



Yeyoluntu Civic Engagement at Community level

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Abstract:

The achieve one common goal to deliver quality Booking Systems in Townships have been described as everything from ‘poverty-ridden ‘There are method of communicated to the Councilor and compilation of the efforts of many people that helped on Community and I had to Find a Solution in Imfuleni ‘township’ ‘location’ refers to the underdeveloped. As a result. Due to overpopulation, poverty and poor access to resources into Some Activists. Numerous Challenges, townships still face severe challenges and problems. Poor sewerage systems in townships are a big problem. It is poorly planned, constructed, and continually overloaded due to an ever-growing population. Frequent blockages, spillages, and a limited number of public toilets are just some of the problems that the locals face. The focus will be given to the Mobile application, Yeyoluntu, at community level. An approach to find ways of debating on issues affecting the community in order to find suitable solutions that can allow community members to enjoy their environment. In this case, the focus will be on the informal settlement of Mfuleni With all the complains occurring about the-efficient Booking Systems, the people seem why long Queue not to be satisfied. Therefore, upon consultation with the Ward Councillor, who exposed some challenges that they are facing administratively, we came to think of putting together a system that can ease the problem making use of technology. To implement Booking systems.

Keywords: Booking Systems, Community, Development, Empowerment, Mobile application, Yeyoluntu, Skills, Social engagement.

1. Introduction

1.1 Background

The following chapter focuses on defining the problem with booking systems call for a concern. This is because many people will us a Yeyoluntu Mobile Application should help channel the queries in an



orderly manner for the people to be catered for accordingly. It will reduce queues at the office of the Councilor; it will bring discipline in a way of submitting the queries as well as facilitate transparent cooperation with the municipality. Very engaging community. [1]

The focus on the Mfuleni Township under Blue Downs District, as IT Engineers, our contribution to resolving the abovementioned issues will result to the construction of the Community Engagement Platform Application Yeyoluntu also experiencing a decrease in terms irregular, causing a pile of garbage in the surrounding; not hygienic for the people living there. Another factor, the receiving process at the Councillor office is very awkward because of a poor scheduling system; causing the community to be at rage because they cannot easily get things done from there. [2]

In this perspective, we saw the need to create the Yeyoluntu Civic Engagement at Community level. To address the following: assist with queries, reduce queueing at the office of the councillor, to bring order in a way of submitting the queries and facilitate transparency cooperation with the municipality office and lastly, to prevent and report crime within the community. [3] The Yeyoluntu app will serve as a mobile app because mobile data collection offers great and effective ways that cut cost and simplifies the process of collecting data. This includes: Easier Data collection process: Data submitted is in real-time, allowing easier management of data by the executives. This permits relevant stakeholders to view the coverage pace of data collection and that data collectors are submitting. [4]

Some townships have been rapidly developing since 1994 with an influx of wealth and middle-income areas growing in parts of several formerly disadvantaged communities. Business opportunities, entrepreneurial success stories and creative endeavors are emerging from townships every day. Townships are hotbeds of creativity, and are diverse, dynamic, lively places. Some believe that over the next ten years, townships will have all the amenities and facilities that suburbs have and

will furthermore become centres of economic activity and development. This is seen when people refer to the historic

Soweto Township as a “developing suburb”, where houses even sell for in the millions of Rands. Businesses are investing in townships, and the development of the Khayelitsha Business District saw the first shopping centre being developed in a Western Cape Township. The increase in services, resources and amenities reflects the fact that many middle-class families choose to stay in townships as it reflects their cultural heritage. [5]

1.2 The problem statement

The desire of the Mfuleni community is to have an organised system to assist them with their civic duties. Being an informal settlement, they seem to be disconnected with the administration that is set to cater for them.

They are having complains in terms of getting their business registered, confirmation of physical address, health care facilities, education facilities, sport and entertainment facilities, as well as skill development. Because of very long queues in the councillor office, no discipline, no respect of time, disorder and confusion.



Based on that, the Mfuleni community want the responsiveness of developing Mobile Application More attention will be given to the construction of the Councilor Bookings patterns. Upon creation of a login and password, a user will now have access into the application. After successfully creating a login, the user can now have access to booking a session with the Councilor, to cancel or to edit in case there were mistakes while typing the reason for the booking. Afterward the user will be able to select a date, time and precise the topic of the booking well explained in the description. [6]

For the purpose of transparency, discipline and good governance, and sustainable manner has always been a failure in poor communities and in the township of Mfuleni this happens because of poor management services, poor evaluation the counselor has no means of monitoring services, inefficiencies and lack of compliance in Booking systems community members are not getting the proper services they are billed for. Drain blockages and dumping places stay unattended for long time with no action taken. [7]

Proposal (possible solution)

An organised society should be in capacity of resolving any issue it may encounter. Confronted by serious challenges, the administrative part of the community management is slow, the service delivery is functioning not according to the desire of the people, causing a delay if not a closure of some businesses in the area; therefore, solutions are needed for the

Mfuleni community. [8]

Being exposed to all these issues, reflections took place to create the Yeyoluntu application to manage the community challenges in a sense where it can cover important duties patterning to the functionality of Mfuleni. The Yeyoluntu app will serve as a community engagement tool to keep everyone in the look out of some facilitate the administration.

With its booking process, it will also facilitate the community engagement with the Councillor office for the resolution of administrative matters in an orderly manner.[9]

1.3 Literature Review

A fascinating overview of the history of community Rapid development within the of hospitality have been getting a lot attention within the past 10 years but innovation been taking place since the industry. Mobile technology has shaken up and hospitality industries unlike any others innovation in quite some time telephones took nearly 80 year to reach half of In the case of the Mfuleni informal settlement, it is important to observe other communities and see how successful they managed to develop their community. Nevertheless, truly in SA, the challenge to develop communities. However, there is no need of pessimism towards these issues. The best we can do is to continue researching solutions that can respond to the realities that our communities are facing. Therefore, applying technology to help stabilise the administration of the Mfuleni informal settlement is a the approach we are considering, in order to give the Community Management Team a clear perspective to resolving challenges that are encountering.



2. User Requirements

The requests for the Yeyoluntu Civic Engagement at Community level is resulting from the encounter with the community of Mfuleni Councillor. The App is set to have a Councillor booking for those in need of administrative assistance, Community services as a platform to exchange and engage and Mobile App as an option to report illicit activities. This will surely put the community in control of safety and some other challenges they do come across. It will definitely ease the schedule of the Councillor as well as enable the community to engage for the development process of their living space. [10]

2.1 Methodology of the booking system

Upon a meeting with Mr. T. Bathembu the Mfuleni Ward Councillor and the SANCO community activists, numerous challenges were highlighted. Among the challenges were; no suitable exchange platform to allow the CMT to find out what the community members are experiencing in the daily basis. Access to some administrative apparatus was difficult, no constant meeting to discussing business opportunities and economic empowerment of the Mfuleni.

Having heard them, led to Yeyoluntu Civic Engagement at Community Level can to encompass everything into one controllable system to allow the CMT to attend and address the people issues efficiently.

According to the table below, per column we have enumerated the number of issues, the issue, the reason and the implementation.

For example, issue n: 1, the crime rate is high. The reason, poor policing, no communication, no platform engagement, report not analyse, existing of some unlicensed liquor stores operating through an uncontrolled schedule; making it easy for the people to buy alcohol at any time. No implementation, no action taken.

Table 1

Issue no	Issue	Reason	What was implemented currently
1	No enough administrative assistance	<input type="checkbox"/> Poor scheduling system <input type="checkbox"/> No order <input type="checkbox"/> No communication platform <input type="checkbox"/> No analysis/report <input type="checkbox"/> No transparency & cooperation	None Using Whatsapp and Facebook to communicate No community engagement meeting



3. Requirements Analysis

The administrator prototype will show the diagram on the dashboard regarding the storing of the data. Fig 7 on the left side will expose the information relative to the booking, on the right hand side it will put into display the booking statistics as well as the crime being reported. Upon logging a call, the user will certainly report an illicit activity, that report will be placed in the administrator database storage, will then revert to the user on a record time. [11]

3.1 Functional Requirements

The subsequent table 3 illustrates the proficient necessities of the application. It all starts with the registration of the user into the system. Upon creation of a login or else username, the user can now have access to the system. After inserting the email, username and password, the system can now serve the user according to what he/she wants to do with the system.

Getting into the next stage, all fields are unavoidable and the admissions need to be accurate. The user details will be evaluated in accordance with the database. Upon confirmation of the details, the user could be logged onto the system, and

then the user info should be saved for future use.

Succeeding should be the councillor booking, community activities or neighbourhood watch. The description of the activity taking place is paramount; upon submission, the report will be stored up into the database awaiting the administrator response. To exhibit the diagram, a click on the view button by the user then, posted report will appear,

combine with a representation to give the statistics. [12]

Table 1

Functional Requirements				
Req' no	Description	Input	Processing	Output
1	Register a user	email, username, password	After entering the required information, validation checks are performed on the input data by the user or administrator such as: 1. Compulsory fields should not be kept blank 2. All the entries should be correct	User or administrator are logged into application
2	Councillor Booking	Booking description (text), nature of the meeting (Voice recording), meeting location/address, Complaint nr, date & Time.	After inputting entries, validation checks on various fields is performed. On submission of the information the record is saved in the database.	The information is reflected in the stored database



4. Interface Design

4.2.1 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. The user is the community of Mfuleni and Booking Systems administrator can be either the councilor or his secretary. The use case are shown in figure [13]

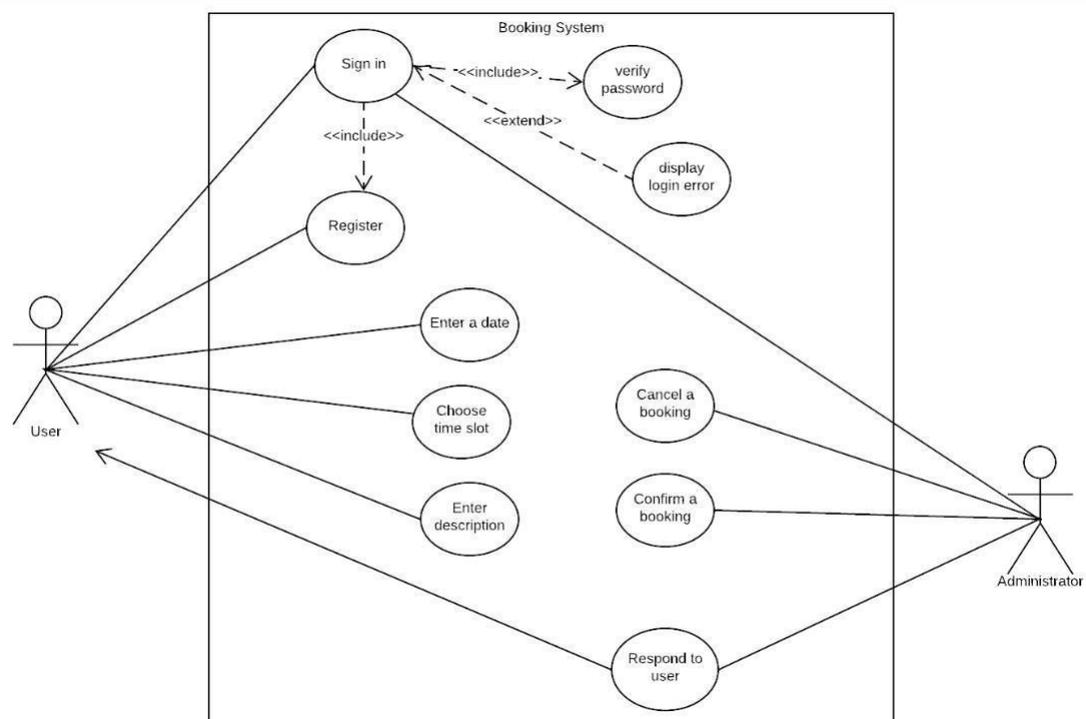


Figure 1. Use Case of Booking Systems application

4.3.1 User interface

The booking system and flow chart does illuminate steps to be taken from the mobile phone user interface and the interaction process. The concept is easy to use in a speedy access. Is the menu, consisting of 4 icons which are; Councilor bookings systems, about the openings on the booking of sessions, giving the day and time. Does give the description of the booking, confirmation and cancelation in case of unavailability. The confirmation of the booking after a throughout process has been followed

Table 1



Prototype Of Booking systems application	Admin interface																																																																																										
	<table border="1"> <thead> <tr> <th>APP ID</th> <th>NAME</th> <th>EMAIL</th> <th>DATE</th> <th>TIME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>Aphwe Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-10</td><td>October 09, 2018</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-10</td><td>October 09, 2018</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-10</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-10</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-10</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>AZ Tylanga</td><td>3239294@myuwc.ac.za</td><td>2018-10-11</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe</td><td>3239294@myuwc.ac.za</td><td>2018-10-19</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>icbfc</td><td>3239294@myuwc.ac.za</td><td>2018-10-19</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Lorenzo</td><td>Lorenzo@gmail.com</td><td>2018-10-15</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe</td><td>3239294@myuwc.ac.za</td><td>2018-10-19</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>NZ Tylanga</td><td>45454@myuwc.ac.za</td><td>2018-10-27</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>fabrice</td><td>3239294@myuwc.ac.za</td><td>2018-10-20</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>Aphwe</td><td>3239294@myuwc.ac.za</td><td>0000-00-00</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> <tr><td>fabrice</td><td>3239294@myuwc.ac.za</td><td>2018-10-12</td><td>January 01, 1970</td><td>0</td><td>ACCEPT REJECT</td></tr> </tbody> </table>	APP ID	NAME	EMAIL	DATE	TIME	STATUS	Aphwe Tylanga	3239294@myuwc.ac.za	2018-10-10	October 09, 2018	0	ACCEPT REJECT	Aphwe Tylanga	3239294@myuwc.ac.za	2018-10-10	October 09, 2018	0	ACCEPT REJECT	Aphwe Tylanga	3239294@myuwc.ac.za	2018-10-10	January 01, 1970	0	ACCEPT REJECT	Aphwe Tylanga	3239294@myuwc.ac.za	2018-10-10	January 01, 1970	0	ACCEPT REJECT	Aphwe Tylanga	3239294@myuwc.ac.za	2018-10-10	January 01, 1970	0	ACCEPT REJECT	AZ Tylanga	3239294@myuwc.ac.za	2018-10-11	January 01, 1970	0	ACCEPT REJECT	Aphwe	3239294@myuwc.ac.za	2018-10-19	January 01, 1970	0	ACCEPT REJECT	icbfc	3239294@myuwc.ac.za	2018-10-19	January 01, 1970	0	ACCEPT REJECT	Lorenzo	Lorenzo@gmail.com	2018-10-15	January 01, 1970	0	ACCEPT REJECT	Aphwe	3239294@myuwc.ac.za	2018-10-19	January 01, 1970	0	ACCEPT REJECT	NZ Tylanga	45454@myuwc.ac.za	2018-10-27	January 01, 1970	0	ACCEPT REJECT	fabrice	3239294@myuwc.ac.za	2018-10-20	January 01, 1970	0	ACCEPT REJECT	Aphwe	3239294@myuwc.ac.za	0000-00-00	January 01, 1970	0	ACCEPT REJECT	fabrice	3239294@myuwc.ac.za	2018-10-12	January 01, 1970	0	ACCEPT REJECT
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<p>The main menu consists of the 4 type of community activities councilor booking for administrative purpose.</p>	<p>The user Book a session to meet with the CTM in describing the Reason. Upon confirmation of a booking message is display on the screen</p>																																																																																										

High level design

The data flow diagram as shown below in figure 3, represents the data flow in the civic engagement application (Yeyoluntu) between the end user and the administrator. In the backend, the data flow will show how the data is flowing through the whole system. This section will focus on the Booking systems data. The Booking systems data such as when an end user is Community Activity, requires data (description, date and time) that will be stored on the database. The administrator will retrieve data from the database and can send feedback to the user regarding a booking systems matter via in-app notification. The data will be manipulated and shown to the user as a graphical representation (interface display). MySQL will be used to maintain all the data. This database will be encrypted as to hide personal information from the user. The data needs to be handled effectively to result in a good working product

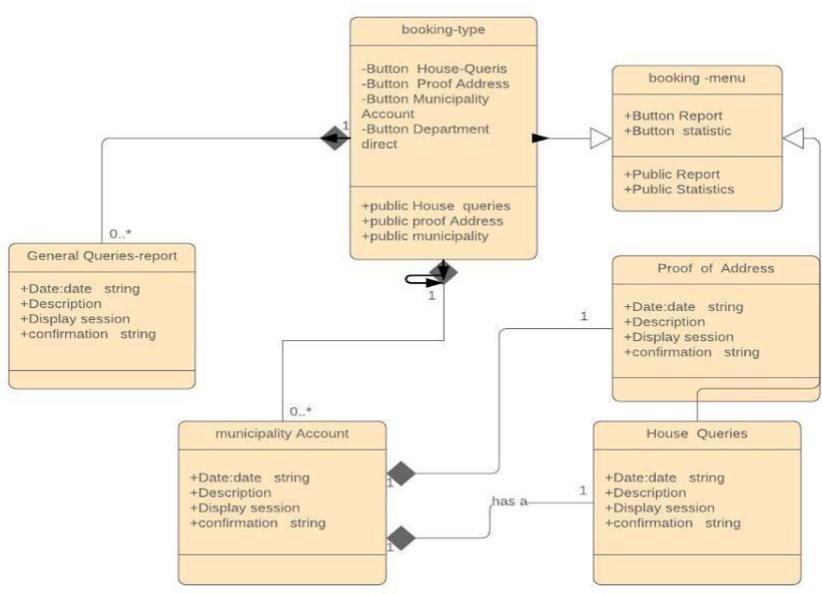


Figure 2: UML of booking systems

The class diagram below depicts an ERD that describes the structure of a system by showing the system's database and the relationships amongst the tables. See figure 6 below.

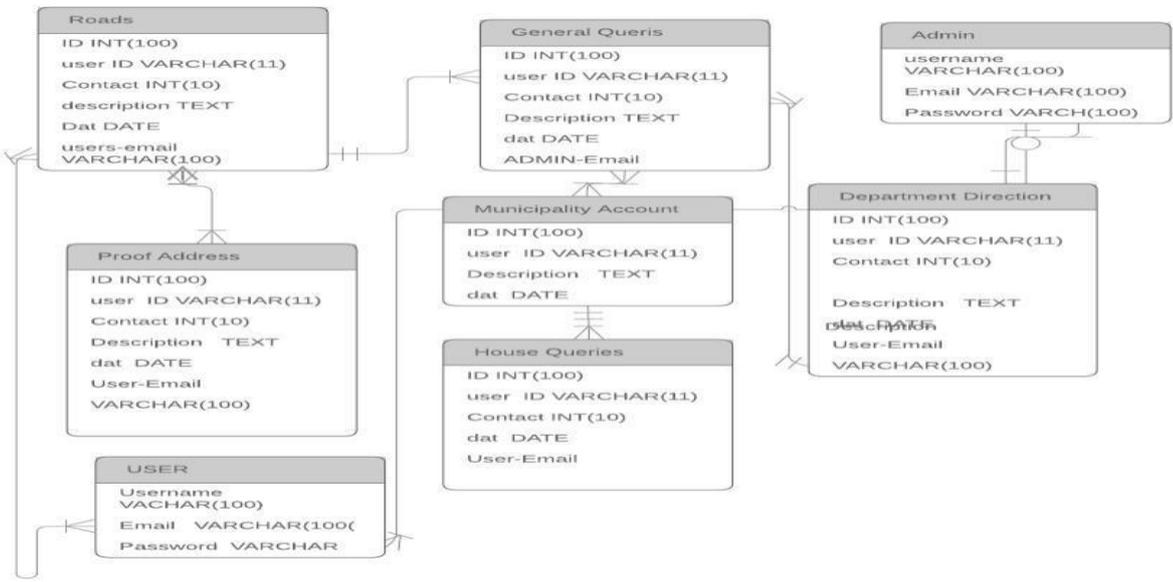


Figure 3: ERD of Booking Systems



5. Low Level Design

This section elaborates on the low level design which programs make up the mobile application. Android mobile application will be used to illustrate the programs. Each method and class will be explained and will contain a description, input, output and caveats.

5.1 Details per class

Below in Table 4.2.1 will illuminate the details per class with a description, input, output and caveats.

5.2 Details per method

Below in Table till Table will illuminate the details per method with a description, input, output and caveats.

Booking_Admin()	<p><u>Description:</u> Navigates to the Booking Admin functions.</p> <p><u>Type:</u> Poor scheduling system, No order, No _____</p> <p><u>communication</u></p> <p><u>Inputs:</u> Selection made by the user</p> <p><u>Outputs:</u> None</p> <p><u>Caveats:</u> None</p>
View_Admin()	<p><u>Description:</u> Navigates to the Admin view.</p> <p><u>Inputs:</u> Selection made by the user</p> <p>_____</p> <p><u>Outputs:</u> None</p>



	Caveats: None
Booking_Admin	Description: This is class to view Booking Admin.
	<p>Users can choose a date to view councillor activities and will indicate the different Equired on App. Inputs: Inputs from user such as: date and Time from _____ the database are needed. <u>Outputs:</u> This program stores the information on the database. Caveats: None</p>
addBooking()	<p>Description: Add the complete Booking Systems to the database <u>Inputs:</u> Information such as description, date, time _____ and location are required. <u>Outputs:</u> None Caveats: None</p>
editBooking()	<p>Description: This method edits the Booking. Inputs: Information are edited from saved database _____ <u>Outputs:</u> None Caveats: None</p>



Delete- Booking()	<p>Description: This method deletes the Booking.</p> <p>Inputs: Deleted from database _____</p> <p><u>Outputs:</u> None</p> <p>Caveats: None</p>
addBooking()	<p>Description: Add the complete Booking Systems to the database</p> <p><u>Inputs:</u> Information such as description, date, time _____ and location are required.</p> <p><u>Outputs:</u> None</p> <p>Caveats: None</p>
editBooking()	<p>Description: This method edits the Booking.</p> <p><u>Inputs:</u> Information are edited from saved database _____</p> <p>Outputs: None</p> <p>Caveats: None</p>
Delete- Booking()	<p>Description: This method deletes the Booking.</p>



	<p><u>Inputs:</u> Deleted from database</p> <hr/> <p>Outputs: None</p> <p>Caveats: None</p>
showApp()	<p>Description: This method displays a designated</p> <p>Booking App/graphical representation.</p> <p><u>Inputs</u> Logged into Application saved in the</p> <p>database.</p> <p><u>Outputs:</u> Display the App</p> <p>Caveats: None</p>



showApp()	<p><u>Description:</u> This method displays the person Booking /graphical representation with colour Greens for each category. Person</p> <p>Inputs: Community from Enquiry saved in the database.</p> <p><u>Outputs:</u> Display the color Green for each person category.</p> <p>Caveats: None</p>
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6. Testing

6.1. Functionality Testing

In software engineering functional testing is the type of testing done against the business requirements of application. It involves the complete integration system to evaluate if the system's is doing what it is suppose do and is according to the user requirements. Based on the functional specification document this type of testing is to be carried out. For functional testing we have used the manual testing with the members of the community .We set up a test case in the *Table 4* shows below to test for functionality and the test is for the user's perspective.

Table 4: user test table for

functional

Test Case	Description of function	Steps of what to do	Actual results	Expected results
Logging into system	Sign up and login on website	Enter URL. Enter credentials Submit	Navigates to Yeyoluntu Home Page.	Navigates to Yeyoluntu Home Page.
Navigating to Booking Systems	Select on menu bar the icon tab for booking system	Click on booking systems.	Navigates and display booking systems menu.	Navigates and display booking system menu
		Click on water bill	Pops up a form for	Pops up a form for



Choosing type of booking systems	Select any option from proof Address, housing, water, roads.		reporting the booking.	reporting the water bill.
Filling the form with report information	Fill the form with necessary details	Enter Name, Contact details, description, date and location	Pops out a message saying “message has been sent”.	Pops out a message saying “message has been sent”.

Since the web application for booking systems also includes the administrator perspective we have also designed some test cases for the administrators point of view see *Table 5* below

Table 5: administrator test table for functional

Test Case	Description of function	Steps of what to do	Actual results	Expected results
Logging into system	Sign up and login on website	Enter URL. Enter credentials Submit	Navigates to Yeyoluntu Home Page.	Navigates to Yeyoluntu Home Page.
Navigating to Booking Systems	Select on menu bar the icon tab for booking systems	Click on booking systems.	Navigates and display booking systems menu.	Navigates and display systems menu
Respond reports on the table	Write response for the user	On the tab response write “agent on the way ”	Pops up message written “message sent”	Pops up message written “message sent”
Displaying report statistics	Go to Booking systems statistics	Click on Booking systems statistics	Displays a bar graph of booking reported	Displays a bar graph of booking reported

6.2. Performance Testing

To carry out the performance testing we check how the system performs under a certain work load and on the Yeyoluntu app we have manage the test weather system can do all services provided on the application.



6.3. Usability Testing

Testing on usability we consider testing for user friendliness of the application and rate upon the confirmation received from the users. The look and feel is also part of usability testing.

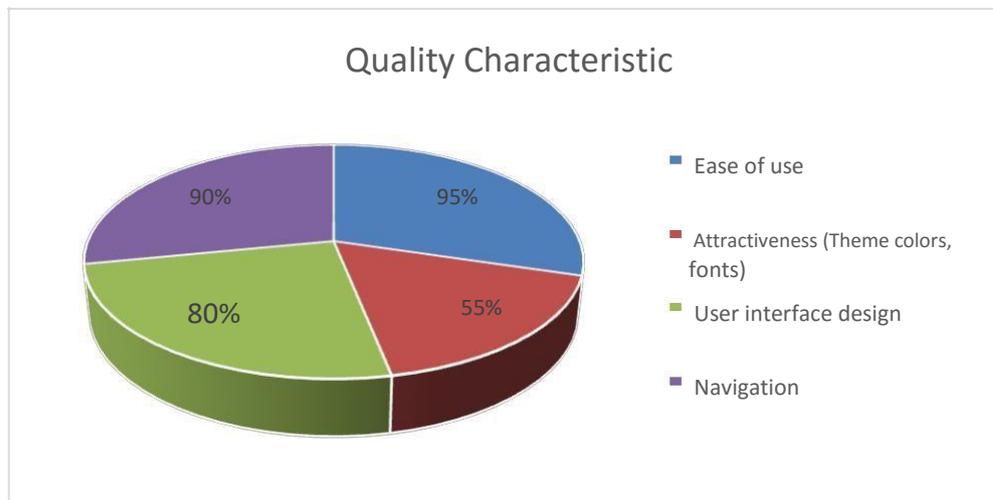
6.4. Usability Testing

The following are the results for the usability testing which includes the citizens (4 participants) and the councilor. The ratings are done with 5=highest score to 1= lowest score (satisfied/easy to bad/poor).

Task	Task Description	Results (Rating 1=lowest score 5=highest score)				
		Participant 1	Participant 2	Participant 3	Participant 4	Councillor
Citizen tasks						
1	Make a booking	4	3	5	4	
2	Delete a booking	5	4	5	5	
3	View a booking	3	4	4	4	
Councilor tasks						
5	Accepts the booking time					4
6	Respond to citizen with message					5
7	View bookings					4
Quality characteristics						
1	Ease of use	5	4	5	5	5
2	Attractiveness (Theme colors, fonts)	2	3	3	3	4
3	User interface design	4	4	4	4	5
4	Navigation	5	5	4	4	5

1.1. Usability Results

- Describe the 1-3 tasks (The participants gave overall 80% for making a booking task)
- Councilor. 4=80% and 5=100%
- The following pie-chart displays the quality characteristics of the application



7. Conclusion

The mobile application Yeyoluntu that was chosen needs to be easy to use, and have a very high security level. The Booking of the application should be very effective and help the community members will bring transparency; discipline in the community of Mfuleni is using cell phones on a daily basis. With access to smart phones becoming common place, it is time for users of this technology to be able to interact with public services such and good governance, there is need of establishing a new system to help secure the data, to facilitate recovery as well as permit accurate statistics as an indication of the work being done.

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