Software Design Document

Version 1.1

Vocal Assistant

**Introduction**

Purpose

This software design specification is made with the purpose of describing the project named “Vocal Assistant” from an architectural point of view. The “Vocal Assistant” is a software that responds to the voice commands of the user. The program works non-stop (in a while True loop) and has the function of a personal assistant such as Siri, Alexa or Cortana (a basic implementation of those).

Objective

The document facilitates understanding of the system by providing several views of the design.

Overview

The document is divided into several parts:

1. Introduction
   1. Purpose
   2. Objective
   3. Overview
2. Data Design
3. Architectural design
   1. Overview of User Interface
   2. Scenarios
4. Features & Interface
5. Future Development
6. Conclusion

**Data design**

To represent in a more human readable manner the data structure to the user our solution uses YAML for Python.It uses the principle of dictionary to represent complex data like nested structures in a more human readable manner, making it easier to follow. Also it parses the date so that Python can use it.

**Architectural design**

The technology used for the development of the project was Python and the integrated development environment used was PyCharm. The solution uses multiple files containing definitions and statements (modules) which are imported from packages.

The main modules of our solution are:

* Speech Recognition – converts spoken words to text
* YAML – data serialization human readable format
* Sys – provides access to some variables used or maintained by the interpreter and to functions that interact strongly with the interpreter
* Socket – provides access to the BSD socket interface
* Datetime –manipulates dates and times in both simple and complex ways
* Web-browser – provides a high-level interface to allow displaying Web-based documents to users
* OS – provides a way of using operating system dependent functionality
* Urllib3 – sanity-friendly HTTP client for Python
* Requests – allows sending organic HTTP requests automatically
* GTTS – creates an mp3 file from spoken text via the Google Text-to-Speech API

**Features & Interface**

Overview of User Interface

The flow of the application:

* A user sends the input via microphone commands.
* The data is processed and in case of success the output returns an audio and/or text message with a suggestive answer.
* In case of error it returns a exception with a message depending of its type: UnknownValue, RequestError, URLError.
* After a cycle is finished, the same behavior is expected, creating a loop.
* The program stops when ‘Stop’ input is inserted

Scenarios:

* STOP – the program exits
* IP – the program shows the IP address
* TIME DEFAULT – the program shows the current time (GMT)
* TIME CITY – the program shows the current time for a specific city
* NETWORK – the program shows the network connection
* GOOGLE – the program searches a string on google
* BROWSE – the program opens a certain site
* YOUTUBE – the program searches a string on Youtube
* WEATHER – the program shows the weather for a specific city
* MAP – the program shows a certain place on map
* EDITOR – the program opens a text editor
* TERMINAL – the program opens a gnome-terminal
* MUSIC – the program opens a music player

**Future development**

In the next releases we target to cover features like:

* Show battery charge percentage
* View Images
* Open Emails/Notifications
* Set Alarm clock
* Check currency-exchange
* Show Facebook notifications

**Conclusion**

In this document, we presented the data design, architectural design and interface design of Vocal Assistant, a software that responds to the voice commands of the user. Based on the points mentioned above we conclude that our application is fully functional and provides some of the functionalities of well-known AI assistants like Siri or Cortana to a smaller scale.

Project team:

Badea Corneliu-Robert 343C5 tester + developer

Codescu Radu 341C3 developer

Mihalache Octavian 341C3 developer

Radu Robert George 341C5 project manager & technical writer