|  |
| --- |
|  |
| ChatBot  Project Proposal |
| *The version number starts at one and increases by one for each release. It shows the release number and a revision letter if in draft. The original draft is 0.A and subsequent drafts are 0.B, 0.C etc. The first accepted and issued document is 1.0. Subsequent changes in draft form are 1.0A, 1.0B etc.. The accepted and issued second version is 1.1 or 2.0, depending on the magnitude of the change.* |

|  |
| --- |
| Version No: dd-mm-yyyy  Copy: uncontrolled |

Document Acceptance and Release Notice

This document is authorised for release once all signatures have been obtained.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| PREPARED: |  | Date: |  | / |  | / |  |
| (for acceptance) | <Name>  < Position>, <Business Unit> |  |  | | | | |
|  |  |  |  | | | | |
| ACCEPTED: |  | Date: |  | / |  | / |  |
| (for release) | <Name>  <Position>, <Business Unit> |  |  | | | | |

Table of Contents

[Project Summary 11](#_Toc194395455)

[Purpose 11](#_Toc194395456)

[Business and Policy Context 11](#_Toc194395457)

[Working Title for the Proposed Project 11](#_Toc194395458)

[Objective(s) 11](#_Toc194395459)

[Project Complexity 11](#_Toc194395460)

[Potential Benefits 12](#_Toc194395461)

[Feasibility Statement 12](#_Toc194395462)

[Recommendation 12](#_Toc194395463)

[Business Assessment 12](#_Toc194395464)

[Situation Assessment and Problem Statement 12](#_Toc194395465)

[Options considered 12](#_Toc194395466)

[Consultation 12](#_Toc194395467)

[Proposed Scope 13](#_Toc194395468)

[Scope Definition 13](#_Toc194395469)

[Assumptions 13](#_Toc194395470)

[Constraints 13](#_Toc194395471)

[Scope of Work 13](#_Toc194395472)

[Implementation Strategy 14](#_Toc194395473)

[Project Management Outline 15](#_Toc194395474)

[Governance 15](#_Toc194395475)

[Key Risks and Issues 15](#_Toc194395476)

# 

# Project Summary

## Purpose

The purpose of this document is to present a Chatbot that can guide and carry out tasks assigned by students, teachers and admin, integrate able into the existing universities website.

## Business and Policy Context

The integration of Chatbot in to the website will bring innovation and will greatly enhance the user experience. People with poor vision can also use the website by talking with the bot. Complex tasks like advance searching will become easy.

## Working Title for the Proposed Project.

The working title for the project is the Chatbot Project.

## Objective(s)

The objective of the Chatbot Project is to enhance user experience of current university’s website.

## Project Complexity

The project is complex as it greatly depends upon Artificial Intelligence. There are three main types of end users each with different stake. The input from user in lingual form and carrying out desired operation correctly requires reliable datasets. Last but not least, integration into existing running website requires proper design and architecture.

## Potential Benefits

The website will surely gain popularity and will become example of its own if the Chatbot is integrated into the website maintaining all quality measures.

## Feasibility Statement

The university is capable to invest in this project because it is not going to be outsourced. The development cost is not so much since no special hardware is needed and large number of AI libraries are available in Python. The challenge of reliable data collection will become easy since university students, teachers and admins are enough to provide it.

## Recommendation

The feasibility statement from the above section justifies that the university is in no risk in proceeding with this project. Even for the worst case, which is the failure of project, there is no such investment of university that will be wasted.

# Business Assessment

## Situation Assessment and Problem Statement

Addition of Chatbot feature in university’s website will cause uniqueness and increase in the user experience of website, even if GUI is great. Tasks that needs manual interaction of user like searching can be automated by AI driven bot. People with problem in vision can also be facilitated with the feature to communicate with Bot through voice.

## Options considered

* Option 1- No investment of university and no innovation will take place.
* Option 2 - A little investment in the form of time and small amount of money and a new and innovative feature can be added to website. The investment is small because project will build in-house and no data will go into the hands of third party. However, a little probability of failure.
* Option 3 - Outsource the project in which there is no chance of failure. However, it would require comparatively large investment and universities data will go into the hands of third party.

## Consultation

Doing the consultation with university authority, Option 2 appears to be the best option because it ensures data confidentiality and low investment. However, there exists a risk of failure but this failure is negligible which means that even if the project fails the loss of university’s investment is too low that is it is bearable.

# Proposed Scope

The implementation of the Option-2 from the previous section involves the following activities along with its stakeholders.

1. Requirement and data gathering from university authority, students, teachers and administration.
2. Detailed understanding of compliance framework by, if any, by software development team.
3. Access to the documentation/code of current website. It is necessary to design Chatbot integrate able with website.
4. Preparation, training and testing of Machine Learning model.
5. Integration of ML model with text-to-speech to convert input voice to text.
6. Integration of ML model to interactive GUI.
7. Unit testing of standalone Chatbot.
8. Integration of Chatbot to website.
9. Integration testing of website.
10. Acceptance testing by all stakeholders.
11. Deployment.

## Scope Definition

The project scopes over five different stakeholders that is university authority, students, teachers, admin and software development team.

Table 1: Chatbot Proposed Scope

|  |  |
| --- | --- |
| **Element** | **Detail** |
| Objective | To increase the user experience of the website. |
| Outcome | To automate the manual tasks, make website features accessible through voice and guide new users. |
| Output | An AI driven module directly integrate able into the university’s main website. |
| Quality Criteria | Reliable outcomes, device independency, efficiency irrespective of internet speed. |
| Customer(s) | University’s students, teachers & people from administration. |

## Assumptions

The main assumptions are:

* Currently deployed website is properly and correctly documented.
* Data gathered from students, teachers and admins would be correct and reliable.
* University has enough IT infrastructure to train, test and deploy AI model.
* The number of requests per second will not exceed expectations, otherwise server/s may get down quickly.

## 

## Constraints

The main constraints are:

* The language will be English with natively spoken ascent.
* Enough computational power of servers to handle AI model.
* Malfunctioning of pre-existing feature of website.
* Addition of new changes into website which may cause Chatbot to misbehave.

## Scope of Work

The processes that are required to produce the project outputs are of Waterfall methodology of SDLC (Software Development Life Cycle).

Though Waterfall is old methodology, but still it works perfectly fine for this project due to the fact that the involvement of authority, teachers, students and admin is required only once after that they are required in acceptance test (as mentioned in the beginning of Proposed Scope section).

No parallel working is required and each phase (design, implement, test) occurs one after another. The output of one phase acts as the input of another one.

Customers are not interested in obtaining deliverables, and only want final product that is successful integration.

## Implementation Strategy

The estimated resources that will be required to implement the proposed project are detailed in table 2 below.

|  |  |  |
| --- | --- | --- |
| **Table 2: Chatbot Project Implementation Strategy** | | |
| **Element** | **Detail** | **Issues** | |
| Project Schedule | The project is expected to commence on 01/09/2020 and be completed by 15/10/2020 | The time schedule is so strict and all activities of SDLC are carried out sequentially therefore any delay in any activity may cause overall delay in project. | |
| Budget Estimate | The net cost is 1000$. | The cost is developmental and is for software team. It is estimated keeping in mind that all servers, network, electricity and infrastructure needs will be fulfilled by university | |
| Other Resources | Documentation of current website and compliance framework (if any). | Any mistake in these documents will eventually pass to outcome of project and/or may cause time and budget overrun. | |

# Project Management Outline

## Governance

The governance will be established and influenced by following stakeholders:

* University Authority
* Teachers
* Students
* Admin
* Project Manager

The parties that can be included after proposal approval are:

* Blackbox tester
* Penetration tester

## Key Risks and Issues.

These major risks or issues will be investigated further should the project proceed:

* Different accents of people may cause unexpected or no outcomes at all.
* Since Chatbot is CPU intensive, unexpected load to servers may cause denial of service.
* Failure of bot in carrying out any important task may cause irreversible loss.
* Unreliable training data will obviously cause unreliable results.
* After successful integration of Chatbot, any changes to website may cause bot to misbehave.
* Discovery of vulnerability on underlying libraries or language.
* Non compliance from international standards may cause project to stop.