Online Virtual Phone System

Software Project Management Plan

Version 1.5

Novemeber 20, 2023

Team Endgame

Revision History

Date	Version	Description	Author
2023-11-18	Version 1.0	Converted to markdown format	Rutu Barvaliya, Dharmit Anghan
2023-11-18	Version 1.1	Added Project Overview Section	Breanna Brown
2023-11-20	Version 1.2	Added Project Organization and Work Break Down Structure	Rutu Barvaliya
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1. Project Overview

1.1 Purpose, Scope, and Objectives

1.1.1 Purpose

The purpose of this document is to provide a formal reference of various components of the Online Virtual Phone System project. The document includes detailed information pertaining to the objectives, schedule, budget, team and resources that will be used to ensure project success.

1.1.2 Scope

The scope of this project involves providing a cloud-based solution that enables users to make calls over the internet without the need for a traditional physical phone line. The system will allow users to send and receive calls on both their desktop app and mobile app using a single business phone number. The project will include a mobile application that will establish and maintain connections between users to facilitate a voice call along with a user interface that will allow users to make a payment from within the application. The project will not involve supplying the servers, hardware or operating systems required to run the system. Any other forms of communication (ie. video calling, photo sharing, messaging, etc.) will not be provided. Payment will be routed through a third party to complete the transaction. The ability to integrate with any other third party applications, aside from what was previously specified, will not be provided.

1.1.3 Objectives

The objectives of the Online Virtual Phone System are as follows:

- Our goal is to create a virtual phone system that will generate $18 million in revenue by the end of the first year of its release. We will do so by charging usage fees and using ad revenue to generate additional income. Increased revenue will allow for additional resources to be implemented to improve customer satisfaction via improved performance.
- Build a robust and scalable system that allows for a minimum of 10k users to make calls simultaneously as this will allow for users across the country to access and utilize our service and increase profitability. We expect to have the project completed by October 2024.
- Develop a secure and scalable cloud-based solution that allows seamless calling over the internet, with an expected 99.5% uptime. We expect to implement this with deployment of the MVP. This will ensure a high level of customer satisfaction that will improve customer retention and growth. For a comprehensive overview of the project requirements, refer to the project SRS section 3.

1.2 Assumptions, Constraints and Risks

1.2.1 Assumptions

- All users will have the ability to connect to the internet with adequate speeds to allow full functionality of the application.
- All users will own the necessary hardware and operating systems to run the application
- Users will have a credit card or PayPal to make online purchases
- Users will be familiar with one of the 4 languages provided

1.2.2 Constraints

- The project is constrained to be completed with a time frame of 13 weeks for a Minimum Viable Product (MVP) and further 1 year for a full system, Any changes to the timeline will be discussed with the client.
- The budget of $120K for MVP and $500K for the whole project. Any changes to the budget will be discussed with the client.
- The system must comply with all the regulatory requirements of the country of deployment.
- The system will rely on the availability of the IP network for communication.
- The system must be scalable for future growth.

1.2.3 Risks

Security and Access	Implement robust security measures as encryption and authentication
Data Loss	Use checksums and data validation techniques to detect and prevent data corruption.
Call Quality and Latency	Use a reliable and fast IP network to ensure call quality and low latency.
Network Overload	Use a scalable system to handle the load and prevent network overload.
Billing Errors	Implement accurate mathematical algorithms to calculate the bill and provide bill auditing.

1.3 Project Deliverables

The following deliverables are expected to be completed and deployed by mid-January 2024. The client documentation and user manual will be available in digital format. The software will be available for download online and on all major app stores.

1.3.1 System deliverables

A working system will be ready for deployment by mid January. The system will offer full functionality of the requirements specified. For a comprehensive list of the software requirements refer to the Software Requirements Specification. The software will be distributed on all major digital distribution platforms.

1.3.2 Document deliverables

There are two categories of documents, documents for client use and documents for administrative purposes. The documents intended for clients include client documentation and user manuals. The project and administrator documentation will be for company use. All of the previously mentioned documents will be completed by mid-December 2024. There are also the following documents that will be used by the team, including the Project Charter, SRS, Risk Assessment, Project Management Plan, WBS, Gantt and PERT diagrams. Most of which have been completed and are available on the team Github repository.

1.4 Schedule and Budget Summary

Below is a summary of the schedule and budget for the project.

Project Milestone	Project Artifact	Due Date
Project Management	Charter, SRS, Risk Management	09/27/2023
Interface Design	Interface Prototype	10/11/2023
Frontend Development	System in progress	10/17/2023
Backend Development	System in progress	11/02/2023
Testing	System delivery	12/13/2023
Project Deployment	Training modules	01/10/2024
Project Closure	User and admin documentation, feedback	01/15/2024

1.5 References

Below is a list of documents and other sources of information referenced in this Plan:

- Project Charter for section 1.1 - 1.3
- SRS for section 1.6
- Gantt.png for section 1.4*

  *For a comprehensive overview of the project schedule, refer to this document

1.6 Definitions and Acronyms

Below is a list of all terms and acronyms required to properly understand this Plan:

Term	Definition, Acronym or Abbreviations
SPMP	Software Project Management Plan
SRS	Software Requirement Specification
OS	Operating System
GUI	Graphical User Interface
MFA	Multi-Factor Authentication
OVPS	Online Virtual Phone System
CRM	Customer Relationship Management
VoIP	Voice over Internet Protocol

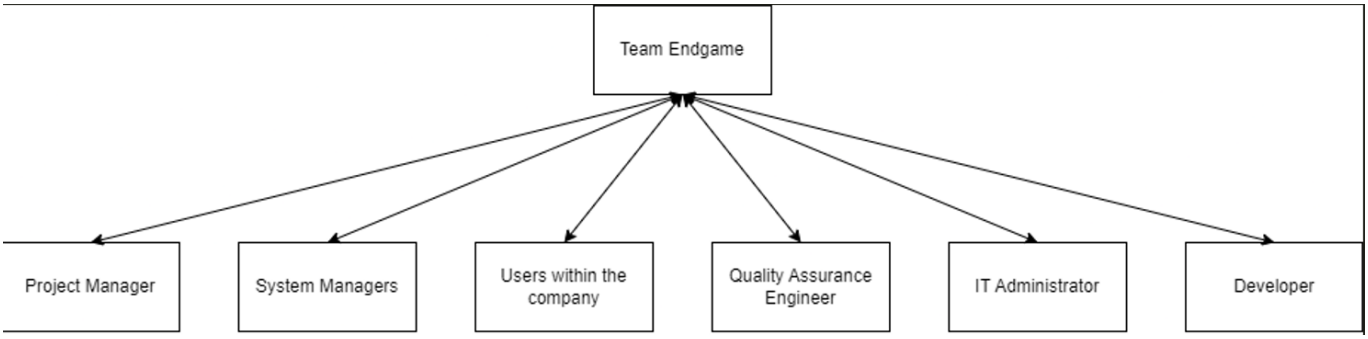
2. Project Organization

2.1 Organizational structure

2.1.1 External structure

1. Billing Department
    - Manages billing, invoicing, and payment processing for the virtual phone system.
    - Collaborates with the project team for billing system integration.
2. Third Parties
    - External service providers, suppliers, or consultants such as APIs provider for payment.
3. Government Telecommunication Authorities
    - Regulatory bodies or authorities overseeing compliance, licensing, and watching on laws and regulations.
    - Ensures the project complies with legal and regulatory frameworks.

2.1.2 Internal structure



1. Project Manager
    - Oversees the entire project lifecycle and makes the decisions on the direction of the project.
    - Responsible for planning, execution, monitoring, and closing of the project.
    - Acts as a communicator between stakeholders and the development team.
2. Developers
    - Engineers, programmers, and designers responsible for creating the frontend and backend for the online virtual phone system.
    - Coding, designing interfaces, code review and implementing features.
3. Quality Assurance Team
    - Focuses on testing functionalities, identifying bugs, reporting back to developer teams and ensuring the software meets quality standards.
    - Works closely with developers to resolve issues.
4. System Managers
    - Manage the day- to-day operations of the online virtual phone system.

- Handle configurations, user permissions, and system maintenance.

5. IT Administrators
    - Provides technical support, infrastructure maintenance, and resolves technical issues.
    - Collaborates with the development team for deployment and system integration.
6. End Users
    - The individuals or businesses utilizing the virtual phone system.
    - Provide feedback, use the system, and may need assistance or training.

2.2 Roles and Responsibilities

Project Role	Project Responsibilities
Project Sponsor	- A project sponsor who acts as the project's champion, providing direction, financial resources, and support to the team. In the context of this document, this person: - Approves the request for funding - Approves the project scope represented in this document - Sets the priority of the project relative to other projects in their area of responsibility
Project Manager	- A project manager is responsible for the day-to-day management of the project and has specific accountability for: - Managing the project within the approved constraints of scope, quality, time, and cost - Delivering the specified requirements, deliverables, and ensuring customer satisfaction - Providing critical information to team members and stakeholders to keep the project on track
Developer	- Responsibilities include day-to-day development and maintenance of the project, including coding and designing.
Quality Assurance Engineer	- Responsible for: - Testing the Quality of the system - Identifying bugs - Ensuring delivery of a high-quality system that exceeds user expectations
System Managers	- Responsibilities involve managing: - Online Virtual Phone System software - User accounts and their personal information - User authentication and Troubleshooting
IT Administrator	- Tasks include: - Hardware maintenance - Security Risk management - Network Management - Infrastructure Planning - Developer Support - User Support
Users	- Provide feedback on user experience and system functionalities.

3. Managerial Process Plans

3.1 Start-up Plan

3.1.1 Estimates

The SPMP details the necessary resources and materials for initiating the project. This includes plans for estimating, staffing, acquiring resources, and training.

3.1.1.1 Estimation Plan

The cost estimation for the project are provided as follows considering the client requirements and project deliverables.

Category	Factors	Confidenct Level	Basis of Estimation
Estimated Cost	$500,000	High	Detailed cost estimation using a bottom-up approach. Cost breakdown includes development, testing, project management, and contingency.
Estimate Schedule	6 months	Mediun-High	Gantt chart-based scheduling, considering the complexity of tasks, dependencies, and historical data from similar projects.
Resource Requirements	5 members	Medium	Work breakdown structure (WBS) and resource allocation based on individual tasks and project requirements.

A detailed breakdown of cost estimation is as:

Category	Cost	Basis of Estimation
Software and Tools	50,000	Based on the project requirements and use-case as well as considering the software licensing cost
Hardware Costs	30,000	Based on hardware requirements for the project
Training	20,000	Based on time needed and complexity of Software
Project Management	60,000	Costs related to project management activities and any associated project management tools.
Testing	70,000	Based on the intensity of quality assurance for the project
UX/UI design	40,000	Depending on the complexity of design and expertise required.
Backend servers	90,000	Depending on the infrastructure requirements and hosting costs.
Development Costs	90,000	Depending on the complexity of project requirements and work needed for a seamless product.
Administrative Costs	30,000	Costs related to administrative activities such as documentation, meetings, and training.

Category	Cost	Basis of Estimation
Contingency Reserve	20,000	10% of the project budget
Total Cost	**500,000**	

3.1.1.2 Re-Estimation Plan

Project re-estimation plan with method and tools used for cost, schedule and resource estimation would be as follows:

Category	Method	Tools	Schedules for Re-evaluations
Cost Re-Estimation	Bottom-up re-estimation	Cost Management Software	Triggered when significant milestones are achieved
Schedule Re-Estimation	PERT re-evaluation	Project Management Software	Monthly or when significant milestones are achieved or delayed
Resource Re-Estimation	WBS review and reallocation	Resource Management Tools	Reviews during major project phases and project schedule

3.1.2 Staffing

1. The staff required to manage the project are as follows:
    - 1 Project Manager
    - 4 Developers
    - 1 Database Administrator
    - 2 UX/UI Designers
    - 2 System Managers
    - 1 IT Administrator
    - 1 Quality Assurance Engineer
2. Staff and Skill Levels required at each phase of the project are as follows:

Project Phase	Personnel	Skill Level	Number of Employees Needed
Project Initiation	Project Manager	Senior	1
Requirement and Planning	Project Manager	Senior	1
	UX/UI Designers	Intermediate	1
	Developers	Senior	2
	Database Administrator	Senior	1
Design	UX/UI Designers	Intermediate	1

Project Phase	Personnel	Skill Level	Number of Employees Needed
		Senior	1
	Developers	Intermediate	1
Development	Developers	Intermediate	2
		Senior	2
	Database Administrator	Senior	1
	IT Administrator	Intermediate	1
Testing	Quality Assurance Engineer	Intermediate	1
	Developers	Senior	1
Deployment	Project Manager	Senior	1
	System Managers	Intermediate	2
	IT Administrator	Intermediate	1
Project Closure	Project Manager	Senior	1
	UX/UI Designers	Senior	1
	Developers	Senior	4
	Database Administrator	Senior	1
	IT Administrator	Intermediate	1
	Quality Assurance Engineer	Intermediate	1
	System Managers	Intermediate	2

3. Duration of Personnel Assignment:

- The project manager will be assigned to the project for the entire duration of the project.
- The senior developers will be assigned to the project for the entire duration of the project.
- The intermediate developers will be assigned to the project for the development phase of the project.
- The intermediate UX/UI designers will be assigned to the project for the design phase of the project.
- The senior UX/UI designers will be assigned to the project for the entire duration of the project.
- The database administrator will be assigned to the project for the entire duration of the project.
- The IT administrator will be assigned to the project at the beginning of the development phase of the project.
- The quality assurance engineer will be assigned to the project at the beginning of the testing phase of the project.
- The system managers will be assigned to the project for the entire duration of the project.

4. Sources of Personnel:
    - The project manager will be transferred from within the organization.
    - The senior developers will be transferred from within the organization.
    - The senior UX/UI designers will be transferred from within the organization.
    - The intermediate developers will be hired on contract from outside the organization.
    - The intermediate UX/UI designers will be hired on contract from outside the organization.
    - The database administrator will be hired from outside the organization.
    - The IT administrator will be hired from outside the organization.
    - The quality assurance engineer will be hired on contract from outside the organization.
    - The system managers will be hired from outside the organization.

3.1.3 Resource Acquisition

This resource acquisition plan aims to optimize efficiency, minimize risks, and ensure the availability of all essential resources throughout the OVPS project.

3.1.3.1 Identification of resources

The resource acquisition process for the OVPS project involves the following steps:

1. Identification of Resources:
    - Conduct a thorough analysis to identify all necessary resources, including personnel, equipment, hardware, software, licensing, compliance, and tools required for the project.
2. Cost Estimation:
    - Estimate the costs associated with each resource, considering licensing and compliance rates and project-specific requirements.
3. Contingency reserve resource:
    - Conducting a thorough analysis of potential identified risks through risk management plan.

3.1.3.2 Assignment of responsibility

- Project Manager : Overall responsibility for resource acquisition and timely risk evaluation for contingency reserves.
- Team Member : Each Team Member is responsible for maintaining the acquired hardware and software resource as well as to make sure the required tools are available throughout the development process.
- HR Manager : Personnel acquisition and compliance.
- IT Manager : Oversight of software and hardware acquisition.

3.1.3.3 Acquisition plans and needs

- Equipment: Acquire hardware during the initial phase to facilitate development.
- Software: Acquire licenses and necessary software tools during the early stages of the project.

3.1.3.4 Constraints

- Budget limitations may impact the scale or timing of resource acquisition.

3.2 Work Plan

3.2.1 Work Breakdown Structure

Id	Deliverables of the activity	Start Date	End Date	Acceptance criteria for the work activity products	Predecessor work activities	Successor work activities
1	Project Management	Sep 12, 2023	Sep 27, 2023	- Follow the given subpoints below.	N/A	N/A
2	Project Charter	Sep 15, 2023	Sep 14, 2023	- Approval and sign-off from key stakeholder. - Clearly defined project objectives and scope.	N/A	Project Planning / SRS
3	SRS	Sep 15, 2023	Sep 20, 2023	- Detailed documentation of functional and non-functional requirements. - Validation of requirements by project stakeholders.	Project Charter	Risk Assessment
4	Project Planning	Sep 15, 2023	Sep 19, 2023	- Completion of a detailed project plan with timelines and resource allocation.	Project Charter	Risk Assessment
5	Risk Assessment	Sep 21, 2023	Sep 27, 2023	- Risk assessment and mitigation strategies outlined.	Project Planning / SRS	UX / UI

Id	Deliverables of the activity	Start Date	End Date	Acceptance criteria for the work activity products	Predecessor work activities	Successor work activities
6	Interface Prototype Design	Sep 28, 2023	Oct 11, 2023	- Follow the following subpoints.	N/A	N/A
7	UX/UI designs	Sep 28, 2023	Oct 06, 2023	- Approve developed prototypes and UX/UI desings.	Risk Assessment	Login Page/Account Management Page
8	Software (Frontend and Backend)	Oct 09, 2023	Nov 01, 2023	- Frontend and Backend meeting SRS specification.	N/A	N/A
9	Frontend	Oct 09, 2023	Oct 17, 2023	- Validation against SRS requirement.	N/A	N/A
10	Login Page	Oct 09, 2023	Oct 09, 2023	- Functional and tested login page.	UX/UI designs	Call Display Page/ Call History Page/ Contacts Page
11	Account Management Page	Oct 09, 2023	Oct 10, 2023	- Functional and tested account management page.	UX/UI designs	Call Display Page/ Call History Page/ Contacts Page
12	Call Display Page	Oct 11, 2023	Oct 12, 2023	- Functional and tested call display page.	Login Page /Account Management Page	Payment Page
13	Call History Page	Oct 11, 2023	Oct 11, 2023	- Functional and tested call history page.	Login Page /Account Management Page	Payment Page
14	Contacts Page	Oct 11, 2023	Oct 11, 2023	- Functional and tested contacts page.	Login Page /Account Management Page	Payment Page
15	Payment Page	Oct 13, 2023	Oct 17, 2023	- Functional and tested payment page.	Call Display Page/Call History Page/ Contacts Page	Unit Testing

Id	Deliverables of the activity	Start Date	End Date	Acceptance criteria for the work activity products	Predecessor work activities	Successor work activities
16	Backend	Sep 28, 2023	Nov 01, 2023	- Fully developed backend system aligned with SRS specifications.	N/A	N/A
17	Wireframe	Sep 28, 2023	Oct 06, 2023	- Stakeholder approvals. - Alinged with UX/UI designs.	Risk Assessment	Authentication/User Account Management/Encryption and Security
18	Authentication	Oct 12, 2023	Oct 13, 2023	- Functional and tested authentication.	Wireframe	Call Processing
19	User Account Management	Oct 12, 2023	Oct 17, 2023	- Functional and tested user account management.	Wireframe	Call Processing
20	Call Processing Logic	Oct 18, 2023	Oct 24, 2023	- Functional and tested call processing logic.	User Account Management	Voice Call Encryption
21	Encryption and Security	Oct 12, 2023	Oct 26, 2023	- Functional and tested encryption and security.	Wireframe	Call Processing
22	Network and Connectivity Logic	Oct 27, 2023	Nov 01, 2023	- Functional and tested network and connectivity logic.	Voice Call Encryption	Unit Testing
23	Testing	Nov 02, 2023	Dec 13, 2023	- Thorough testing across all functionalities and features. - Document the testing results.	Payment Page/ Network and Connectivity Logic	Documentation
24	Documentation	Dec 14, 2023	Dec 29, 2023	- Documentation as per project deliverables and outcomes.	Testing	Training

Id	Deliverables of the activity	Start Date	End Date	Acceptance criteria for the work activity products	Predecessor work activities	Successor work activities
25	Training	Jan 01, 2023	Jan 03, 2023	- Feedback collection after training. - Meterials prepared and delivered before hand to all trainees.	Documentation	Deployment
26	Deployment	Jan 01, 2023	Jan 10, 2023	- Successful deployment of the system in the specified environment.	Training	Project Feedback
27	Project Feedback	Jan 11, 2023	Jan 13, 2023	- Feedback collection from users and stakeholders. - Work on the feedback to improve the system if needed.	Deployment	Project Closure
28	Project Closure	Jan 13, 2023	Jan 15, 2023	- Completion of all project deliverables and activities. - Formal closure documentation prepared and approved.	Project Feedback	N/A

3.2.2 Schedule Allocation

1. Scheduling Relationships and Time-Sequencing Constraints:
    - The project work activities are scheduled based on Gantt chart and PERT chart. The Gantt chart is used to schedule the project activities and PERT chart is used to estimate the time required to complete each activity to illustrate concurrent activities and dependencies.
2. Critical Path Identification:
    - The critical path in the schedule has been identified through PERT chart. This critical path outlines the minimum time required to complete the project. It is important to note that the critical path may change as the project progresses and changes are requested by the client.
3. Constraints on Scheduling:
    - Certain work activities may have scheduling constraints such as dependencies, resource availability, and budget limitations. These constraints are identified and addressed in the project schedule.

3.2.2.1 Schedule Milestones:

1. Key schedule milestones have been identified to assess the progress of the project, they are as followed:
    - The completion of the project charter
    - SRS
    - Project Planning
    - Risk Assessment
    - Interface Prototype Design
    - Software Development
    - Testing
    - Documentation
    - Training
    - Deployment
    - Project Closure
2. These milestones serve as a basis for project monitoring and control.

3.2.3 Resource Allocation

3.2.3.1 Detailed Itemization of Resources are as followed:

Following are the resources required for the project:

1. Computing Resources:
    - High-performance workstations for developers and designers
    - Server infrastructure for backend development and testing
    - Network infrastructure for connectivity and testing
    - Storage infrastructure for data storage and backup

- Cloud infrastructure for deployment and testing
- Security infrastructure for encryption and security

2. Software Tools:

- Integrated Development Environment (IDE) for coding
- Graphic design tools for UX/UI design
- Testing tools for quality assurance
- Project management tools for project planning and tracking
- Documentation tools for project documentation
- Communication tools for team collaboration
- Version control tools for code management
- Deployment tools for system deployment
- Security tools for encryption and security
- Network tools for network and connectivity logic
- Training tools for training and feedback collection

3. Special Testing and Simulation Facilities:

- Dedicated testing environment to simulate real-world scenarios
- Testing tools for performance and security testing
- Testing tools for load testing
- Testing tools for unit testing
- Testing tools for integration testing
- Testing tools for system testing
- Testing tools for user acceptance testing

Resource allocation is dynamic and may be adjusted based on project requirements and constraints. Regular resource allocation reviews are conducted to ensure the availability of all necessary resources.

3.2.4 Budget Allocation

The budget for the project is estimated to be $500,000. The budget is allocated as follows:

1. Software and Tools: $50,000

- Computing resources: $10,000
- Software tools: $40,000

2. Hardware Costs: $30,000

- Acquisition of hardware for development and testing: $30,000

3. Training: $20,000

- Training programs and materials: $20,000

4. Project Management: $60,000

- Project management tools and software: $30,000
- Administrative support for project management: $30,000

5. Testing: $70,000

    - Special testing and simulation facilities: $50,000
    - Testing tools: $20,000

6. UX/UI design: $40,000
    - Graphic design tools: $40,000
7. Backend Servers: $90,000
    - Acquisition and setup of backend server infrastructure: $90,000
8. Development Costs: $90,000
    - Development tools and software licenses: $70,000
    - Contingency reserve for development: $20,000
9. Administrative Costs: $30,000
    - Documentation : $20,000
    - Meetings : $5,000
    - Training : $5,000
10. Contingency Reserve: $20,000
    - Unforeseen expenses and risks: $20,000

3.3 Project Tracking Plan

3.3.1 Requirements Control

1. Requirements changes are reported and controlled through the following steps:
    - Identify the change request
    - Analyze the impact of the change request
    - Approve or reject the change request
    - Implement and Validate the change request
    - Update the requirements documentation
2. The impact of requirement changes is assessed based on the following factors:
    - Project Schedule
    - Project Budget
    - Project Scope
    - Project Quality
    - Project Resources
    - Project Risks
    - Project Stakeholders
    - Project Deliverables
    - Project Documentation
    - Project Training
    - Project Deployment
    - Project Closure

3.3.2 Schedule Control

1. Schedule Control Process:
    - Regular schedule reviews are conducted to assess the progress of the project.
    - If the project is behind schedule, the project manager will identify the cause of the delay and take corrective actions.
2. Tools for Schedule Control:
    - Gantt chart
    - PERT chart
    - Project management software
    - Project management tools
3. Objective Criteria for Schedule Control:
    - Project milestones and deliverables will be assessed to determine if the project is on schedule.
    - The critical path will be assessed to determine if the project is on schedule.

3.3.3 Communication Plan

1. Method and Tools for Communication:
    - Project Management Software for communication between the project manager and the development team.
    - Regular meetings will be conducted to discuss project progress and issues.
    - Microsoft Teams will be used for communication between the project team and stakeholders.
    - Regular Communication with the client to ensure the project is on track and meets the client's requirements.
2. Frequency of Communication:
    - Daily communication between the project manager and the development team.
    - Weekly meetings to discuss project progress and issues.
    - Monthly meetings with the client to discuss project progress and issues.

3.3.4 Project Closeout Plan

1. Plans for Project Closeout:
    - Project closure documentation will be prepared and approved.
    - Project deliverables will be delivered to the client.
    - Project feedback will be collected from the client.
    - Project feedback will be used to improve the following:
        - Project management process
        - Development process
        - Testing process
        - Documentation process
        - Training process
        - Deployment process
        - Project closure process

4. Technical Process Plans

4.1 Process Model

For the Online Virtual Phone System project, we're implementing an iterative and incremental approach. Each development stage will represent a complete cycle, ensuring timely delivery of specific system functionalities. Flexibility is key; this structure allows for ongoing reassessment and adjustments by our team and clients alike.

Adopting the Team Software Process (TSP) model, tailored for our project, guides our team's software development effectively. We'll outline each project phase with set start and finish dates, and clear objectives, ensuring a focused and adaptable development process for the Online Virtual Phone System.

Phase	Start and Finish Dates	Phase Goals
Startup	12/09/2023 - 27/09/2023	- Initial team formation and role assignment. - Understanding project scope and requirements. - Development of the project strategy.
Planning	15/09/2023 - 27/09/2023	- Detailed planning of the software development process. -Creation of essential documents like Project charter, SRS, SPMP. - Resource allocation and risk assessment.
Development Phase 1	28/09/2023 - 17/10/2023	- Development of core functionalities and features. - Regular testing and feedback integration. - Iterative improvement based on team and stakeholder feedback.
Development Phase 2	17/10/2023 - 01/11/2023	- Continued development with additional features. - Enhanced testing and quality assurance processes. - Preparation of initial deployment.
Testing & Integration	02/11/2023 - 03/01/2024	- Comprehensive testing of all functionalities. - Integration of different software components. - Documentation Bug fixing and optimization.
Deployment & Review	03/01/2024 - 13/01/2024	- Deployment of the software in the target environment. - Collection of feedback for future improvements.
Project closure	13/01/2024 - 15/01/2024	- Ensure all project components are finalized and meet requirements. - Transition the system to the client with essential training. - Conduct a brief project review and obtain final approvals.

4.2 Methods, Tools, and Techniques

Methods, Tools and Techniques for the Online Virtual Phone System project are as follows:

- Development Methodology:

    - Employed Agile methodology for flexibility and iterative development.
    - Ensured an iterative process throughout the project lifecycle.
- Version Control:
    - Utilized GitHub for version control.
    - Enabled effective collaboration, code reviews, and management of changes.
    - Ensured all changes are tracked and documented.
    - Recorded system versions, updates, and modifications.
- Programming Language:
    - Chose Python for its readability and efficiency.
- Development Environment:
    - Utilized a variety of integrated development Environments (IDEs) with a preference for Visual Studio code due to its versatility and comprehensive support for Python.
- Quality Assurance:
    - Established a practice of peer reviews for coach submissions.
    - Ensured all contributions meet our defining coding standards and quality expectations before integration into the project.
- Documentation:
    - Designed to be comprehensive for developers and end-users.

This structured approach to development, paired with our choice of tools and rigorous quality practices, shows our commitment to delivering a high-quality product.

4.3 Infrastructure

The OVPS project will leverage existing infrastructure provided by the client. This includes the use of pre-existing servers and hardware capable of supporting the web-based application. The development team will utilize their own workstations and tools, including software development environments like Visual Studio Code, and will coordinate using version control systems such as GitHub for source code management. The project does not require the team to supply any additional server hardware or operating systems, and the product is designed to function within the client's current technical ecosystem. Any required payments as part of the product's functionality will be handled through a designated third-party service, and no integration with other third-party applications, outside of those specified, will be implemented.

4.4 Product Acceptance

For the Online Virtual Phone System project, client approval is essential at each phase, and they would also sign the acceptance documents. Post-phase completion, the client will perform an installation test and assess the system’s performance, which could potentially lead to changes to the system/project. The procedure for implementing these changes is detailed in Section 3.3.1.

5. Supporting Process Plans

5.1 Documentation

Plans for generating non-deliverable and deliverable project documentation will adhere to the following structure:

- List of Documents to be Prepared:
    - Project Charter
    - Software Requirements Specification (SRS)
    - Design specifications
    - Development and implementation plan
    - Quality assurance plan
    - User manuals
    - Test plans are reports
    - Release notes
    - Training materials
    - Maintenance and support guide
- Controlling templates or standard for each document
    - IEEE standards for SRS and design specifications
    - Company- specific templates for implementation plan and QA plan
    - User manuals following the Microsoft manual of style
    - Test plans adhering to ISTQB standards
- who will prepare each document:
    - Project manager: project Charter, implementation plan
    - System analyst: SRS
    - Design team: design specifications
    - QA team: QA plan, test plans and reports
    - Technical writers: user manuals, release notes, training materials
    - Support team: maintenance and support guide
- who will review each document:
    - Project sponsor and senior leadership: project charter
    - Project manager and design team: SRS, design specifications
    - QA lead: QA plan, test plans and reports
    - End user and client representatives: user manuals, training materials
    - Item department: maintenance and support guide
- Due dates for review copies:
    - SRS and design specifications column two weeks before the end of the planning phase
    - QA plan and test plans: one week before testing phase
    - User manuals and training materials: 3 weeks before deployment
- Due dates for initial baseline versions:
    - Project Charter: at the end of the initiating phase
    - SRS and Design Specifications: at the end of the design phase
    - QA Plan: at the beginning of the execution phase
    - Test Plans and Reports: upon completion of each major testing cycle
    - User Manuals: with MVP release

    - Training Materials: 2 weeks before user training starts
- A distribution list for review copies and baseline
    - Project Sponsor and senior leadership: 2 copies each of all strategic documents
    - Project Manager: 3 copies each of all documents
    - Development and QA

5.2 Quality Assurance

The Quality assurance into (QA) plan for the online virtual phone system project encompasses a set of activities designed to ensure that the project adheres to its defined processes, standards, and requirements specified in the SRS, the project management plan, and support plans. This plan is part of a separate document, the online virtual phone system quality assurance plan, and will be maintained as such.

Quality assurance procedures:

- Analysis: conduct static analysis of code and designs to identify potential quality issues early in the development lifecycle
- Inspection: regularly inspect project deliverables and work products for conformance to project standards and specifications.
- Review: formal reviews of project masters and deliverables, such as requirements reviews design reviews, and code reviews.
- Audits: periodic audits of project processes and products to ensure adherence to agreed-upon standards and practices.
- Assessment: assessments of project performance and product quality against defined metrics and criteria.

Relationship Among Processes:

- Quality assurance and verification and validation (V&V): QA activities will be conducted in tandem with V&V processes to ensure that all aspects of the project made the requirements and function correctly. Review and audit column reviews to be part of the regular QA process while audit will be scheduled at key project milestones to ensure ongoing compliance with the project plan.
- Configuration management QA will work closely with configuration management and ensure that all changes to the project artifacts are tracked and reviewed for quality implications.
- System engineering QA processes we integrated with system engineering efforts to ensure that the system is developed according to the specified architectural and design standards.
- Assessments: continuous assessment of the QA processes themselves will be part of the plan ensuring that the QA activities are effective and improve over time.

The QA plan includes specific responsibilities for the QA team, such as monitoring adherence to the process, identifying any divisions from the quality standards, and recommending improvements. The plan will also detail the process for handling any quality issues identified, including the escalation process for critical quality problems.

6. Additional Plans

- Interactive training programs for employees and new users to learn how to use the system. This will be an adjunct to the user manual already discussed in the plan with the intention of shortening the learning curve associated with navigating the UI and learning how to effectively use the software.
- We will need to form a contract with the 3rd party payment service that we will end up utilizing to facilitate the online transactions. Once a 3rd party is selected, a legal team will be involved to ensure an agreement is reached between parties and will assist with drafting the contract.
- A contract with a 3rd party is required which will be used to acquire the necessary hardware to run the system as the details outlined in the plan provided do not include the acquisition and maintenance of hardware.