|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | |  | |  | |  | | **UMGC CHATBOT** | | **VERSION 1** | |  | | **UNIVERSITY OF MARYLAND GLOBAL CAMPUS** | |  | | **CHATBOT SYSTEM** | |  | | **USER GUIDE** | |  | | **SWEN 670** | |  | | **Submitted By:** | |  | | |  | | --- | | Helen Abraham | | Evelyn Akinlosotu | | Essaid Elboukhani | | Romuald Priva Leuga Nousibouaba | | Jon Masouh | | Joe Ogunsanya | | Vince Seen | | |  | |  | |  | | **april 26, 2020** | |

­

*This Page Intentionally Left Blank*

Document History

|  |  |  |
| --- | --- | --- |
| Issue / Version Number | Change Description / Reason | Date |
| 1 | Initial Release | April 26, 2020 |

Related Publications

|  |  |
| --- | --- |
| Document Title | Document Number |
| UMGC ChatBot Project Plan | Not Applicable |
| UMGC ChatBot Software Requirements Specifications | Not Applicable |
| UMGC ChatBot Software Detailed Description | Not Applicable |
| UMGC ChatBot Test Plan | Not Applicable |

List of Effective Pages

|  |  |  |
| --- | --- | --- |
| Section | Number of Pages | Change Number |
| UMGC ChatBot System, Issue 1, TOTAL NUMBER OF PAGES IN THIS USER GUIDE IS 29 CONSISTING OF: | | |
| Title (and blank page) | 2 |  |
| Front Matter | 7 |  |
| Chapter 1 | 2 |  |
| Chapter 2 | 4 |  |
| Chapter 3 | 2 |  |
| Chapter 4 | 4 |  |
| Chapter 5 | 2 |  |
| Chapter 6 | 2 |  |
| Chapter 7 | 2 |  |
| Chapter 8 | 2 |  |

Table of Contents

[Table of Contents ii](#_Toc38825713)

[List of Figures iii](#_Toc38825714)

[List of Tables iv](#_Toc38825715)

[How To Use This User Guide v](#_Toc38825716)

[Scope of This User Guide v](#_Toc38825717)

[Purpose of This Manual v](#_Toc38825718)

[Manual Organization v](#_Toc38825719)

[Drawings and Diagrams v](#_Toc38825720)

[SAMPLE Icons Used in the Manual v](#_Toc38825721)

[Technical Support and Contact Information vi](#_Toc38825722)

[1 General Information 3](#_Toc38825723)

[1.1 Introduction 3](#_Toc38825724)

[1.2 Overview 3](#_Toc38825725)

[1.3 List of Abbreviations / Acronyms 3](#_Toc38825726)

[2 Software Description and Data 5](#_Toc38825727)

[2.1 Characteristics, Capabilities, and Features 5](#_Toc38825728)

[2.1.1 Characteristics 5](#_Toc38825729)

[2.1.2 Capabilities 5](#_Toc38825730)

[2.1.3 Features 5](#_Toc38825731)

[2.2 Descriptive Icons 5](#_Toc38825732)

[2.3 Project Players 6](#_Toc38825733)

[2.4 Support 6](#_Toc38825734)

[2.5 Referenced Documentation 6](#_Toc38825735)

[2.6 History of the Solution 7](#_Toc38825736)

[2.7 Connections to the Application 7](#_Toc38825737)

[2.7.1 Address 7](#_Toc38825738)

[2.7.2 Authentication 7](#_Toc38825739)

[2.7.3 Software Specifications 7](#_Toc38825740)

[2.7.4 Hardware Specifications 7](#_Toc38825741)

[3 Structuring of the Application 9](#_Toc38825742)

[3.1 Layout 9](#_Toc38825743)

[3.1.1 Process Interface – DialogFlow 9](#_Toc38825744)

[3.1.2 Process Interface- IBM Watson 9](#_Toc38825745)

[3.1.3 Screen Objects and Actions 10](#_Toc38825746)

[4 Function Module Interface / Home Screen 11](#_Toc38825747)

[4.1 Screenshot 11](#_Toc38825748)

[4.2 Descriptions of Fields, Content 11](#_Toc38825749)

[4.3 Description of Actions 11](#_Toc38825750)

[4.4 Sequence of Screens 12](#_Toc38825751)

[5 Troubleshooting 15](#_Toc38825752)

[6 Maintenance 17](#_Toc38825753)

[7 Glossary 19](#_Toc38825754)

[8 Technical Support 21](#_Toc38825755)

List of Figures

[Figure 1. UMGC Chat Icon 5](#_Toc38827336)

[Figure 2. UMGC ChatBot – Chat In Process 6](#_Toc38827337)

[Figure 3. DialogFlow Engine 9](#_Toc38827338)

[Figure 4. IBM Watson Assistant 10](#_Toc38827339)

[Figure 5. Home Screen Interface 11](#_Toc38827340)

[Figure 6. Module Interface – City of Pasadena Home Page 12](#_Toc38827341)

[Figure 7. UMCG Chatbot – Chat Activated 12](#_Toc38827342)

[Figure 8. UMGC Chatbot – Chat Expended 13](#_Toc38827343)

List of Tables

[Table 1. List of Icons Used in this Manual vi](#_Toc38827297)

[Table 2. List of Abbreviations/Acronyms 3](#_Toc38827298)

[Table 3. UMGC ChatBot System Developers 6](#_Toc38827299)

[Table 4. ChatBot Software Specifications 7](#_Toc38827300)

[Table 5. ChatBot Hardware Specifications 7](#_Toc38827301)

[Table 6. Glossary 19](#_Toc38827302)

How To Use This User Guide

Scope of This User Guide

This user guide uses text formatting to highlight user-defined selections and commands. Format conventions used throughout this user guide are defined below.

|  |  |
| --- | --- |
| Format | Purpose |
| **Bold** | Used to emphasize text the user must enter or select, including menu items, buttons, and commands |
| *Italics* | Used for emphasis or to identify screen names and text within ChatBot screens. The same text may be *italicized* if referring to a screen name or **bolded** if referring to a selection. |

Purpose of This USER GUIDE

The purpose of this user guide is to describe the user steps for accessing and using the UMGC Chatbot system on the City of Pasedena website. The ChatBot system was designed to provide a more efficient and interactive dialog search system within the City of Pasedena, California website. Users will be able to find answers to pertinent questions by the general public.

User Guide Organization

The table below provides a summary for the content of each section within this user guide.

| Chapter No. | Chapter Title | Summary |
| --- | --- | --- |
| 1 | General Information | Provides the general information and a list of acronyms. |
| 2 | Software Description and Data | Provides software descriptions, characteristics, features, and information for the UMGC ChatBot system. |
| 3 | Structuring of the Application | Provides the layout of the UMGC ChatBot, including icons, and functionalities. |
| 4 | Function Module Interface / Home Screen | Provides operational procedures for Home Screen and ChatBot Function Module |
| 5 | Troubleshooting | Provides maintenance procedures for the UMGC ChatBot system. |
| 6 | Maintenance | Procedures illustrated to configure the UMGC ChatBot system. |
| 7 | Glossary | Provides a list of technical terms used is this manual. |
| 8 | Technical Support | Provides technical support contact information for the UMGC ChatBot. |

Drawings and Diagrams

The drawings and diagrams in this manual are for informational purposes and generally accurate enough to give the user an idea of the look of the ChatBot user screens, icons, and selection menus.

Sample Icons Used in the Manual

This document may include instructions that may be important in the operation of the software. Some information may be added to give the user more insight into a particular function. In these cases, such icons are shown to attract the attention of the reader. Icons that may be included in this manual are listed in Table 1 below.

| Table 1. List of Icons Used in this Manual | |
| --- | --- |
| Icon | Function / Purpose |
|  | Chatbot Icon |
|  | To close the chat box |
|  | Maximized/Miniminzed |

Technical Support and Contact Information

Should you need technical support for a product that is under warranty, extended warranty, or covered under a maintenance agreement, please contact UMGC Technical Support at umgc.edu/help or call 1-888-360-8682. Our Technical Services team will help you with diagnosing your product issues.

*This Page Intentionally Left Blank*

# General Information

## Introduction

This chapter provides an overview of the UMGC ChatBot System. A list of abbreviations in this document with their definitions is featured at the end of this chapter.

## Overview

The UMGC ChatBot System was developed to enhance the search capabilities on the California State, City of Pasedena website. The ChatBot is a user-friendly, artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through websites. The ChatBot interfaces with the website and has knowledge of information on the website. It responds to user inputs on the host website and returns answers to the user’s questions.

## List of Abbreviations / Acronyms

|  |  |
| --- | --- |
| Table 2. List of Abbreviations/Acronyms | |
| Abbreviation/Acronym | Definition |
| AI | Artificial Intelligence |
| IBM | International Business Machines. A multinational technology corporation. |
| NLP | Natural Language Processing |
| SDD | Software Design Document |
| SRS | Software Requirements Specifications |
| UMGC | University of Maryland Global Campus |
| User | Visitor or Customer on the City of Pasadena website. |

*This Page Intentionally Left Blank*

# Software Description and Data

The following sections describe the characteristics, capabilities, features, and specifications of the UMGC ChatBot software.

## Characteristics, Capabilities, and Features

The following sections provide the specifications for the UMGC ChatBot software. Included are features, characteristics, and descriptions of major components.

### Characteristics

The UMGC ChatBot system is designed with capabilities and features that enhance user seach on the host website. The system is programmed to utilize Natural Language Processing (NLP) to understand user questions and inputs. It translates user inputs into clear and relevant queries. It also validates user requests for unclear user inputs.

### Capabilities

The UMGC ChatBot has the following capabilities:

* Natural Language Processing (NLP)
* Natural Language Understanding
* Contextual Awareness
* Anticipate Customer Needs

### Features

* Integrates with the City of Pasadena website
* Integrates with website database
* Pre-trained
* Better answers

## Descriptive Icons

The following figures describe the ChatBot icons involved in the chat process.



Figure 1. UMGC Chat Icon



Figure 2. UMGC ChatBot – Chat In Process

## Project Players

|  |  |
| --- | --- |
| Table 3. UMGC ChatBot System Developers | |
| Project Players | Roles |
| Helen Abraham | Tester |
| Evelyn Akinlosotu | Tester / Documentation |
| Essaid Elboukhani | Developer |
| Romuald Priva Leuga Nousibouaba | Developer / Tester |
| Jon Masouh | Developer / Tester |
| Joe Ogunsanya | Project Manager |
| Vince Seen | Developer / Tester |

## Support

The UMGC ChatBot project was developed with support by the University of Maryland Global Campus Software Engineering Department, Software Project (SWEN 670) Faculty and Staff.

## Referenced Documentation

(1998, December 04). IEEE recommended practice for software design descriptions. IEEE Std 1016-1998. The Institute of Electrical and Electronics Engineers, Inc. Retrieved March 30, 2020 from <https://www.cs.helsinki.fi/group/linja/resources/IEEE_Std_1016-1998.pdf>

Ogunsanya, J., Abraham, H. Akinlosotu, E., Elboukhani, E.Masouh, J., Nousibouaba, R.P.L., and Seen, V. Software requirements specification (SRS) – chatbot system. Retrieved March 28, 2020 from <https://drive.google.com/file/d/1XeBxxYVtJyiU2renaey9aExyVdIgp7yl/view?usp=sharing>

## History of the Solution

The UMGC City Chatbot system was developed to enhance the search capability of the website of the City of Pasedena, California. The Chatbot was to incorporate the city’s zonal address module on the current website into its chat dialog knowledgebase. This update provides a chat system that is capable of providing the user with the user’s address-specific information.

## Connections to the Application

The user can access the ChatBot online by entering the City of Pasedena’s website address into a web browser. The website is accessible via any web browser, such as Internet Explorer 11, Google Chrome, Safari Firefox, etc.

### Address

You must connect to the application using the following address: https://www.cityofpasedena.gov.

### Authentication

Verify the correct City of Pasedena website by ensuring that the address provided in section 2.7.1 is entered in the web browser.

### Software Specifications

Table 4 lists the software requirements and specifications necessary to successfully access and connect to the UMGC ChatBot application.

|  |  |
| --- | --- |
| Table 4. ChatBot Software Specifications | |
| **Requirement** | Specification |
| Operating System | Windows or MAC |

### Hardware Specifications

A computer is required for the accessing the UMGC ChatBot application. Appropriate computer hardware devices include the following:

* Personal Computer (PC)
* Laptop
* iPad
* Tablet
* Smartphone

The computer hardware must meet the following specifications listed in Table 5.

**Table 5. ChatBot Hardware Specifications**

| Requirement | Specification |
| --- | --- |
| Internet Access | Broadband |
| RAM | 4GB (Minimum) |
| Processor | Dual Core, 4.0 GHz |
| Storage | 64GB (Minimum ) |
| Screen Resolution | 1,024 by 768 (Minimum) |

# Function Module Interface / Home Screen

This section describes the different screens that define the modules interface of the Chatbot system. Figure 3 provides the Chatbot application user interface. Figure 3 shows the landing page or the starting screen of the City of Pasadena website. It contains the chat icon that the user can click on to get help. The icon exists on all the pages of the site.

## Screenshot

A picture containing screenshot, outdoor, blue, sign

Description automatically generated

Figure 3. Home Screen Interface

## Descriptions of Fields, Content

The user will utilize the Chatbot user interface when looking for help while navigating the City of Pasadena website. The system is able to provide the user with specific regulations, definitions, city’s standards and links to applications and permits. The services and possible queries are detailed in the SRS document for this UMGC ChatBot System.

## Description of Actions

The chat feature is capable of answering the user questions either typed in or sent as voice messages. The system will be built to fetch data from common keywords configured with the chat engine systems. The responses will be both displayed as text or can be listened to.

Figure 4 shows the user’s click on the chat icon. In this screen, the chatbot system shall initiate the conversation and invite the user to ask for help. The user can expand the ChatBot or end the chat. The messages are either entered on the designated area to type a message or can be sent as audio messages.

Figure 5 shows the expanded chat box where the user can see all previous messages which can also be done using a scroll bar of the ChatBot.

## Sequence of Screens

#### Home Screen

A picture containing screenshot, outdoor, blue, sign

Description automatically generated

Figure 4. Module Interface – City of Pasadena Home Page

#### Screen with Chat Activated

A picture containing screenshot, outdoor, sitting, sign

Description automatically generated

Figure 5. UMCG Chatbot – Chat Activated

#### Screen with Chat Expanded

A screenshot of a social media post

Description automatically generated

Figure 6. UMGC Chatbot – Chat Expended

*This Page Intentionally Left Blank*

# Troubleshooting

This manual provides oftware driven procedures for troubleshooting of the UMGC ChatBot System. Before attempting to troubleshoot the UMGC Chatbot, refer to the contact information for UMGC technical support in the Technical Support section on page 21 of this user guide.

*This Page Intentionally Left Blank*

# Maintenance

Refer to the Technical Support section on page 21 for contact information for UMGC technical support of maintenance issues.

*This Page Intentionally Left Blank*

# Glossary

This is a glossary of acronyms and terms commonly used in this manual. Some acronyms are fully explained (including definitions). Others may only have the series of words that form the acronym.

| Table 6. Glossary | |
| --- | --- |
| Term | Definition |
| Application | A software program or group of programs designed for end users. |
| ChatBot | A computer program designed to simulate conversation with human users, especially over the Internet. |
| Dialog Flow | Anatural language processing (NLP) platform that can be used to build conversational applications and experiences for a company’s customers in various languages and on multiple platforms |
| IBM Watson | A cognitive computing platform originally developed by IBM to answer questions |
| Icon | A picture, image, or other representation. |

*This Page Intentionally Left Blank*

# Technical Support

If you should need technical support for a product that is under warranty, extended warranty or covered under a maintenance agreement, please contact UMGC Technical Support at umgc.edu/help or call 1-888-360-8682. Our Technical Services team will help you with diagnosing your product issues.