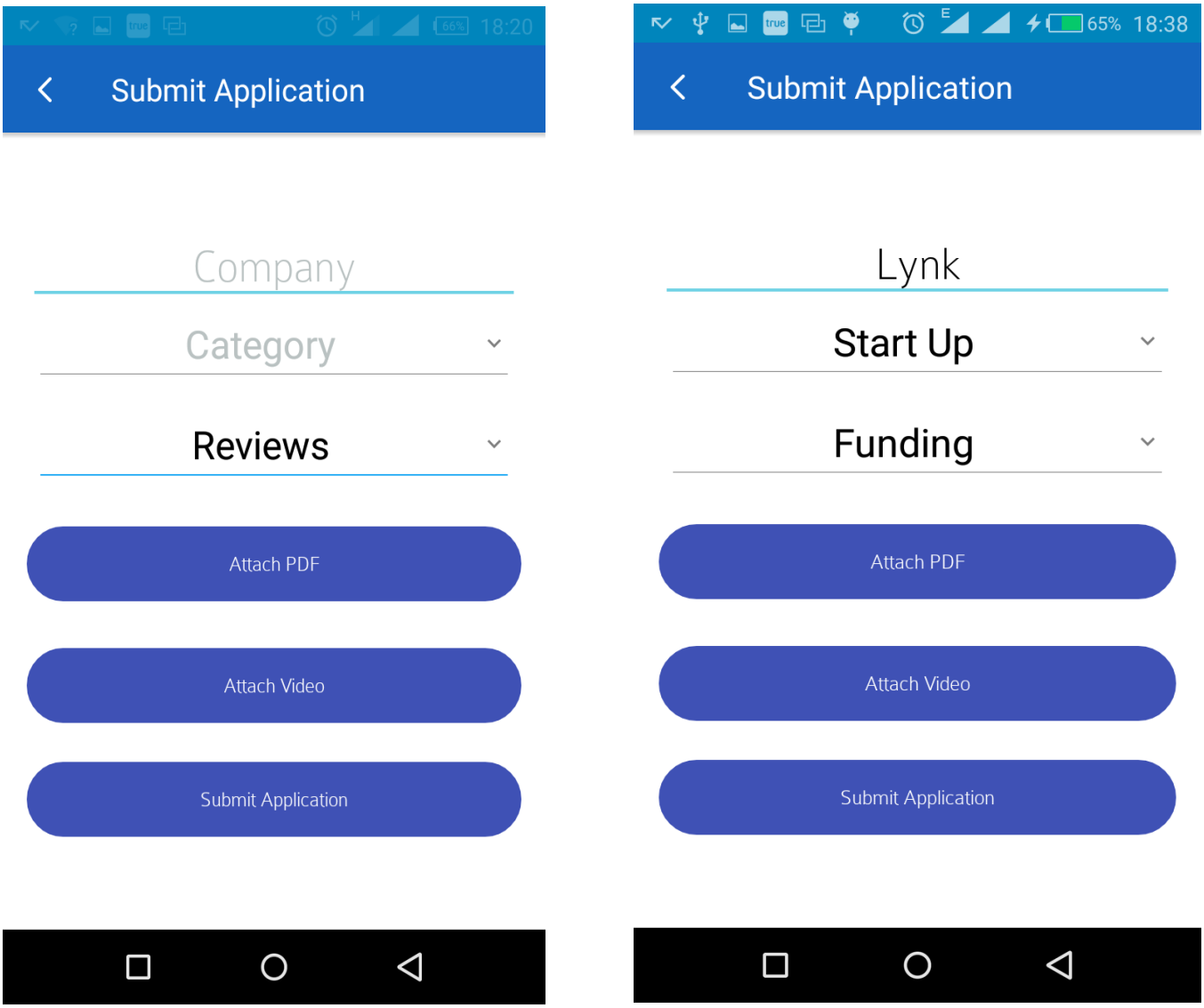


Figure 6.1 Submit Application Screen

Figure 6.2 shows the investor and mentor home screen where the investor has the ability to view entrepreneurs he is willing to invest in, view or create messages. It also provides him with the ability to search for new potential ideas or investments he can invest in. The mentor has the ability to view entrepreneurs assigned to him for mentoring and view or create messages directly to them.

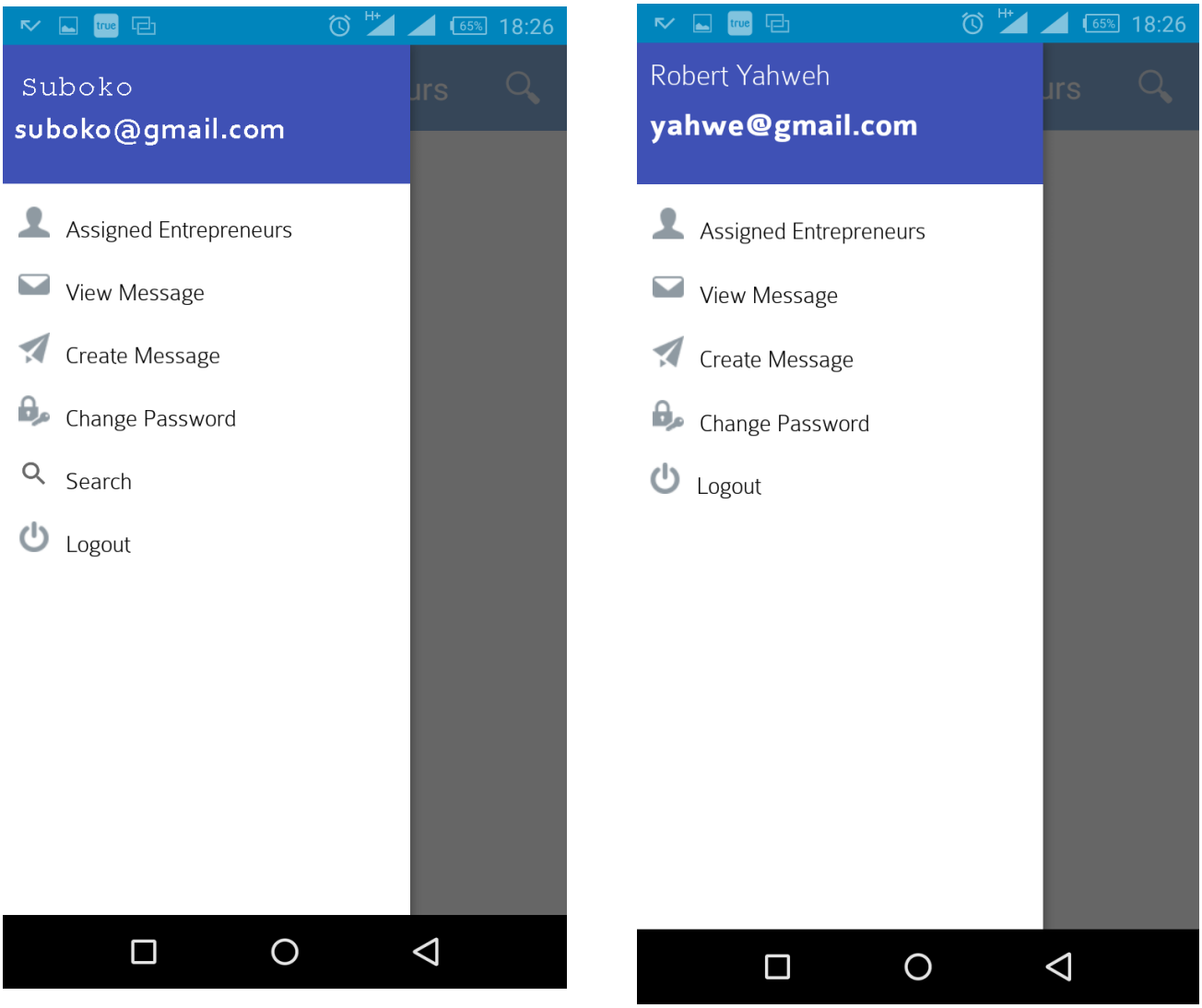


Figure 6.2 Investor and Mentor Home Screen

6.3 Web Application

The web application has two major types of users namely Review Committee and Admin who use the same Login screen as shown in Appendix E Figure E. 2 but are differentiated by the user id as shown in Figure E. 2. Figure 6.3 shows the review committee dashboard where the judges or review committee are able to view submitted applications, send messages to various users in the system, view details for entrepreneurs, mentors and investors.

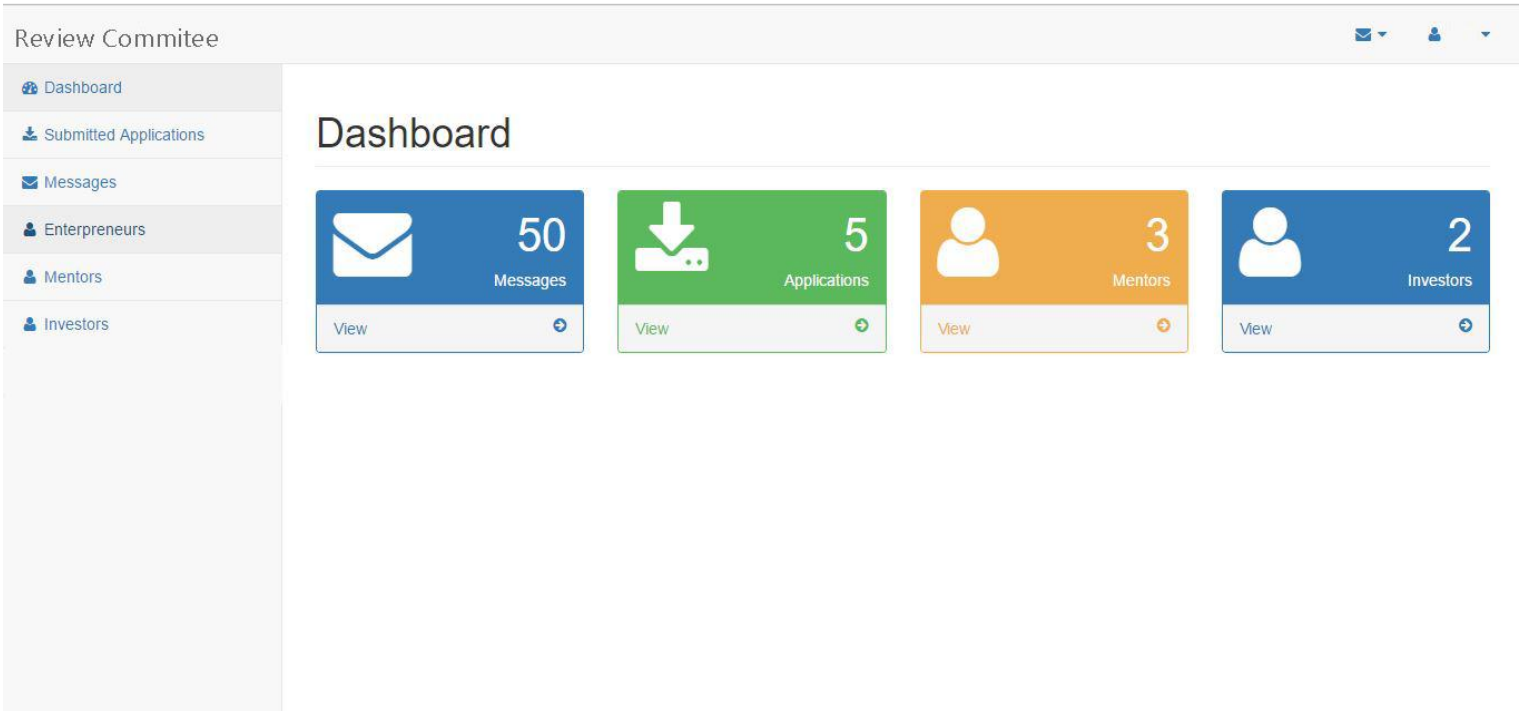


Figure 6.3 Review Committee Screen

Figure 6.4 shows the overall management. The system administrator has the rights to edit and update the details of users . He can modify their details, add them as shown in Appendix E Figure E. 3 into the system and also has the rights to remove them if they are no longer needed in the system. Figure E. 3 shows the administrator adding new users into the system.

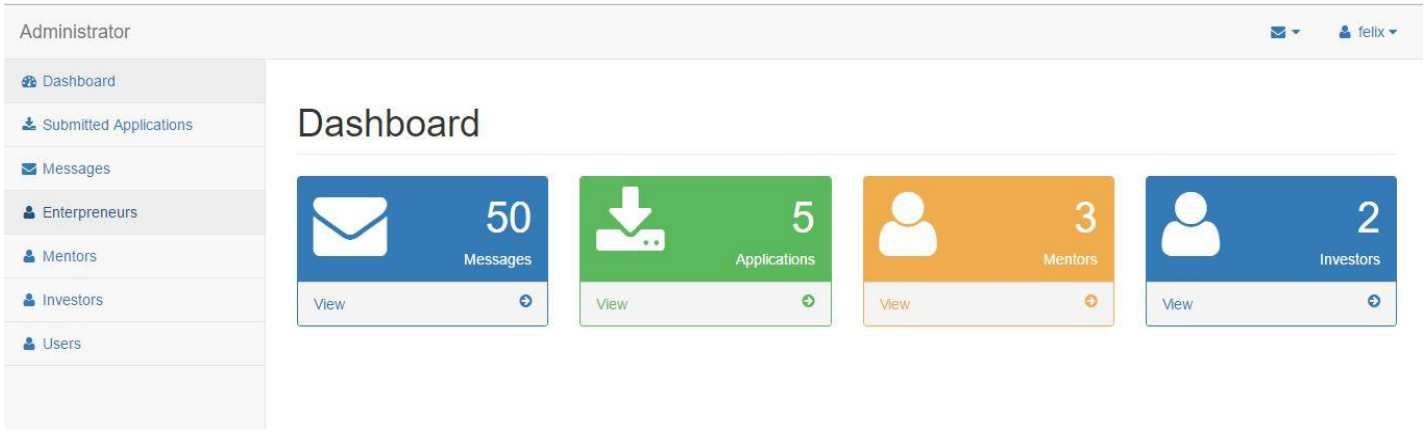


Figure 6.4 Administrator Screen

6.4 Summary

The methodology chosen for design and development of the application allowed for changes to be made until the right product was achieved. Agile development allowed for the developer to be able to involve the users of the product to give their inputs at different times in the production and for them to be considered, it also allowed the researcher to be able to make changes to the application that were deemed needed. After the design was done the study was able to implement the various concepts considered, the users were given to give feedback on the application and the functionalities which have been covered in the chapter.

CHAPTER 7: EVALUATION AND DISCUSSIONS

7.1 Introduction

This Section covers the evaluation and test results of the mobile application to ensure that it works well the testing was divided into two sections, developer testing and user testing. The first tests done by the developer were to ensure that the various functionalities were working well, the tests included. The discussion findings are then discussed and outlined.

7.2 Test Results

This section presents the test results obtained.

7.2.1 Installation Compatibility Testing

Installation testing was done to ensure that the application installs in different types of supported Android phones without any issues. Compatibility testing was done to ensure that the application is able to run on all Android versions from the lowest supported version 8 to the highest current Android version with ease and without any problems. Table 7.1 show the results of the test;

Table 7.1 Installation and Compatibility Testing

Test Case Name: **Installation and Compatibility Testing**. Date Tested: 25 March 2016 Tested By: Felix Kimutai Test Description:				
Pre-Condition:				
Post-Condition:				
Test Steps				
steps	Action	Expected Response	Pass/Fail	Comments
1	Download the Application from the google play store.	Application is Downloadable.	Pass	Installation was successful.
2	Check if the application is running well.	Application runs well.	Pass	None
3	Repeat steps 1 and 2 on multiple phones of different Api Levels form Api level 8 and above.	Installs and runs well.	Pass	Works well on all types of phones.

7.2.2 Login Functionality

This test was done to ensure that users were able to login into the application by submitting their correct user login credentials. Table 7.2 show the results of the test;

Table 7.2 Login Testing

Test Case Name: **Login Testing** Date Tested: 25 March 2016 Tested By: Felix Kimutai Test Description:				
Pre-Condition: Application must be installed.				
Post-Condition: User is able to login successfully.				
Test Steps				
steps	Action	Expected Response	Pass/Fail	Comments
1	Launch the application by pressing it is icon.	Application launches.	Pass	Launches successfully.
2	Enter the correct login credentials then click Login button.	First checks if all the fields have been entered and that there are no empty fields before trying to login.	Pass	None
3	Loads and brings up the home page.	Brings up the home page if the information provided is true and an alert if the user credentials are not correct.	Pass	None

7.2.3 Submit Application Functionality

After login, an entrepreneur is able to submit his idea or business to the review committee for review and feedback. The results of this test are shown in Table 7.3.

Table 7.3 Submit Application Testing

Test Case Name: Submit Application Testing Date Tested: 28 March 2016 Tested By: Felix Kimutai Test Description:				
Pre-Condition:				
Post-Condition:				
Test Steps				
steps	Action	Expected Response	Pass/Fail	Comments
1	Login into the application by supplying the correct login credentials.	Login is successful and takes you to the home screen.	Pass	None
2	Choose submit application option from the main menu.	Opens the submit application form.	Pass	None
3	Fill in the form	Receive the confirmation	pass	none

7.2.4 View Assigned Mentors and Investors Functionality

After login, the entrepreneur is able to view a list of assigned Investors and mentors.

7.2.5 Create and View Message Functionality

The view message screen enables the entrepreneur to view messages sent to him either as feedback from the review committee or important information from the mentor or investor that is assigned to him while "create message feature" enables the entrepreneur to communicate and send messages to entrepreneurs, mentors or investors.

7.3 User Testing

After the developer was done with his testing, the study sought to obtain the user's feedback on the application. This was done through supplying of post questionnaires to the sample population to get their feedback on the mobile application. Users were given instructions on how to download the application and run it on their phones and were issued with credentials for the working accounts. This is covered in sections 7.3.1, 7.3.2,7.3.3,7.3.4 and 7.3.5.

Appendix F Figure F. 1 shows users' willingness to pay for the application.

7.3.1 Downloading the Application

The mobile application was hosted on the Google play store and published as beta testing. Users were able to search, find download the application and to test it with ease as shown in Figure 7.1. Out of the respondents that gave their findings, 78% agreed that the application was easy to download 15% disagreed while 13% were not sure about it.

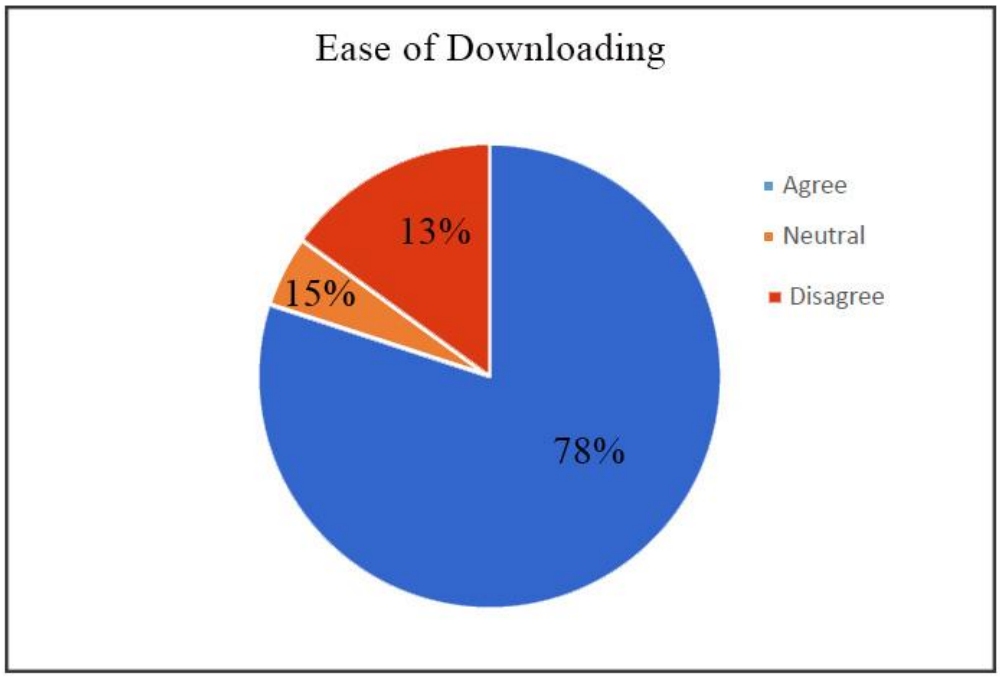


Figure 7.1 Ease of Downloading

Figure 7.1 shows the result on the ease of downloading the application.

7.3.2 Usability

The study sort to see if the application was well understood and that the users could interact with it requiring little or no human intervention to explain to them on how to use it. Figure 7.2 in shows the response from users on the usability of the application with regards to their interaction with the application. Out of the respondents that gave their feedback, 95% agreed that the application was easy to use and get by while 5% disagreed.

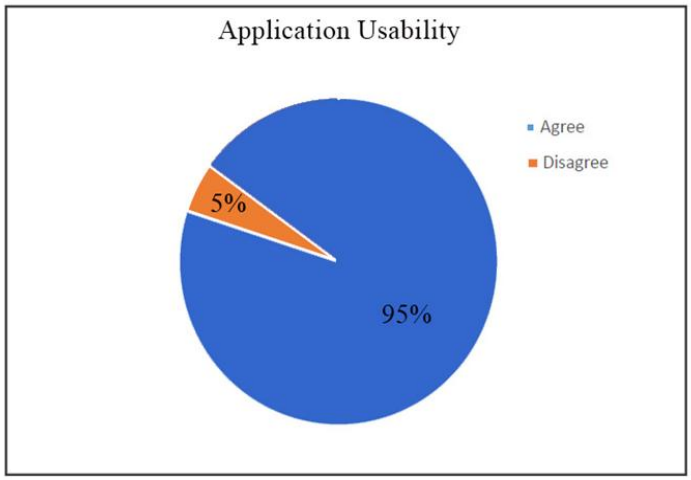


Figure 7.2 Application Usability

Figure 7.2 shows the result on how the application us usable.

7.3.3 Application Responsiveness

When an application is engaging the users and giving responses to them, it is more appealing to the use as compared to ones without responses. Incase an action is being performed in the background, the user should be notified so as to be patient with the application. These responses are what make the application rate more in stores, Figure 7.3 shows the response from the users with regards to this. 87% of the respondents agreed that the application was responsive with only 13% differing.

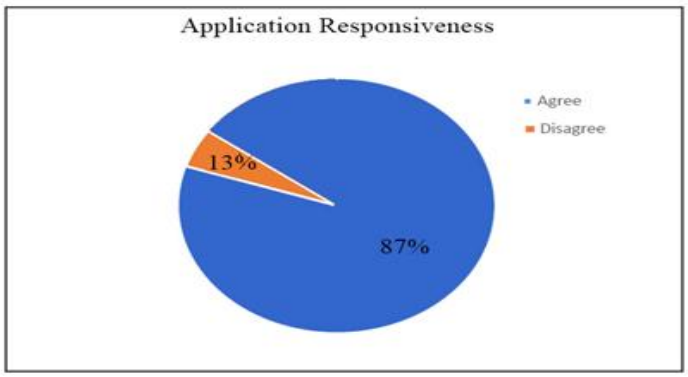


Figure 7.3 Application Responsiveness

Figure 7.3 shows the result on the responsiveness of the application

7.3.4 Finding Core Functionalities

The study sort to find out just how easy it will be for the users to find the core functionalities of the application after login in within the shortest amount of time possible. The study also wanted to establish the experience of the users in finding their desired options. Figure 7.4 shows that 91 % of the respondents agreed on being able to find the core functionalities and establish their desired goals while 9% disagreed.

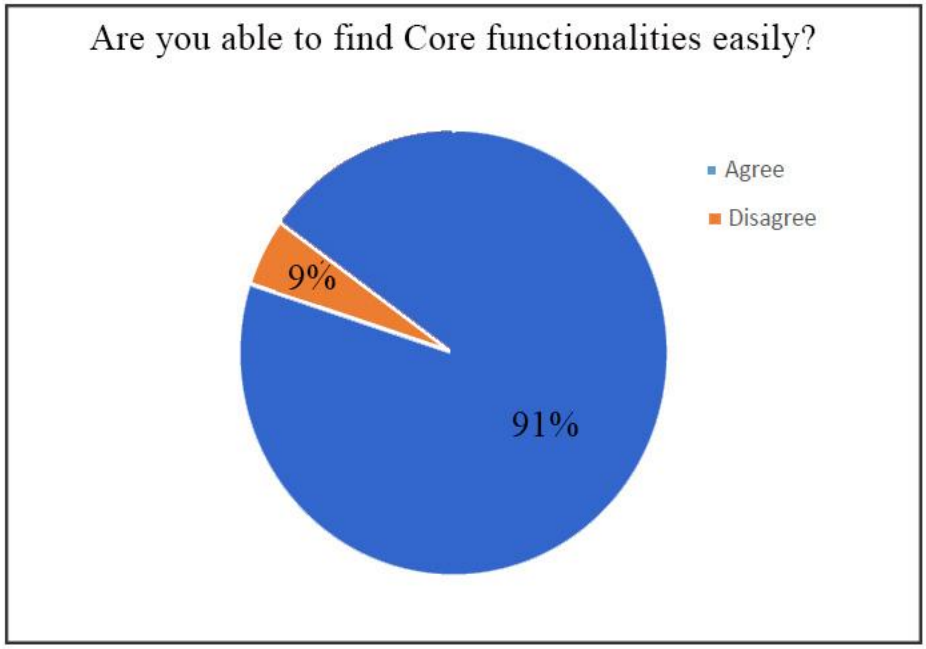


Figure 7.4 Ability to Find Core Functionalities

Figure 7.4 shows the result on the ability to access the core functionalities in the application.

7.3.5 Look and Feel

The study intended to find out the perception of the users about the general look and feel of the application and how well it was received by the users. Figure 7.5 shows that 69% of the sampled

population strongly agreed that the application theme and colors blended together and the general feel and look was very okay, 15% also agreed with 10% who were not very sure and the remaining 6% disagreed.

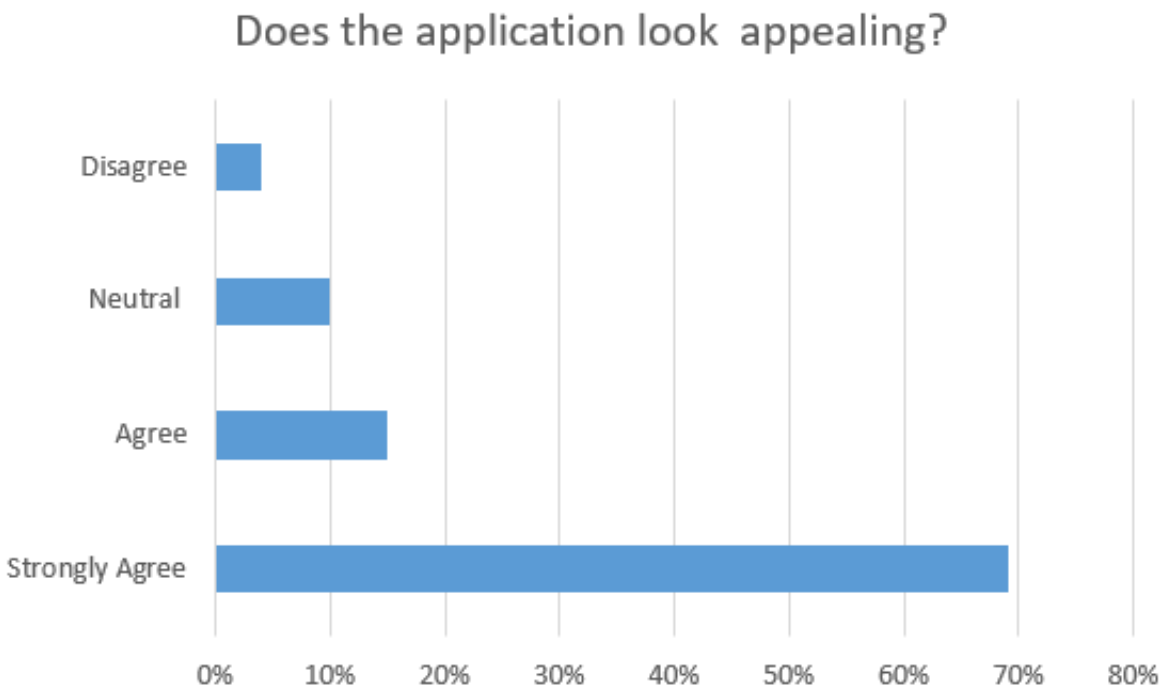


Figure 7.5 Look and Feel of the Application

Figure 7.5 shows the result of the look and feel of the application

7.4 Discussions

The analysed results clearly indicate that the new mobile application will address the challenges faced by the entrepreneurs in accessing the mentors and investors. Traditionally, entrepreneurs in Kenya had to spent money and time seeking mentorship and funding for their startups. There was also a challenge in expanding their existing projects. Incubators will onboard mentors and investors into the system based on their interests and education levels. The investors' financial ability shall also be considered while assigning them to various entrepreneurs.

7.4.1 Validation

This section strives to explain how the study was able to meet the set research objectives. The first objective in Section 1.4 was to analyse how technology has been used earlier in linking Entrepreneurs to investors and mentors where several existing systems were reviewed and their efficiency examined. This application was subjected to a pilot period, whereby from the sample selected 93% of the selected entrepreneurs to participate in the pilot were able to link to Mentors and Investors as indicated in figure 7.6.

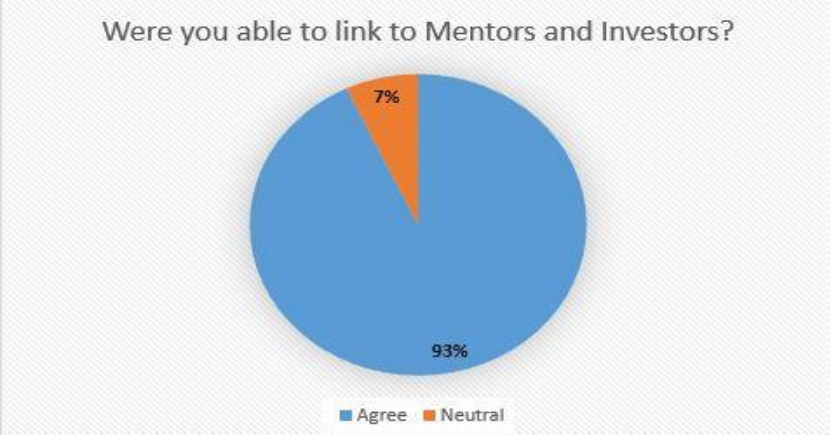


Figure 7.6 Validation of the Application

Figure 7.6 shows the analysis to validate if the application linked Entrepreneurs to mentors and investors

The second objective investigates the factors that affect access to mentors and investors by the entrepreneurs, the study shows that entrepreneurs were faced with several challenges in an attempt to seek for investors and mentors. Section 2.2 highlights some of these challenges and the underlying factors and circumstances. It is due to these finding that a need for the application developed was established.

The third objective was to analyse the deficiencies in the technologies currently used to link entrepreneurs with mentors and investors. This was meant to establish the extent to which the existing systems had gone to automate this process, identify the challenges and the gaps that need to be filled. Section 2.3 compares the proposed system to the existing systems. Their weakness and limitations are then discussed and compared to the proposed system. Figure 7.7 indicates the percentage of people who shared their views if the existing technologies are sufficient to link entrepreneurs to mentors and Investors.

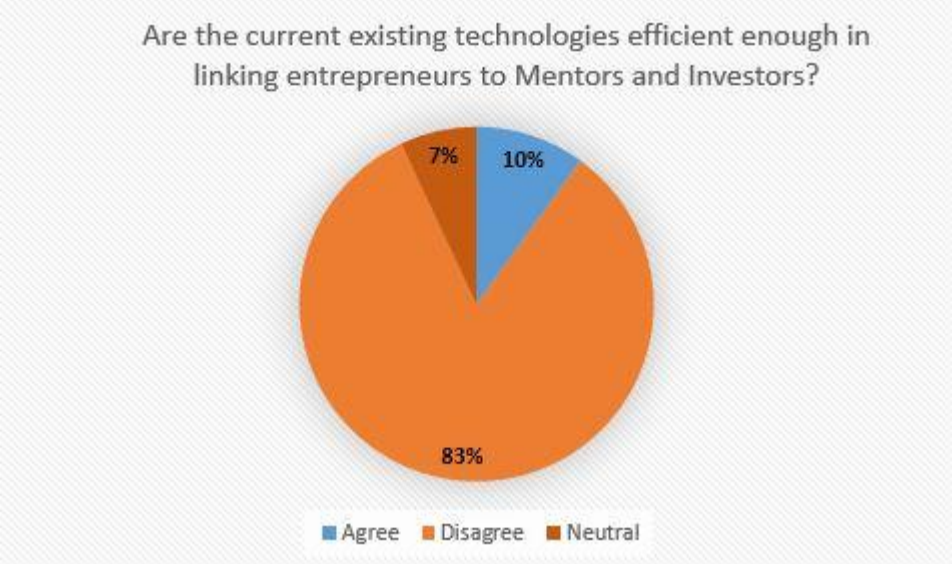


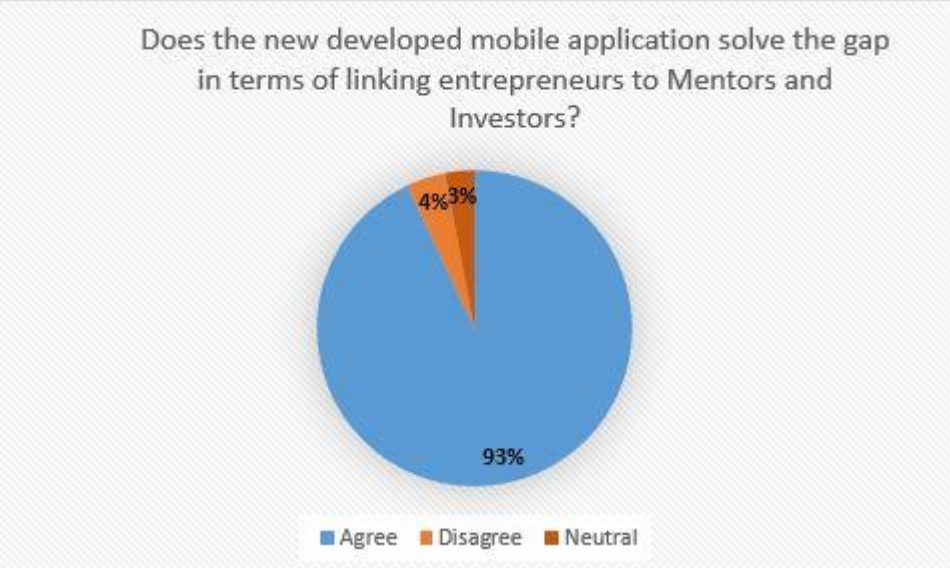
Figure 7.7 Analysis of the Existing Technologies

The fourth objective was to design, develop and to test the functionality of a mobile application that facilitates linking of entrepreneurs with mentors and investors. The Post questionnaire results show more support for use of the technology.

In Section 5.3 the study shows how the application was designed with regards to the requirements generated from the data collection stage. The application was then developed and the main advantages of the application are discussed in detail in Section 7.5.

The final objective was to validate if the application developed has solved the gap in terms of linking Entrepreneurs to Mentors and Investors. The newly developed application has met this objective through the following ways. First, it allows entrepreneurs to submit their applications to the review committee and receive timely feedback which enables them to revise and refine their business model and is hence able to create more sustainable businesses. Secondly, the application allows entrepreneurs to be assigned mentors and investors and ability to communicate with them through the application.

This helps entrepreneurs to receive mentorship and guidance to run and grow their business successfully and potential to access funding through investors assigned to them which is crucial for the growth and expansion of their business. This acts as a more structured approach to making the process of Seed financing and angel networking, which are very important when it comes to boosting financing for small-scale ventures, more efficient and cost effective. Out of the users who tested the new application 93% were very satisfied and approved the idea hence validated that the application will help in linking entrepreneurs with mentors and investors.



7.4.2 Advantages of the New Mobile Application

The application was then compared to the current system and these were the results;

i. The application was developed on Android platform which will reach a wider user target in the local market as opposed to the existing platforms which are mostly web based.

ii. It will serve to promote entrepreneurship in the country by streamlining the process of how entrepreneurs access mentors and investors by making the process fast, easy and cost effective.

iii. It will help entrepreneurs to keep up with local events and forums through push notifications about such events that will be sent to the application from the server.

iv. Entrepreneurs will also have access to mentors for guidance and review of their ideas or business models.

v. It will give investors a pool of ideas or businesses they can invest in which will enable potential ideas or businesses to gain funding for growth and facilitation.

7.4.3 Disadvantages of the Mobile Application

The application is not able to track directly the progress of the business Start-ups after receiving mentorship or funding to determine growth and access potential or impact but this happens offline.

7.5 Conclusions

The response that was received from the respondents was highly valuable and very informative when it came to making the decision of whether or not to proceed with building the mobile application. The features of the system were also refined majorly basing on the feedback that was collected by the researcher. The findings that were made from the responses were; most users preferred a system for linking entrepreneurs and mentors that would run on a mobile application as opposed to a web application. There was a need for genuine feedback after submission of the idea or business model.

Chapter 8: CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

According to the research conducted, it is evident that there is need of a platform to link entrepreneurs with mentors and investors. This is clearly seen with the 95% of the sample respondents who highly welcomed the idea and the 90% of the sampled entrepreneurs who responded face difficulties and challenges in accessing mentors and investors. With the few Incubators and accelerators programs which are of great importance to entrepreneurs because of the tools that they offer and the challenges in the existing systems, there is a need for the developed mobile application which strives to address some of these issues and streamline this process.

Users will be able to use the new system. This is evident from the 55% of the sampled respondent's population who have tried to use a platform online

The system will be easy to use and user-friendly with its ability to run across most used Android versions and due to the popularity of the Android platform as compared to the web hence more users will be targeted and reached which will greatly increase it is relevance and the chances of it being adopted.

The users wanted a system that they would be able to send their ideas or business model description and gain valuable feedback. They wanted affordable cost charges to facilitate this services and successful connections to both mentors and investors. The developed application is able to meet this requirement and in addition provide entrepreneurs with updates and notifications of important entrepreneur forums and events to enable them to be up to date with the recent major activities in the entrepreneurship world.

8.2 Recommendations

The new mobile application system plays a vital role in enabling entrepreneurs to access mentors and investors for their businesses and potential innovative ideas. It can be rolled out through strategic partnerships with hubs and incubators to provide linkages with mentors and investors and promote and create awareness about the application.

Even with the benefit is that it stands to offer when implemented, it can still be improved further to enhance its efficiency. This was noted by the researcher during his interaction with the developed mobile application and the following recommendations were made:

i. A progress tracking module in the mobile application to track the overall progress of the start-up businesses at different stages after receiving mentorship or funding to determine growth rate and overall success rate of the application in growing and promoting entrepreneurship.

ii. Provide users with the ability to chat and exchange their ideas in order to improve their start-ups.

iii. Provide investors with the ability to issue and track their funds via the mobile application.

iv. Provide the review committe with the ability to categorize the mentors and investors based on their interests, financial ability and education level. This will outline the criteria for assigning the mentors and investors to entrepreneurs once the incubators have onboarded investors and mentors with the same interests.

8.3 Suggestions for Future Work

The new system focused more on linking entrepreneurs with mentors and investors and in helping entrepreneurs to gain valuable feedback on their business Start-ups and ideas. The study can be taken up further to look at effective ways on how to monitor and track progress on start-up businesses that have received funding or mentorship through the application and create reports to help in evaluating the overall growth and make it easy for management and monitoring. This is a suggestion from the researcher after interacting randomy with the selected incubators across the country

There is also a need to further enhance the system by extending the application to be used on different mobile platforms such as Windows, iPhone and blackberry to cater for users who don’t have Android mobile phones.

References

Afzal, W., Torkar, R., & Feldt, R. (2009). A systematic review of search-based testing for non-functional system properties. *Information and Software Technology*, *51*(6), 957-976.

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS quarterly*, 107-136.

Allen, T. D., Poteet, M. L., Russell, J. E., & Dobbins, G. H. (1997). A field study of factors related to supervisors' willingness to mentor others. *Journal of Vocational Behavior*, *50*(1),

AngelList. (n.d.) Retrieved February 17, 2016, from AngelList:

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. *Journal of financial economics*, *49*(3), 307-343.

Bariso, J. (2014, November 28) *So What Is an Entrepreneur, Anyway?*

Bates, T. (1990). Entrepreneur human capital inputs and small business longevity. *The review o Economics and Statistics*, 551-559.

Bell, K. M., Bleau, D. N., & Davey, J. T. (2011). *U.S. Patent No. 8,064,896*. Washington, DC: U.S. Patent and Trademark Office.

Berardi, D., Calvanese, D., & De Giacomo, G. (2005). Reasoning on UML class diagrams. *Artificial Intelligence*, *168*(1-2), 70-118

Berger, B. (Ed.). (1991). *The culture of entrepreneurship* (pp. 1-12). San Francisco: ICS Press

Bierema, L. L., & Merriam, S. B. (2002). E-mentoring: Using computer mediated

communication to enhance the mentoring process. *Innovative Higher Education*, *26*(3), 211-227.

Binder, R. V. (2000). *Testing object-oriented systems: models, patterns, and tools*. Addison-Wesley Professional.

Brown, J., Shipman, B., & Vetter, R. (2007). SMS: The short message service. *Computer*, *40*(12).

Business Case Studies. (n.d.). *What is an entrepreneur?* Retrieved February 29, 2016, from Business Case Studies:

Business Mentors. (n.d.). *Business Mentoring*. Retrieved February 29, 2016, from Buiness Mentors:

Bwaley, K. T. (2014). Integrating the business and people dimension of change at Safaricom

Bwaley, K. T. (2014). Integrating the business and people dimension of change at Safaricom limited, Kenya (Doctoral dissertation, University of Narobi).

Cem Kaner, J. D. (2006). Exploratory Testing.

Charalambos, V., Michalinos, Z., & Chamberlain, R. (2004). The design of online learning communities: Critical issues. *Educational Media International*, *41*(2), 135-143.

Chen, P. P. S. (1976). The entity-relationship model—toward a unified view of data. *ACM Transactions on Database Systems (TODS)*, *1*(1), 9-36

Cross, V. V., & Sudkamp, T. A. (2002). *Similarity and compatibility in fuzzy set theory: assessment and applications* (Vol. 93). Springer Science & Business Media.

Douglass, B. P. (2003, June). Real time UML. In *Formal Techniques in Real-Time and Fault-Tolerant Systems: 7th International Symposium, FTRTFT 2002, Co-sponsored by IFIP WG 2.2, Oldenburg, Germany, September 9-12, 2002. Proceedings* (Vol. 2469, p. 53). Springer.

Elumelu, T. O. (2015). The rise of Africapitalism. *The World in 2015 (The Economist)*.

Gautam, S., Arora, C., Sharma, P., & Verma, G. (2016, March). Smart cafe system implementation. In *Computing for Sustainable Global Development (INDIACom), 2016 3rd International Conference on* (pp. 2001-2003). IEEE.

Geer, D. (2005). Eclipse becomes the dominant Java IDE. *Computer*, *38*(7), 16-18

Greenspan, J., & Bulger, B. (2001). *MySQL/PHP database applications*. John Wiley & Sons, Inc..

Humpleman, R. J., Harms, G. K., Deacon, M. S., & Wolff, R. M. (2001). *U.S. Patent No. 6,288,716*. Washington, DC: U.S. Patent and Trademark Office.

Junemann, C., & Ball, S. J. (2015). The Mutating Giant.

Kan, S. H. (2002). *Metrics and models in software quality engineering*. Addison-Wesley Longman Publishing Co., Inc..

Kenney, M., & Pon, B. (2011). Structuring the smartphone industry: is the mobile internet OS platform the key?. *Journal of Industry, Competition and Trade*, *11*(3), 239-261.

Kenney, M., & Pon, B. (2011). Structuring the smartphone industry: is the mobile internet OS platform the key?. *Journal of Industry, Competition and Trade*, *11*(3), 239-261.

Kenya Business Ideas. (2015, January 24). *Low-Budget Ideas*. Michel, R. (2015, November 16).

Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management journal*, *26*(4), 608-625.

Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management journal*, *26*(4).

Lai, T. L. (2004). Service quality and perceived value's impact on satisfaction, intention and usage of short message service (SMS). *Information Systems Frontiers*, *6*(4), 353-368.

Lai, T. L. (2004). Service quality and perceived value's impact on satisfaction, intention and limited, Kenya (Doctoral dissertation, University of Narobi).

Linna Jr, D. W. (2016). What We Know and Need to Know About Legal Startups.

Matskin, M. (2003). Application of linear logic to web service composition.

Network, G. I. I. (2016). Investor Spotlight: Omidyar Network, September 29, 2010.

O'connell, B. M., & Walker, K. R. (2010). *U.S. Patent No. 7,725,574*. Washington, DC: U.S. Patent and Trademark Office.

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries game changers, and challengers*. John Wiley & Sons.

Ott, I., & Gust, R. (2007). Non Platinum Metal Complexes as Anti-cancer Drugs. *Archiv der Pharmazie*, *340*(3), 117-126.

Pinchot III, G. (1985). Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur.

Pinsonneault, A., & Kraemer, K. (1993). Survey research methodology in management information systems: an assessment. *Journal of management information systems*, *10*(2), 75-105.

Provos, N., & Mazieres, D. (1999). Bcrypt algorithm. USENIX.

Salome, N. (2016). Has Kenya's ICT revolution triggered more citizen participation?.

Sengupta, S., & Bhattacharya, S. (2006, June). Formalization of UML use case diagram-a Z notation based approach. In *Computing & Informatics, 2006. ICOCI'06. International Conference on* (pp. 1-6). IEEE.

Urban, B. (2006). Entrepreneurship in the rainbow nation: Effect of cultural values and ESE on intentions. *Journal of Developmental Entrepreneurship*, *11*(03), 171-186.

Vogt, P., Nentwich, F., Jovanovic, N., Kirda, E., Kruegel, C., & Vigna, G. (2007, February). Cross Site Scripting Prevention with Dynamic Data Tainting and Static Analysis. In *NDSS* (Vol. 2007, p. 12).

Vogt, P., Nentwich, F., Jovanovic, N., Kirda, E., Kruegel, C., & Vigna, G. (2007, February). Cross Site Scripting Prevention with Dynamic Data Tainting and Static Analysis. In *NDSS* (Vol. 2007, p. 12).

Whaley, J., & Lam, M. S. (2004, June). Cloning-based context-sensitive pointer alias analysis using binary decision diagrams. In *ACM SIGPLAN Notices* (Vol. 39, No. 6, pp. 131-144). ACM

Yin, R. K. (2011). Applications of case study research. Sage.

Zimmerman, E. (2014, May 20). Retrieved from The New York Times.

Online Sources

CNN:http://edition.cnn.com/2015/07/22/opinions/tony-elumelu-global-entrepreneurship-summit/

-entrepreneurship/what-is-an-entrepreneur.html#axzz41cUZKUYm

Global Entrepreneurship Network: Mite, I. (2015, September 07). *Managing Small Business*

http://businesscasestudies.co.uk/intellectual-property-office/intellectual-property-rights-and

http://kenya.smetoolkit.org/kenya/en/content/en/53759/Managing-Small-Business-Start-up-Problems

http://ventureburn.com/wpcontent/uploads/2013/04/Accelerating_Entrepreneurship_in_Africa_ource_Ventureburn.pdf

http://www.effectiveui.com/blog/2013/04/16/mobile-development-platform-and-framework/

http://www.inc.com/justin-bariso/so-what-is-an-entrepreneur-anyway.html

http://www.itnewsafrica.com/2015/04/what-are-the-biggest-challenges-facing-start-ups-in-africa/

http://www.startupdonut.co.uk/startup/set-up-a-business/small-business-support/what-could-a-mentor-do-for-your-business-

https://www.businessmentors.org.nz/For-Businesses/Business-Mentoring-Frequently-asked-

Kenya Business Ideas: http://kenyabusinessideas.com/2015/01/24/start-a-mobile-phone-repair-business/

The Start Up Donut: The Tony Elemelu Foundation. (n.d.). *Startups*.

The Tony Elemelu Foundation: http://tonyelumelufoundation.org/teep/startups/

umsl.edu: http://www.umsl.edu/~hugheyd/is6840/waterfall.html

APPENDICES

Appendix A: Questionnaires

i. Entrepreneur Questionnaire

The aim of this questionnaire is to collect data about your experience in accessing mentors and investors for your startup businesses. We will highly appreciate your feedback on this and it will be of great importance to the researcher for the accomplishment of academic goal. Kindly attempt all the questions, there is no right or wrong question, your response will be highly appreciated. There is no need to give your name anywhere on the form as the information collected will be used for academic purposes only.

QUESTIONS

Do you have any mentors or investors in your business or startup and if yes how were you connected to them?

_____

Under what circumstances or stage would you require a mentor or investor for your idea or business?

_____

Do you have difficulties in accessing mentors or investors to fund your business?

_____

What existing platforms do you know or have used to get reviews for your ideas or business startups?

_____

Have you used any existing systems before to access mentors or investors for your business? If yes, how effective were they?

_____

What is your take on a mobile application that can assist you to get valuable feedback on your idea or business startup and even link you to mentors and investors?

_____

Would you be willing to pay for such a service?

[Yes]

[No]

What would your recommendations be for such an application?

What are some of the functionalities that you would like the mobile application to have as an entrepreneur?

_____

Validation Questionnaire

1. Using the Linc mobile application, were you able to link to Mentors and Investors?
2. Do you face challenges while trying to access Mentors and Investors using other means?
3. Are the current existing technologies efficient enough in linking entrepreneurs to Mentors and Investors?
4. Does the new developed mobile application solve the gap in terms of linking entrepreneurs to Mentors and Investors?
5. Are you satisfied with how the Mobile application works as a structured acts as a more structured approach to make the process of Seed financing and angel networking which

are very important when it comes to boosting financing for small-scale ventures more efficient and cost effective?

Usability Questionnaire

1. Were you able to download and install the application successfully
2. Were you able to create a new account and login successfully with the credentials
3. Do you face any issues while creating a new application and submitting it.
4. Using the Lync mobile application were you able to create a message and receive feedback from the review committee.

Appendix B: Interviews

i. Mentor Interview Questions

1. What are the various ways that Entrepreneurs can access mentorship?

   _____

2. What existing systems can entrepreneurs use to connect to mentors?

   _____

3. Why is there a gap between Entrepreneurs and Mentors?

   _____

4. Why is it important for entrepreneurs to access Mentorship?

   _____

5. What is your view of an application that links entrepreneurs with Mentors and Investors?

   _____

6. What are some of the functionalities that you would like the mobile application to have as a mentor?

   _____

ii. Investor Interviews Questions

1. Where the various places that you get good ideas to are fund?

   _____

2. Do you use any platform to find good business ideas to fund?

   [Yes]

   [No]

3. If yes, please name some of them and how effective are they?

   _____

4. Why is it important for entrepreneurs to connect to Investors?

   _____

5. What is your view of an application that links entrepreneurs with Investors and allows Investors to search for viable business ideas within their field of interest?

   _____

6. What are some of the functionalities that you would like the mobile application to have as an investor?

   _____

Appendix C: Design Diagram

i. Class Diagram

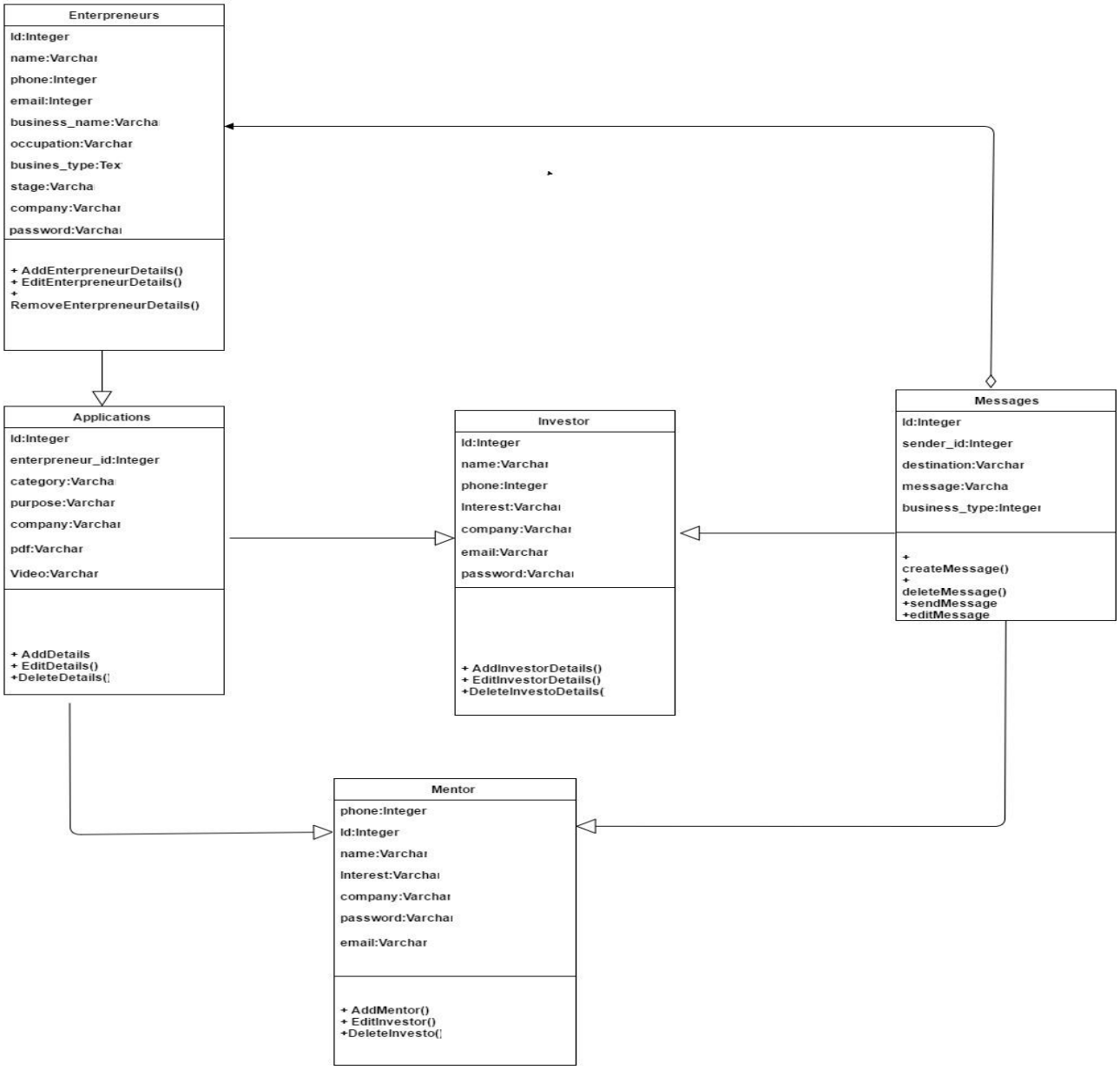


Figure C.1 Class Diagram

Figure C.1 show a static models of the classes that were used in the application with their attributes.

Appendix D: Implementation Screenshots

i. Entrepreneur Login and Home Screen

Figure E1 shows the login screen and main menu for the entrepreneur. An entrepreneur is required to sign up and once verified, he is able to login into the application. The main menu options available for him include ability to view assigned mentors and investors, ability to view messages from review committee, mentors or investors, create messages and finally to submit their application.

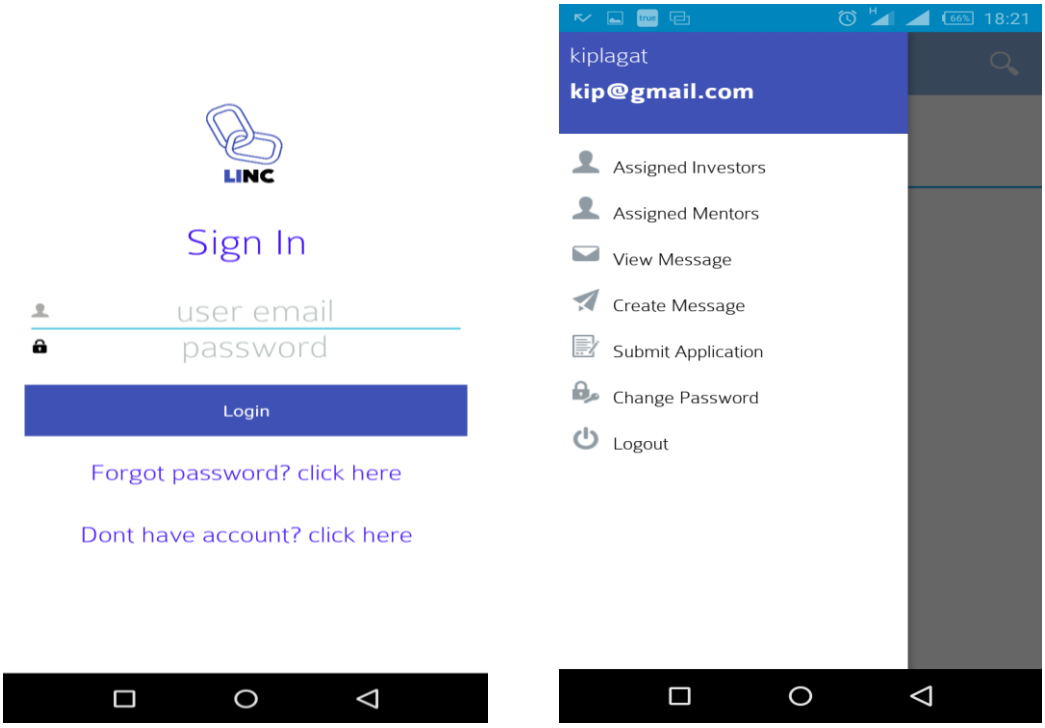


Figure D.1 Entrepreneur Login and Home Screen

Figure D.1 displays the page that is used to login by the entrepreneur, mentor and investor. The home screen of the entrepreneur is also displayed in this figure.

ii. Review committee and Admin Login Screen

The Figure E2 shows the review committee and admin Login Screen. Their different roles id separates the screen views once they login.

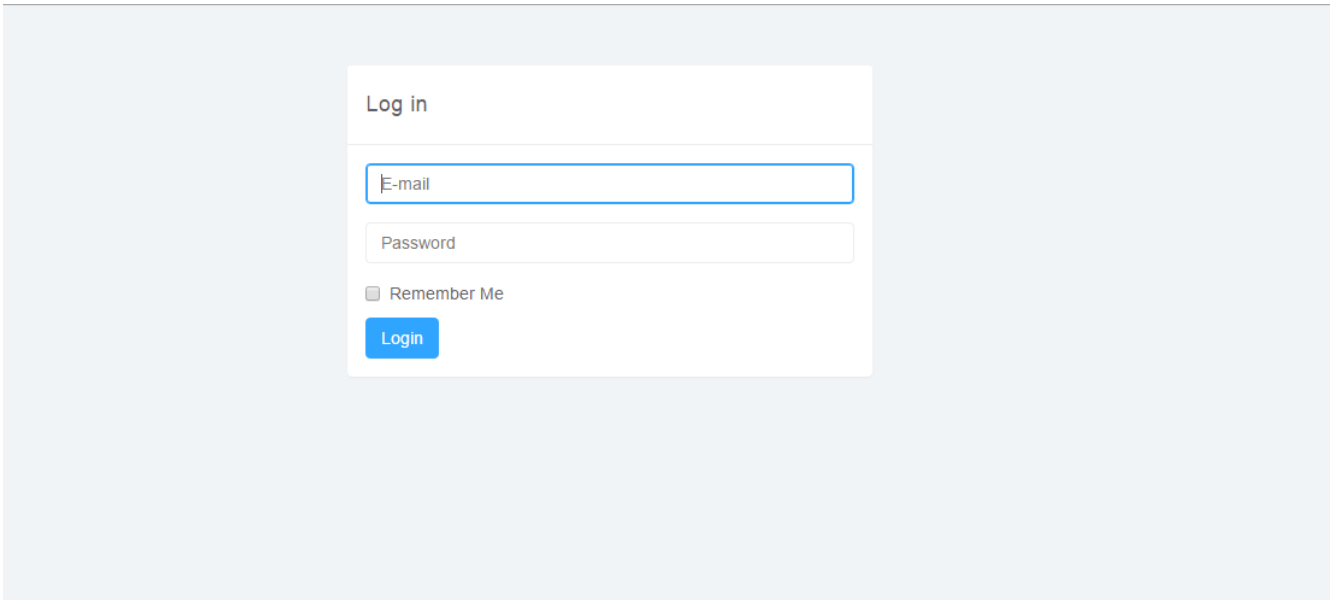


Figure D.2 Review Committee and Admin Login

Figure D.2 displays the page used by the commitee and the review commitee to login on the web.

iii. Admin Add User Screen

The Figure E3 shows the Admin dashboard where he is able to View and edit users details and add a new user.

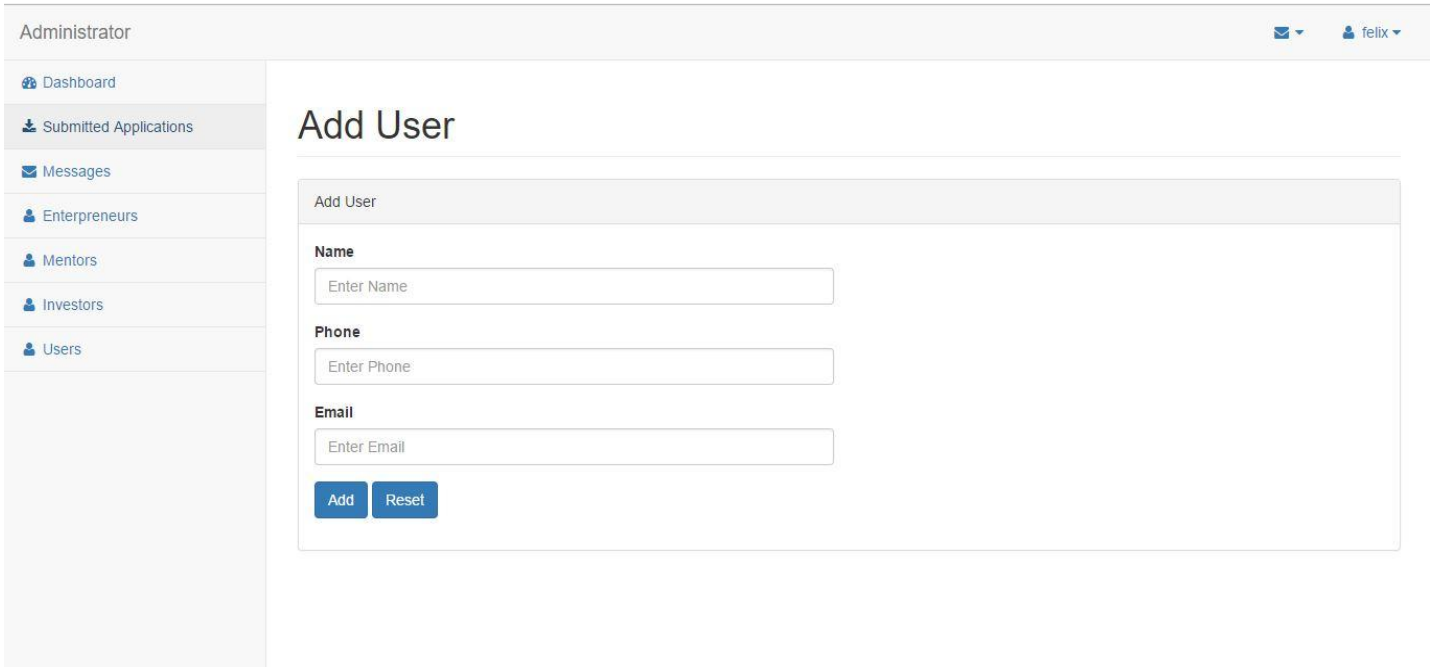


Figure D.3 Admin Add User Screen

Figure D.3 displays the screen used to add the new user into the web system for the purpose of reviewing submissions and assigning mentors and entrepreneurs.

Appendix E: Data Analysis

i. Would you be Willing to Pay for such a Service?

The Figure G1 shows users response on whether or not they would be willing to pay for the new mobile application out of the respondents that gave their feedback 75% agreed that they were willing to pay for such a service while 25% were not sure or willing to pay for the service.

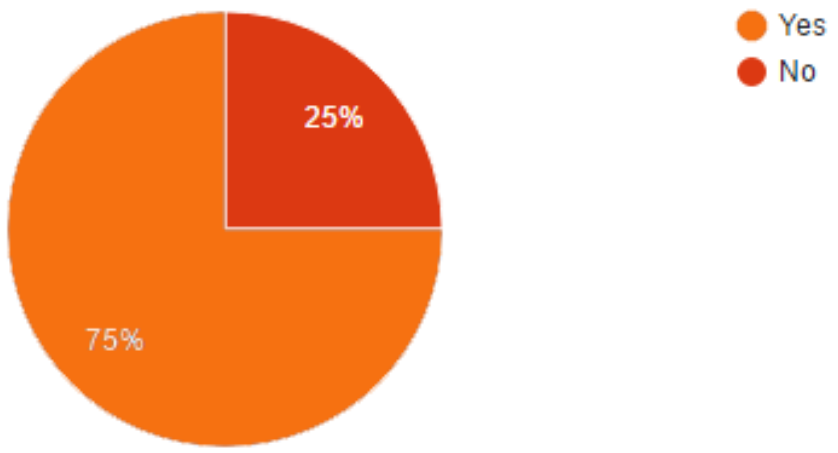


Figure E.1 Users Willing to Pay for the Application

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