Project: ServeMe System (SMS)

CSE 5325 – Spring 2021

Project Management

Module: Project Scope & Feasibility

Deliverable: Scope & Feasibility Document

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1. Introduction and Executive Summary

To implement a ServeMe System which is an application that helps users initiate "service request" for their home or small business. This will be available both as a website and an app (Andriod/IOS). This will help users (i.e. customers that require service) to be put in contact with service providers. They will make money by collecting commission from each service request fulfilled by the service provider. The categories of services (displayed graphically by an icon) can be expanded to cover more service areas in the future. Initially the listed services should be supported.

1. Login & Registration: Customers (i.e. Service Requesters) can optionally register and login to the system. They can also order place a Service Request (SR) without registration and login. If they choose to register and login, they could get points, can review Service Providers quality of Service, could get discounts, and receive helpful tips and updates. To register, they must provide full name, email, and phone number.

2. Setup: Setup control fields such as: Sounds on/off, receive commission yes/no, use points toward a service yes/no. feel free to include other parameters. The Bold charters will be the default.

3. Service Categories: The following areas of service should be presented in the app. For each category of service area below (i.e. similar to Uber for rides):

o   Appliances

o   Electrical

o   Plumbing

o   Home Cleaning

o   Tutoring

o   Packaging and Moving

o   Computer Repair

o   Home Repair and Painting

o   Pest Control

4. Register to become an approved vendor for one or more of the above service categories (i.e. Service Provider). You must provide contact info including phone, address and e-mail. You can optionally provide sample rates (e.g. how much to fix something, or per hour of labor). You must also agree to pay a small portion of money received (e.g. 20%) as fee to the app holder

5. Place a Service Request (by Customers): Select a Service category and place an order soliciting for bid by the service providers. Finalize your selection after reviewing all bids.

6. Cancellation and Change: Allow customers to cancel or change service dates. You can specify in setup that you lose points if you cancel within the last x (e.g. 24) hours

7. Accept a Service Request (by service provider)): Provide bids for Requested services to customers

8. Payments: Handle money paid by the customers, received by the service provider. You, the owner of app, will receive a commission (e.g. 20%) of the service fee.

9. Review and Rating (by customers): Use Stars (one to five stars) to rate the service received, and allow to enter for a short comment to help future users

10. Order History: Display the history of service requested for a given customer.

11. Search: Ability to search by for a service provider by address, name, star rating, etc.

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is the list of business objectives:

Objective 1: Login – project will be secure; users must register and login before use. Users are two type: Service providers and Service receivers.

Objective 2: Payments – All payments (paid by the service receiver and delivered by the service provider) will be handle via registered credit cards. A designated commission amount (e.g. 20%) will be deducted from the service provider. For example, if the customer is charged $100 for a delivered service, $80 will go to the service prover and 20% go to your client (i.e. the web and app owner)

Objective 3: Service Categories – The following areas of service are initially supported on the website and the Mobile App. Initially supported service categories are:

- o Appliances
- o Electrical
- o Plumbing
- o Home Cleaning
- o Tutoring
- o Packaging and Moving
- o Computer Repair
- o Home Repair and Painting
- o Pest Control

Objective 4: Order History – All the details of the past orders made by the user shall be displayed which includes the fee paid , ratings given by the user, location of where it is was placed, date of when it was scheduled, total duration of the service provided.

Objective 5: Place a service request – This will enable the users to choose from the different categories of services available. The services will be displayed in accordance to Service Name, Service Type, Rating, Location and distance on far away they are from the user etc. The user can also filter the services available by editing the data in certain fields (e.g. only services with 4 star or above, only services within 20 KM's away from the user etc.). This will also enable service provider to either accept or decline service request sent by the user. The service provider can provide the bid for the requests sent by user.

Objective 6: Service provider – This enables the user who wants to sell their services to become an approved service provider by giving their information (Name of the service provided, contact no, location, email, sample rates etc).

Objective 7: Appointments – After the service request which was sent by user has been accepted by the service provider. Then the user can schedule the appointment by providing date, time and location. The user can also change the schedule or even cancel it. This also gives the service provider the ability to either accept the appointment (date, time and location

provided by the user) or they can request for different schedule with different time date or location.

Objective 8: Review and Rating – This enables the users to rate the service provided which includes giving stars minimum of 1 and maximum of 5 (one star out of 5 etc).The user can also review and leave short comment to help the future users.

Objective 9: Search – This enables the user to search for a category of services provided by the vendor. The search results will be displayed according to the name of the service provider, distance (how far away from user), ratings, type of service provided etc. User can further filter the search results by changing the fields (services closer to user in terms of distance or service with 4 stars rating or above etc.).

2.2 SYSTEM OBJECTIVES

The following is the list of system objectives:

Objective 1: Both web-based and Mobile (Android and IOS) application will be supported

Objective 2: Google Search will be integrated into the system for search

Objective 3: Different modes of payment will be supported (Credit/Debit Card, PayPal, Google Pay etc.).

Objective 4: App can send notifications and email to alert/notify the user.

Objective 5: MySQL database will be used if not any other compatible database can be chosen.

Objective 6: Google Maps will be integrated into the system for location purpose.

3   Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

3.1 PROJECT FEASIBILITY CONCERNS

After researching the market and looking through similar apps. This app would provide a seamless comfortable solution at their own door step. The app along with its unique features such as low cost of services at their door step saves a lot of money like transport cost or personal vehicle's gas and the ability to become a service provider in a snap would be an eye catcher to many service providers. As this is available both as a website and an app, it will be easily accessible by people with any platform and would benefit people. With the bitter taste of pandemic that we had seen for the past 8 months. This app would provide solutions by providing services at their own homes when they feared going outside due to the pandemic. Another feature that the app provides which would stand out from the rest of its predators is "price negotiating". Where the user can negotiate the price for a particular service provided by the service provider.

Some of the technical issues that we can face are:

- Multi Language support for different users.

- Support for different screen sizes.

- High load times for map integrated locational services.

- High battery consumption.

- Compatibility with different operating system versions.

- Site unreachable after an upgrade.

- Security, scalability and performance.

As per resources, we have 6 developers which would impose difficulty in releasing the product as a webpage and as an app (IOS and ANDRIOD) within the deadline. The duration for this project is 3 months. The estimated cost is $187,350 with a profit margin of 50% which is obtained by considering all the expenses such as the third-party software's and other hardware, which can be beneficial as they can used in our future projects.

3.2 PROJECT RISKS

Risk	Mitigation
Budget Overhead	Set the minimum and maximum cost limits. You should understand where exactly your investments go before starting a cooperation. Additionally, consider including extra expenses when planning budget. If you wanted to add a new feature after the work launch you should do it without risk of running over the anticipated budget.
Exceeding deadlines	To avoid missing project deadlines, remain in constant communication with the developers. Make sure that the developers are entirely focused on the project without scattering their attention on other tasks. By creating work schedules with deadline for each task, you can avoid loads of accumulated work later.
Staff Turnover	In case staff members deliberately ignore their responsibilities, some kind of penalty shall be placed on them, balancing threat to make them work and close monitoring shall be kept to know the status of the work done by each individual and obtain any kind possible hurdles.
Staff Inexperience	Team members should be selected very carefully, selecting only those members who have good experience on the tools and experienced members should be allocated to critical task which may ensure that no delay is expected and hence ensure the smooth and efficient completion of the project.
Technology does not meet expectations	A checklist should be made and a thorough comparison show be carried out to determine the best suited technology
Backup not taken	Back ups should be taken on a regular basis. More over back ups can be kept at multiple places for this multiple back up servers can be employed at different geographical locations
More stress of users than expected	If ample level of understanding has been developed with the user, then user must not stress upon unrealistic demands. Once requirements are clearly documented, the user may not find any capacity to further argue about the requirement unnecessarily.

3.3 PROJECT METRICS

1. Number of visitors:

   Keeping an eye on this metric will provide us with how many visitors the website is getting. If there is a huge increase or decrease in number of visitors, we can figure out the cause of it and do the needful to use it for the benefit of the app.

2. Number of Users:

   Keeping an eye on this metric will provide us with how many people actually download and intend to use the app. We should also monitor the activation rate which is the percentage of people who downloaded the app who actually launch it for use. Google play store and Apple store provide "Downloads per day" chart. This chart allows us to get an understanding of what day of the week is the most popular for the app downloads.

3. Ratings and Reviews:

   By observing the ratings given by the customers in Appstore and Play store, which Would provide an insight of whether the app is successful or not. Also checking out the reviews posted by the customers would provide the Issues and the uneasiness they face with us of the app to rectify.

4. Active Users:

   Active engagement is important to track and there are metrics that track the actual active users of the app. One is Daily Active Users (DAU) – This will tell whether people are using the app and how many people find the app indispensable. Another one is Monthly Active Users (MAU) – Which is the unique number of people who use the app over the course of a specific month or the prior 30 days. Using these two numbers we can calculate "Stickiness" – Which is defined as how often people come back to the app. To determine this amount, divide DAU by MAU to get the percentage. The higher this percentage is, the more often users return to use the app. The closer the number of DAU is to the number of MAU, the higher the stickiness of the app. It means your monthly average users are coming back more often.

5. Retention:

   This will tell us how many people are returning to our app. We could calculate the number of users in a specific group who used the app in a particular month to that same group who used it in the previous month. This will give us a monthly retention rate, and help determine if our app's onboarding of new users and user experience is keeping people active on the app. To calculate divide the number of the previous month new users who used the app in next month by the total number of new users in previous month. For an example: 400 August new users also used the app in September / 2000 new users in August = 20% retention rate.

6. Lifetime Value:

   It tells us how much value each of our customers is bringing to the app. Lifetime value (LTV) is targeted at calculating how much value to expect from an average customer during the time they are customers of the app. This can be revenue or profit and can be before marketing costs are applied or after.

   The factors you'll need for this equation are:

   - How often users make transactions.

- The monetary value of those transactions.

- How long customers usually stay as customers. Since this is an average, it will include those you lose early and those who are loyal and stay with you.

Then we can calculate: Average Value of a Conversion * Average No of Conversions in a Time Frame * Average Customer Lifetime = Lifetime Value

This calculation tells us whether customers are bringing value to the company. This will tell if we are getting a good deal on customers, or paying too much for them.

4 Project Scope and Process Model

Project scope includes the following:

1. Login and Registration
2. Service Categories
3. Service Request
4. Appointments
5. Accept Service Request
6. Order History
7. Search
8. Reward points earned and used.
9. Bidding for services
10. Payment types – Cash/Card/Cheque
11. Review and rating

The following is a list of items out of scope:

1. Post project maintenance
2. User help page
3. App Security is not guaranteed
4. Insurance cost
5. Code implements material written by other sources.

4.1 PROJECT PROCESS MODEL

We will be using waterfall model. As in waterfall, development of one phase starts only when the previous phase is complete. Because of this nature, each phase of the waterfall model is quite precise well defined and the following are the reasons for choosing waterfall model:

- Simple and easy to understand and use
- Since the phases are rigid and precise, once phase is done one at a time, it is easy to maintain.
- For smaller projects, the waterfall model works well and yield the appropriate results.

- The entry and exit criteria are well defined, so it is easy and systematic to proceed with quality.

- If the requirements are straightforward and testable, Waterfall model will yield the best results.

- Adapts to shifting teams

- Forces Structured Organization

- Allows for early design changes

- Results are well documented.

4.2 PROJECT CONTEXT
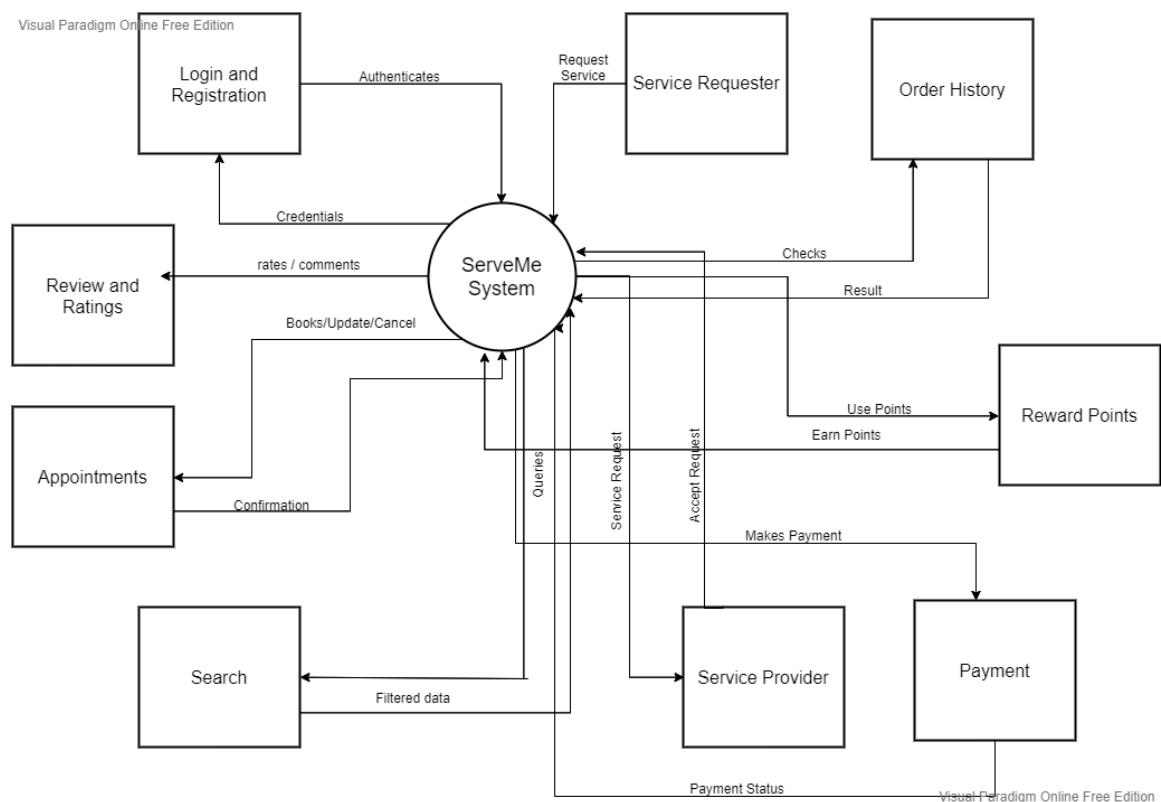
5. Assumptions and Constraints

5.1 ASSUMPTIONS

The following is a list of assumptions:

- Assume all users are over the age 18
- Users will provide correct information and not fake.
- Assuming location services in the website or device will be turned on by the user.
- Service provider will not mislead the users and will follow the norms of the society.
- Assuming valid internet speed of at least 100kbps for seamless use of app.
- Ignore any TAX issues
- Ignore any vacation and social and health insurance costs
- Ignore Post project maintenance issues
- Ignore any contract negotiation and legal concerns.

5.2 CONSTRAINTS

The following is a list of constraints:

- Our developers are not trained in Android programming.
- App requires internet to use
- App requires to be downloaded on the device.
- Project should be completed before 3 months.

6. Project Tasks, Schedule and Cost

Task Name	Start Date	End Date	Status
Defining Project Objectives, Project Feasibility, Risks, Metrics and Context Diagram.	2/1/2021	2/4/2021	Completed
Defining Project Scope, Process Model, Assumptions, Constraints, Project Tasks, Schedule and Cost.	2/5/2021	2/9/2021	Completed
Design: Design big picture, define format, navigation and functionality to include	2/5/2021	3/14/2021	To Be Completed
Implementation: 1. Home page design for Webpage. 2. Home screen design of Android. 3. Home screen design for IOS.	3/14/2021	3/18/2021	To Be Completed
Implementation: 1. Login and registration for Webpage 2. Login and registration for Android. 3. Login and registration for IOS.	3/14/2021	3/21/2021	To Be Completed
Implementation: 1. Service Categories for Webpage 2. Service Categories for Android. 3. Service Categories for IOS.	3/14/2021	3/21/2021	To Be Completed
Implementation: 1. Service Request for Webpage 2. Service Request for Android.	3/14/2021	3/21/2021	To Be Completed

3. Service Request for IOS.			
Implementation: 1. Service provider for Webpage. 2. Service provider for Android. 3. Service provider for IOS.	3/14/2021	3/21/2021	To Be Completed
Implementation: 1. Appointments for Webpage 2. Appointments for Android. 3. Appointments for IOS.	3/14/2021	3/21/2021	To Be Completed
Implementation: 1. Payments for Webpage. 2. Payments for Android. 3. Payments for IOS. .	3/14/2021	3/21/2021	To Be Completed
Implementation: 1. Review and Ratings for Webpage. 2. Review and Ratings for Android. 3. Review and Ratings for IOS.	3/14/2021	3/23/2021	To Be Completed
Implementation: 1. Search for Webpage. 2. Search for Android. 3. Search for IOS	3/14/2021	3/23/2021	To Be Completed
Implementation: 1. Order History for Webpage. 2. Order History for Android. 3. Order History for IOS	3/14/2021	3/23/2021	To Be Completed
Test case design	3/23/2021	4/14/2021	To Be Completed
External Documentation (i.e. User Manual)	4/15/2021	4/28/2021	To Be Completed

Project Presentation	4/19/2021	4/28/2021	To Be Completed	
Project Delivery		4/28/2021	To Be Completed	

Cost Estimation:

Category	Description of Tasks	Duration in weeks	Rate per Hour	Estimated Cost
Software	User Interface and User Experience Design (UI/UX).	1	$50	$1750
	Front End Development	2	$50	$3500
	Back End Development	3	$50	$5250
	Content Management System	3	$50	$5250
	App Maintenance			$5000 (for a year)
	Website Maintenance: Domain name, Website hosting, SSL certificate			$7000 (for a year)
	Tools	5	$100	$500
	Software Licenses	2	$300	$600
Hardware	User Workstations	8		8 * $800 = $6400
	Servers	3		3 * $800 = $2400
	Internet / Data			$300
	Printers	3		4 * $350 = $1400
Office Space Rent				$7000 (for a year)
Developers		9	$50	6 * $15750 = $94500
Project Manager		9	$100	$31500
Utility				$5000
Marketing / Advertisement				$10000
			Total	$187,350
			Profit	$95,000

7. Conclusion and Recommendations

Risk:

- Budget Overhead
- Exceeding Deadlines
- Staff Turnover
- Staff Inexperience
- Technology does not meet expectations
- Low Estimation of Time
- Too many developmental errors
- Backup not taken
- More Stress of users than expected

Benefits:

- Services are provided at customer doorstep.
- Customer can negotiate the price of the service provided by the service provider.
- After each transaction of the customer, he/she earn reward points which could be used for the next transaction for a discount.
- Since it is available as an app and a webpage it has more market penetration.
- Push notification and instant updates.

Recommendations:

Instead of restricting towards a particular category of services. They could broaden up the by entering towards these areas:

- Food sector – Restaurant finder and booker, Delivery of food etc.
- Grocery sector – Delivery of groceries.
- Medicine sector – Delivery of medicines only with valid prescriptions.
- Travelling sector – Booking tickets for planes, trains etc.
- Movie sector – Book tickets for movie theater or renting movies.

By also providing these additional services from different area sectors would convince the customer to use the app for all in one purpose as he/she no longer needs to use other apps for different purposes which would increase the lifetime usage of the app drastically.

Appendices

- Risk management : https://www.goskills.com/Project-Management/Resources/Risk-management-in-project-management

- Project Feasibility: https://www.projectmanager.com/training/how-to-conduct-a-feasibility-study

- Dr Bahram Khalili Lecture Videos.

- Similar App: https://www.urbancompany.com