GNG2101 Report Template

Project Deliverable C

Conceptual Design and Project Plan

Submitted by

Team A1.2

Luke DuSautoy, 300239507

Wanis Hassan, 300255946

Haonan Zhou, 300264669

[TEAM MEMBER, STUDENT ID]

[TEAM MEMBER, STUDENT ID]

2022/10/7

University of Ottawa

#### 

Abstract

Table of Contents

[Abstract i](#_Toc116032493)

[Table of Contents ii](#_Toc116032494)

[List of Figures iii](#_Toc116032495)

[List of Tables iv](#_Toc116032496)

[List of Acronyms v](#_Toc116032497)

[1 Introduction 6](#_Toc116032498)

[1.1 Why Conceptual Design 6](#_Toc116032499)

[1.2 What is Conceptual Design Relevant for 6](#_Toc116032500)

[1.3 Topic 6](#_Toc116032501)

[2 Body of the Report 7](#_Toc116032502)

[2.1 Functional Decomposition 7](#_Toc116032503)

[2.2 Case Diagram 7](#_Toc116032504)

[2.2.1 Capture User Inputs 7](#_Toc116032505)

[2.2.2 Convert Input File to .txt 8](#_Toc116032506)

[2.2.3 Output File for Editing 9](#_Toc116032507)

[2.2.4 Convert from .txt to mp3 9](#_Toc116032508)

[3 Conclusions and Recommendations for Future Work 11](#_Toc116032509)

[4 Bibliography 12](#_Toc116032510)

[APPENDICES 13](#_Toc116032511)

[APPENDIX I: 13](#_Toc116032512)

List of Figures

**No table of figures entries found.**

List of Tables

**No table of figures entries found.**

List of Acronyms

|  |  |
| --- | --- |
| **Acronym** | **Definition** |
| PDF | Portable Document Format |
| MP3 | MPEG Layer 3 (audio file) |
| ePub | Electronic publication |
| OCR | Optical Character Recognition |
| UX | User Experience |
| UI | User Interface |
| DAISY | The Digital Accessible Information System |

# Introduction

## Why Conceptual Design

The conceptual design process is important framework for developing the ground level ideas of the project. It allows the designers to visualize their ideas and to develop new ones. This allowance to visualize the ideas means that there is increased clarity between team members and within one’s own concepts.

## What is Conceptual Design Relevant for

Conceptual design is extremely useful in software projects where the UI is important. Being able to create the outline without needing to code lets the team generate multiple solutions and then access the benefits and drawbacks of each to assure the final interface is as accessible and comprehensive as possible.

The conceptual design process also helps us understand the relationship between the customer and the system used to create the system requirements. The client’s relationship with the system will change over time, however it is beneficial to have as deep an understanding of this relationship as possible.

## Topic

The report will develop a conceptual design for the development of this project and establish a plan for creating future prototypes.

# Body of the Report

## Functional Decomposition

The team has decomposed the project into the four processes the program will ideally run through. First the system must interact with user to receive their required inputs, and the file that the user would like to convert. If possible, we would like to allow the users to have full control over the output of the MP3 file to best suit their needs, this would include inputs such as preferred voice and speed. Next the system must read from the input file and convert any text into a .txt document as this will make the next step more efficient and will work on any device. This process would ideally be able to extract text using OCR on .jpeg and .png files in the case that users have image files which they require to extract the text from. The interface will then display the generated .txt file and allow the user to make the desired corrections in case there are issues with the previous process. Once the system has the corrected file it will then convert this into a .mp3 or. daisy which will be placed directly into the file which the user has specified completing the client’s request.

## Case Diagram

### Capture User Inputs

Website, CSS, and html, dropdown to select which input types and a button to submit, this would meet the specification for a website and allows other specifications to be met. The drop-down menus would allow the user to select the appropriate voice and speed, however, may be less accessible to some users.

Similar to naturalreaders follow along by highlighting text, this is very accessible and easy to use. This accessibility would come at the cost of some features.

Like apple, long scrolling page – static background clear and easy to follow, scrolling may reduce accessibility of users on smaller devices. Room for many of the target specification features.

### Convert Input File to .txt

(PHP)[spatie/pdf-to-text: Extract text from a pdf (github.com)](https://github.com/spatie/pdf-to-text) Uses unfamiliar language and speed is less than required in the target specifications, however within marginal specifications.

(Python) [Convert PDF to TXT file using Python - AskPython](https://www.askpython.com/python/examples/convert-pdf-to-txt#:~:text=Steps%20to%20Convert%20PDF%20to%20TXT%20in%20Python,IDLE%20and%20press%20keys%20ctrl%20%2B%20N.%20) Familiar language would allow the code to be adjusted to attempt to meet the desired target specification.

(JavaScript) [How to convert PDF to Text (extract text from PDF) with JavaScript | Our Code World](https://ourcodeworld.com/articles/read/405/how-to-convert-pdf-to-text-extract-text-from-pdf-with-javascript#:~:text=How%20to%20convert%20PDF%20to%20Text%20%28extract%20text,4%204.%20Extracting%20text%20from%20multiple%20pages%20)­ Unfamiliar language however is built into web code will reduce complexity of hooks and allow for fastest form of program.

Convert pdf to text with Python: <https://www.pdftron.com/ppc/python-pdf-library/?utm_source=google&utm_medium=cpc&utm_campaign=PDFTron_Google_Search_NB_SDK_Language_Framework&utm_content=python-library&utm_term=python%20pdf%20library&gclid=CjwKCAjw7eSZBhB8EiwA60kCWwxtIGXMiYYeW-dd2Q9dv8oLALtFZZfq0K0M3jgIvSPRKSgkldVCqRoCgvoQAvD_BwE> This allows us to convert any pdf document to a text file with the use of a programming language our team is comfortable with.

Open-source image to pdf converter: <https://dawnlabs.github.io/alchemy/> - This could be used if we end up using executables, it will allow us to convert images to pdf.

Convert image to pdf: <https://datatofish.com/images-to-pdf-python/> - It helps our group to convert images first before converting pdf to speech.

### Output File for Editing

(Access) Create a database to draw from and organize chapters [Microsoft Access Application Software | Create Database Apps](https://www.microsoft.com/en-ca/microsoft-365/access) - This would increase complexity, however overall organisation and presentation to end users would be simpler.

### Convert from .txt to mp3

(xVASynth) Text to speech program: [xVASynth 2 - SKVA Synth at Skyrim Special Edition Nexus - Mods and Community (nexusmods.com)](https://www.nexusmods.com/skyrimspecialedition/mods/44184) - This allows the synthesis of any voice when provided with enough sample size. Would allow for maximum choice of voice, but heightened complexity.

Convert text to speech in Python: <https://pypi.org/project/gTTS/> - This allows us to convert the text that we had previously converted from pdf to mp3 with the same language we used for the last step, so maintaining both codes will be consistent.

(Language Translator): <https://techvidvan.com/tutorials/python-language-translator/> - It can make our project available in multiple languages.

Convert text to speech: <https://www.codingem.com/python-text-to-speech/> - This web can easily help us to build our mind about how to convert text to speech.

# Conclusions and Recommendations for Future Work

Summarize your lessons learned and your work and suggest the most productive avenues for future work.

APPENDICES

APPENDIX I:

Use this section to include your work that is not part of the central subject of the report.