School of Computing  
CA326 Year 3 Project Proposal Form

**SECTION A**

Project Title \_DCU Virtual Assistant\_

Student 1 Name \_Conor Patrick Marsh\_ ID Number \_19728351\_

Student 2 Name \_Mark Kevin Queypo\_ ID Number \_19404214\_

Staff Member Consulted for supervision \_Brian Davis\_

Project Description (2 pages max)

**Introduction**

The general area of the project is a combination of voice-assistant and chatbot technology in which we plan to create a hybrid of both concepts which can identify and respond to both speech-based and text-based queries. We believe that for students familiarising themselves with campus life, time constraints in accessing relevant information through a website can be minimised with the use of these technologies.

**Outline**

The project we are proposing is a chatterbox assistant designed to help newer DCU students by answering their queries surrounding the university. The assistant comes equipped with voice recognition allowing for quick and simple query handling. The assistant can answer queries such as:

* directions for buildings around the campus i.e. the library, londis.
* the student’s timetable
* showing details about a module
* the ability to keep track on any assignments and projects

This is just a couple of things the bot can do. More features would be added as we develop the project.

**Background**

Having browsed through the suggested projects of all the lecturers in the department, we found the idea being suggested and both agreed that it was something we would be interested in pursuing. Being once first years, we remembered difficulties we faced from finding our way around the campus and keeping track of assignments.

**Goals**

The project will aim to achieve a means of providing campus-related information to DCU students in a considerably quicker manner than they would be able to while browsing the university website. We aim to provide a wide range of responses to any typical question from the student with minimum delay. With this bot, we hope that students will find this assistant useful for the majority of their life in college and not just new students but current students too .It will be useful at any time on campus when a student is unaware of any information that they require quickly to reach their destination, find the location of a building, know when their next lecture starts, manage assignments etc. .

**Programming language(s) and tools**

|  |  |  |
| --- | --- | --- |
| *Technology* | *Description* | *URL* |
| *Python 3.9* | *general-purpose programming language* | *https://www.python.org/* |
| *SpeechRecognition 3.8.1* | *library for performing speech recognition in Python* | *https://pypi.org/project/SpeechRecognition/* |
| *Vosk API* | *toolkit for speech recognition through multiple languages* | *https://github.com/alphacep/vosk-api/* |
| *pyttsx3 2.90* | *text-to-speech conversion library in Python* | *https://pypi.org/project/pyttsx3/* |
| *Tkinter 8.5* | *library to create GUIs in Python* | *https://docs.python.org/3/library/tkinter.html#module-tkinter* |
| *Flask 2.0.2* | *API of Python for building web-applications* | *https://flask.palletsprojects.com/en/2.0.x/* |
| *Bootstrap 5* | *open-source CSS framework* | *https://getbootstrap.com/* |

**Breakdown of work**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Name** | **Description** | **Student 1 % Responsible** | **Student 2** | **Month (0-4)** |
| Task 1 Requirements analysis | Analysis state of the art regarding Chatbots - literature and technologies | Lead (50%) | 50% | M0 - M1 |
| Development | **Development of code and web interface**  Backend (Code implementation)  Front end (GUI) | 40%  Lead (60%) | Lead(60%)  40% | M1 - M2 |
| Testing | Writing and implementation of test cases | 50% | Lead(50%) | M2 - M3 |
| Documentation | Composing relevant documentation, user manual | Lead (50%) | 50% | M1-M4 |

**Student 1 - Conor Marsh**

I will be responsible for developing skills in Flask to enable integration of the voice/chat assistant with a web interface. I will also work on implementing the tkinter Python library to create an interface for the assistant. I will be responsible for identifying the optimal Python libraries we require for speech recognition and synthesis and ensuring that they are working to a sufficient standard to meet the goals of the project.

**Student 2- Mark Kevin Queypo**

I will be responsible for writing code for the features of the assistant and to write test cases and patterns of what a user may ask of the assistant. I will also be responsible for thinking of ideas that the bot should have to satisfy a student's needs. The sketching and design of the interface will also be done by me.