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| Chatbot Web App |
| Project Vision Document | |
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**Revision History**

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|  |  |  |
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Table of Contents

[1 Introduction 4](#_Toc19888672)

[1.1 Purpose 4](#_Toc19888673)

[1.2 Scope 4](#_Toc19888674)

[1.2.1 In Scope 4](#_Toc19888675)

[1.2.2 Out of Scope 4](#_Toc19888676)

[1.3 Definitions, Acronyms, and Abbreviations 4](#_Toc19888677)

[1.4 References 5](#_Toc19888678)

[2 Positioning 6](#_Toc19888679)

[2.1 Business Opportunity 6](#_Toc19888680)

[2.2 Problem Statement 6](#_Toc19888681)

[2.3 Product Position Statement 6](#_Toc19888682)

[2.4 SWOT Analysis 6](#_Toc19888683)

[3 Stakeholder and User Descriptions 7](#_Toc19888685)

[3.1 Stakeholder Summary 7](#_Toc19888686)

[3.2 User Summary 7](#_Toc19888687)

[4 Stakeholder Requirements 8](#_Toc19888688)

[5 System Features 8](#_Toc19888689)

[6 Assumptions 8](#_Toc19888690)

[7 Constraints 8](#_Toc19888691)

# Introduction

As part of IT leading enterprise, we enable our clients and employers help them improve their creativity and brilliance with our revolutionary and world-class services. In this IT Clan Consulting Services' Vision Statement, we are seeking to design an AI/ML based Chatbot which can be unified with all the websites and responsible as a first resort of transmission when communicating to customers. With this project, clients can gain insight into their customers' behaviors, significantly increase company's sales, provide immediate response, help them represent their own company to customers, aid to effortlessly search for information, and so many more.

## Purpose

This document outlines the vision for the AI/ML based Chatbot. The purposes of this document are to:

* Accumulate, inspect, and describe high-level demands and features of the AI/ML based Chatbot.
* Establish and acknowledge on the difficulties faced by end users and the effects of those issues on productivity and efficiency.
* Assemble and narrate customer requests for AI Chatbot features.
* Initiate a solution (new development or alternative)
* Pinpoint any limitations to the proposed solution.
* Distinguish stakeholders and users.
* Identify the AI Chatbot development team.

## Scope

### In Scope

* **Visual flow builder**. Clients can automate resolutions for a range of customers issues and ensure hassle-free conversation. It also helps to tweak their bot’s workflows and improve its performance based on customer feedback.
* **Omnichannel Messaging Support**. It can help brands understand the interests and preferences of customers and enable client’s agents to easily leverage past interactions to drive future conversations with customers.
* **Live Chat Handover**. The main purpose is to let customers have failback options to exit chatbot conversation or to speak to live agent when there is urgency or for complex matters.
* **Sentiment Analysis**. AI bots can use it to modify responses in alignment with customer’s emotions and segment the audience based on satisfactions scores. They can help parse user data from social channels, surveys, feedback, and reviews to understand how well products or services are perceived by customers.
* **AI Chatbots.** They use NLP and machine learning algorithms to become more intelligent and can easily understand the customer’s sentiment to respond dynamically. It can enable potent and agile conversations as they are equipped to provide human-like responses.
* **Chatbot API.** Clients can rely on it to pull data from other tools such as CRM, database, etc. to boost customer conversations. It can enhance chatbot functionality to aid in optimizing human resources. APIs are helpful when it comes to helping a chatbot fetch user data from different apps and sources to enhance interactions with customers.
* **Data Security.**

1. End to end encryptions – Chatbot prevents anyone other than the sender and recipient from accessing the message.
2. Authentication and Authorization – These are the two main security processes that chatbot can ensure user identity verification and granting permission to do any task.
3. Self-destructing message – Chabot deletes sensitive messages after a period to prevent any misuse of sensitive information.
4. Personal scan – This technology is used to verify an individual identity when a transaction is initiated or when there is the need to access a bank account using chatbot

### Out of Scope

* **Chatbot Marketing**. Using chatbots for marketing can help client’s business achieve a variety of marketing activities be it making orders to scheduling meetings, tracking orders, sharing updates and news, etc. It can also help segment the audience and in completing orders without the need of forcing users to move to the website. They are helpful in collecting data to gain insight into the audience’s needs and drive prospects down the sales funnel.
* **Chatbot Analytics**. It can help in knowing customers in detail and leading with data so that a business can get a deep understanding of the customers and make better decisions. Clients can get valuable insights and analyze all the chat conversations handled by the bot. It can aid in measuring the accuracy of the responses provided by bots to customers.
* **Chatbot Widget Customization**. Customizing the bot can help in two main areas:

1. Branding - The core messaging of client’s brand can be set into the bot persona to engage customers in a personalized manner.
2. Messaging – Clients can set up warm welcome greetings to begin a flow of conversations and guide your visitors about the product and services.

## Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| Term | Explanation |
| Flow Builder | It is the declarative interface used to build individual flows. Flow Builder can be used to build code-like logic without using a programming language. |
| Omnichannel | It is a multichannel approach to sales that seeks to provide customers with seamless shopping experience, whether they’re shopping online from a desktop or mobile device, by telephone, or in a brick-and-mortar store. |
| AI (Artificial Intelligence) | It is intelligence demonstrated by machines, as opposed to the natural intelligence displayed by humans or animals. |
| API (Application Programming Interface) | It is a connection between computes or between computer programs. It is a type of software interface, offering a service to other pieces of software. |
| NLP (Natural Language Processing) | It is broadly defined as the automatic manipulation of natural language, like speech and text, by software. The study of natural language processing has been around for more than 50 years and grew out of the field of linguistics with the rise of computers. |
| Chatbot | It is a computer program design to simulate conversation with human users through voice commands or text or both. It is an artificial intelligence (AI) feature that can be embedded and used through any major messaging applications. |

## References

| Reference File Name | Version | Description |
| --- | --- | --- |
| RUP Vision Document for the Home Appliance Control System: Defining Stakeholders, Goals, and COTS Components | Technical Report UTDCS-17-04 | The purpose of this document is to collect, analyze, and define high-level needs and features of the Home Appliance Control System. |

|  |  |
| --- | --- |
| Name | Link |
| 15 Most Useful Chatbot Features | https://www.conversocial.com/blog/15-characteristics-of-a-super-useful-chatbot |
| The 10 Most Important Benefits of Chatbots for Companies and Users | https://onlim.com/en/benefits-of-chatbots-for-companies-and-users/ |
| Best AI Chatbot | https://www.ada.cx/ai-chatbot |
| What is a Chatbot? | https://www.youtube.com/watch?v=o9-ObGgfpEk |

# Positioning

## Business Opportunity

Communicating with the users is one of the most important task businesses tackle every day. This can involve solving user problems, answering queries, and giving out general information. A fast response and optimum solution are needed to solve the user’s queries effectively. This application will provide all necessary information, solutions, and guide to users to satisfy to their needs. This application is also designed to allow IT Clan Consulting Services to integrate the software to their own website which will be the means of communication of the users to the firm.

## Problem Statement

|  |  |
| --- | --- |
| The Problem of | An increase in number of emails and phone calls slows down communication. |
| affects | IT Clan Consulting Services |
| the impact of which is | Negatively affecting the reputation of the firm. |
| a successful solution would be | A fast, reliable, and cost-effective software application that can communicate with users which can be integrated to a website and will act as the first line of communication. The application will serve queries to any number of users any time of the day, fast and effectively. |

Table 1 Problem Statement

## Product Position Statement

|  |  |
| --- | --- |
| For | IT Clan Consulting Services |
| Who | Needs a system that provides a fast and effective way of communication. |
| The <product name> | is an AI based software product. |
| That | can be integrated to the website and will act as the first line of communication to the users. |
| Unlike | Conventional methods like emails and phone calls to serve queries from the intended user which causes lagged communications and reputational risk. |
| Our product | Communicate and serve any given number of users in real time without delay. Our product will also evolve using machine learning features and learn the details of community training activities as it increases the number of user it serves. |

Table 2 Product Position Statement

## SWOT Analysis

|  |  |
| --- | --- |
| Strengths | Weaknesses |
| Strong relationship with customers | Lack of systems integration |
| Highly established strong reputation | Limited customer support |
| Easily adapt to changes in technology | Failure to meet performance benchmark |
| **Opportunities** | **Threats** |
| Improved resolution time for outages | Increased competition |
| Unique Service | Poor funding for new technology |
| Lack of Dominant Competition | High staff turnover |

# Stakeholder and User Descriptions

## Stakeholder Summary

< Summary list of all identified Stakeholder of the system >

| Stakeholder Name | Represents | Role |
| --- | --- | --- |
| Project Manager | This is a stakeholder that leads and in charge of chatbot development. | Plans the project, decides priorities, and keeps the team focused. |
| Software Architect | This is a stakeholder that is a primary lead in the development. | Responsible for overall architecture of the project and implements the system. |

Table 3 Stakeholder Summary

## User Summary

| Username | Description | Responsibilities | Stakeholder |
| --- | --- | --- | --- |
| Clients | Primary end user if the system. | Uses the system to ask questions that they have without having to call the customer service. | Self |
| People with disabilities | End user of the system. | Uses the system to ask questions that they have without having to call the customer service. | Self |

Table 4 User Summary

# Stakeholder Requirements

|  |  |  |
| --- | --- | --- |
| ID | Requirement | Stakeholder |
| SR01 | technology that is human-like in conversing with people. It will serve as a first-line communicator with clients' queries, provide menu options and FAQs. | Vimal |
| SR02 | Artificial Intelligence (AI) enables the chatbot to understand human language. AI can simulate a conversation (chat) with the user using Natural Language Processing. | Vimal |
| SR03 | This is an application that runs on a client-side and server-side thru requests in the web browser. | Vimal |
| SR04 | The project will work the same, but the screen ratios are different. It will also maintain the feel and experience of the project on most mobile devices. | Vimal |

Table 5 Stakeholder Requirements

# System Features

|  |  |  |
| --- | --- | --- |
| ID | Feature | Stakeholder Requirement ID |
| SF1.1 | **Emotionally Intelligent** - the bot can pick up the underlying emotions of the customers and respond appropriately. | SR01 |
| SF1.2 | **Unique Personalization** - the bot should remember the customer's information to provide accurate answers or continue what's left. | SR1 |
| SF1.3 | **Transfer Customer** - if the customer's query is too complex for the bot, the bot should have the ability to transfer it to the agent. | SR1 |
| SF2.1 | **Ability to learn** - chatbot should have the ability to learn and equip it to maintain customer satisfaction and business requirements. | SR2 |
| SF2.2 | **Autonomous Reasoning** - chatbot should have the ability to answer customer's queries without the inputs of any agent. | SR2 |
| SF2.3 | **Conversational** - if the bot can answer, the bot should also ask questions simultaneously regarding the customer's queries. | SR2 |
| SF3.1 | **Extensible Integrations** - the bot should have the ability to integrate into other platforms such as-- Facebook, Instagram, WhatsApp, and more. Most customers know how to use this platform, and the conversation can carry on at any point. | SR3 |
| SF4.1 | **Accessibility** - the chatbot should be user-friendly and easy to understand by non-tech customers. It should be accessible on all devices-- especially mobile. | SR4 |

Table 6 System Features

# Assumptions

* The chatbot will serve as a human-like agent. It will also serve as a first liner to greet and help the clients' queries. By conversing with clients on what they come to and collecting enough information to answer client's inquiries.
* It will meet the stakeholder's requirements and will be able to run into any device including, mobile. It will also integrate into website platforms. Throughout the time, the chatbot will learn continuously and will be able to converse naturally with the clients or customers.
* The chatbot will serve as a median between customer and stakeholder. It will help to boost the IT Clan performance in answering their queries. And If the customer's queries are too much to handle for the bot, it will transfer the customer to the available agent. With the information gathered by the bot, it will be easy for the agent to converse with the customer.
* The chatbot will meet all the expectations of the stakeholders.

# Constraints

* The chatbot needs maintenance. We must feed the bot with meaningful data that can answer client's questions and queries.
* The chatbot is not a person. It will only answer according to the client's selection and queries.
* Due to lack of training, the product might not able to be delivered on time.
* After the deployment, the quality of chatbot might not be able to satisfy all the customers. So the team should take that feed back into the account to improve the chatbot in long terms.