OnlineCaller

Software Requirements Specification

1.0

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Revision History

Date	Description	Author	Comments
10/13/2023	Initial version	DevOpsDynasty	Initial version of the SRS

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1. Introduction

This software requirements specification document aims to provide an overview of the specific tasks needed to complete OnlineCaller. This is done by defining important definitions, acronyms, and abbreviations, and any references required to work on the project. It provides a general overview of OnlineCaller, the user characteristics and any assumptions made or dependencies to keep in mind. This SRS document also provides detailed information on the functional and nonfunctional requirements a developer would need to meet for this project to be a success. Lastly, the document also describes the constraints this project may face, and any legal/copyright information needed.

1.1 Purpose

This document is intended to gather ideas and information regarding the OnlineCaller system, and to provide unity among the definitions, goals, and requirements of the project. Additionally, it will outline the way in which the product is intended to be used to provide further understanding of the objectives and scope of the project. This includes other ideas and concepts that will be developed at a later stage.

Overall, this document provides an overview of the target demographic, interfaces, and requirements, as well as how the main stakeholders understand its functionality. It is intended to continually be referenced and refined throughout the lifecycle of the OnlineCaller software.

1.2 Definitions, Acronyms, and Abbreviations

SRS: Software Requirements Specification
RDBMS: Relational Database Management System
MS: Milliseconds
HTTP: Hypertext Transfer Protocol
PCI DSS: Payment Card Industry Data Security Standard

1.3 References

Document Name	Document Location
Project Charter	*https://universityofmanitoba.desire2learn.com/d2l/common/viewFile.d2lfile/Database/MTgzNTMzNDU/Project%20Charter.docx?ou=545241*
Online Virtual Phone System - Software Description	*https://umanitoba-my.sharepoint.com/:w:/g/personal/shaowei_wang_umanitoba_ca/EX6PKNTuX1hGomL4NyNYSIcBHg5ImCFl2BPrVJnFbBWIsQ?e=prDfNs*
Project Sponsor's Requirement Specification	*https://docs.google.com/document/d/1AnKRirZ-WniHcJ96Ba-M3cYj0jRA4khWoKAf9rH5Dgg/edit*

2. General Description

This document illustrates the needs and wants of the stakeholders that were identified in the brainstorming exercise as part of the requirements workshop. It further lists and briefly describes the major features and gives a brief description of the proposed system.

The following SRS contains the detailed product perspective from different stakeholders. It provides the detailed product functions of OnlineCaller with user characteristics permitted constraints, assumptions and dependencies and requirements subsets.

2.1 User Characteristics

Users of our system will want to be able to make calls to anywhere in the world
Users of our system will know how to make a phone call on a cell phone
Users of our system will know how to use technology
Users of our system will know how to run a desktop application
Users of our system will know how to install and run a smartphone application
Users of our system will generally be frequent users who can operate the application without referencing a guide

2.2 Assumptions and Dependencies

The software will be deployed on latest versions of iOS, Android, Windows, and macOS.
The system will integrate with PayPal and Chase Paymentech for payment processing.
User's internet will be strong enough for our application to run efficiently.

3. Specific Requirements

3.1 Functional Requirements

3.1.1 Initiate Calls with Other Users

The system shall allow users to initiate a call with another user
The system shall allow users to initiate a call with a variable number of other users
The system shall allow users to invite additional users to an active call

3.1.2 Receive Calls from Other Users

The system shall alert a user for incoming calls
The system shall display the callers for incoming calls
The system shall allow users to ignore a call
The system shall allow users to accept a call

3.1.3 Create a Uniquely Identifiable 4-digit Number for a User

The system shall create a distinct 4-digit number assigned to a distinct IP address on user creation
The system shall allow an administrator to change the 4-digit number of a user

3.1.4 Display User’s Bill

The system shall allow an administrator to view a user’s itemized bill for any billing period
The system shall display the participants of a call on the bill
The system shall record the time and date of a call on the bill

3.1.5 Administrators Can Access an Administrator Console

The system shall allow administrators to access call logs
The system shall allow administrators to access billing information
The system shall allow administrators to access payment information
The system shall allow administrators to remove customers who do not pay
The system shall allow administrators to modify user permissions
The system shall allow only one administrator to access the system at a time
The system shall allow administrators access the administrator console via desktop only

3.1.6 Log Customers' Bills and Apply Discounts to the Amount

The system shall keep track of users call logs with billing information
The system shall automatically apply the appropriate discounts to user's bills

3.1.7 Record All Established Call Information

The system shall record the initiation and termination time of a call
The system shall record the participants of all a call
The system shall record the cost of a call

3.1.8 System is Available on a Variety of Systems

The system shall run on iOS
The system shall run on Android
The system shall run on Windows 10 and 11
The system shall run on macOS

3.1.9 Change Plan Subscription

The system will allow users to change their subscription plan
The system shall allow administrators to change a user's subscription plan

3.1.10 Detect Missed Payments

The system shall notify users when they have missed payments

The system shall prevent users from initiating or receiving calls when they have missed payments
The system shall automatically add a warning to the bill of a customer who has missed a payment

3.1.11 Restrict the Number of Concurrent Calls

The system will limit the number of concurrent calls the system can have at once
The system shall allow administrators to adjust the maximum number of concurrent calls

3.1.12 Send Bills to Users

The system shall send a bill to a user immediately after they cancel service
The system shall automatically send a bill to a user at the end of every billing period
The system shall automatically send a bill to a user immediately after they cancel their service

3.1.13 Terminate Calls

The system shall allow a user to terminate a call between themselves and another user
The system shall allow a user to terminate a call that they initiated with a variable number of users
The system shall allow a user to leave a call with a variable number of other users without terminating the call

3.1.14 Create Payments

The system will allow user to create a payment for a bill
The system will allow administrators to create payments on behalf of a user

3.1.15 User Permissions

The system shall store whether a user has permission to initiate a call
The system shall store whether a user has permission to receive a call
The system shall ask the user for permission in regard to cookies.

3.1.16 Users Can Manage Their Account

The system will allow new users to create an account
Users can update their account information.
The system shall track and display user online status
The system shall track and display whether a user is available for communication or busy

3.1.17 Users Can Save Their Contact List

The system shall allow users to create new contacts
The system shall allow users to delete existing contacts
The system shall allow users to search their contacts
The system shall allow users to modify their contacts
The system shall allow can call contacts directly from the contact list

3.1.18 Users Can Access Their Data from Any Device

The system shall authenticate user credentials on login attempts
The system shall allow users to access their call history from any logged in device
The system shall allow users to access their contact list from any logged in device
The system shall allow users to access their bills from any logged in device
The system shall allow users to send and receive calls from any logged in device

3.2 Non-Functional Requirements

3.2.1 Performance

The system shall be able to efficiently process and manage audio calls with a maximum latency of 100ms.

The system shall be able to support 500 000 simultaneous online users.

3.2.2 Reliability

The system shall create regular database backups.
The system shall maintain a replica database.
The system shall maintain a list of information about calls and billing information, with 99.9% accuracy.
The system shall be able to efficiently process and manage audio calls for 95% of interactions with a maximum latency of 100ms.

3.2.3 Availability

The system shall enable location redundancy for their web hosting.
The system shall enter into a contractual agreement with their web hosting provider for 99.999%. uptime.
The system shall be available even during scheduled software updates.
The system shall keep multiple servers running to keep uptime to 99.9%.

3.2.4 Security

The system shall use secure sockets in all transactions that include any confidential customer information.
The system shall automatically log out all customers after a period of inactivity.
The system shall use secure sockets for all communication protocols.
The system's back-end servers shall never display a customer's password.
The system's back-end servers shall only be accessible to authenticated administrators.
The system shall encrypt all back-end databases in accordance with PCI regulations.
The system shall follow PCI DSS for all payment.

3.2.5 Interfaces

OnlineCaller shall support many types of interfaces; namely: User, Software, Hardware, and Communications Interfaces.

3.2.5.1 User Interfaces

The system shall provide a similar look throughout the application.
The user interface shall be consistent across all available platforms.
The system shall include visuals to help enhance the usability of the application.
The system shall provide a help section to ensure users know what functionality the system has.
The plan categorization will be organized in a hierarchical structure, allowing users to explore products by drilling down through categories and subcategories.
The system will include user-friendly navigation tools, such as breadcrumbs or a category tree, to show users their current position within the categorization hierarchy.
The categorization display will be optimized for various devices and screen sizes, ensuring a seamless experience on both desktop and mobile platforms.

3.2.5.2 Software Interfaces

The system shall communicate with PayPal to validate and process payments through PayPal.
The system shall communicate with Chase Paymentech to process credit card payments.

3.2.5.3 Hardware Interfaces

Since the application must run over the internet, all the hardware required to connect to the internet will be the hardware interface for the system.

All server-side components (APIs, etc.) of the system shall run on server-grade computers, and all client-side components (GUIs, etc.) shall run on personal grade computers.

The system shall interact with the microphone and speakers on the user's computer to facilitate an audio call.

3.2.5.4 Communications Interfaces

The system shall use HTTP protocol for communication over the internet and sockets as the default form of inter-process communication.

3.3 Design Constraints

3.3.1 Standard Development Tools

The system will primarily be developed using widely accepted programming languages, including but not limited to JavaScript, Python, and SQL for database management.

A relational database management system (RDBMS), such as MySQL or PostgreSQL, will be used to store and manage data efficiently.

3.3.2 Web Based Products

The system will be optimized for cross-browser compatibility, supporting major web browsers, including Google Chrome, Mozilla Firefox, Apple Safari, and Microsoft Edge.

The system will be hosted on reliable and secure web hosting infrastructure. Redundancy and failover mechanisms will be in place to maintain high availability.

3.4 Legal, Copyright, and Other Notices

Our system will display the logo and trademark of OnlineCaller.

3.5 Other Requirements

Our system will meet industry standard requirements, including privacy and security standards.

4 Other Supporting Documents

Please refer to the following documents:

1. Vision statement for OnlineCaller
2. Functional requirement model
3. Nonfunctional requirement model
4. Use case analysis
5. Project plan
6. Project schedule

A. Appendices

Document Name	Document Location
Project Charter	*https://universityofmanitoba.desire2learn.com/d2l/common/viewFile.d2lfile/Database/MTgzNTMzNDU/Project%20Charter.docx?ou=545241*
Online Virtual Phone System - Software Description	*https://umanitoba-my.sharepoint.com/:w:/g/personal/shaowei_wang_umanitoba_ca/EX6PKNTuX1hGomL4NyNYSIcBHg5ImCFl2BPrVJnFbBWIsQ?e=prDfNs*
Project Sponsor's Requirement Specification	*https://docs.google.com/document/d/1AnKRirZ-WniHcJ96Ba-M3cYj0jRA4khWoKAf9rH5Dgg/edit*