



INSTITUTE *of*
TECHNOLOGY

CARLOW

Visual Developer tool for Mycroft: Functional Specification

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Year 4

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Date of Submission: 20/04/2020

Abstract

The aim of this project is to build a visual development tool in the vain of Scratch which would allow the users to easily build skills(apps) for Mycroft which is an open source voice assistant for Linux. This application should allow the users to create a skill without having to write any code by just dropping visual blocks on a canvas with prewritten code in the. The only thing that a user will have to do is answer a short questionnaire to create a skill template and select the file

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1. Introduction

The objective of this document is to provide an overview of how the software is expected to operate, its target audience as well as how its success is going to be measured. The document will be broken down into 3 sections with each section giving an in-depth description of its respective topic. The sections are as follows.

Section 1: *Specifications* - Explains the expected FURPS (Functionality, Usability, Reliability, Performance, Support) of the software

Section 2: *Target Market*- Clarifies what the target audience for the software is

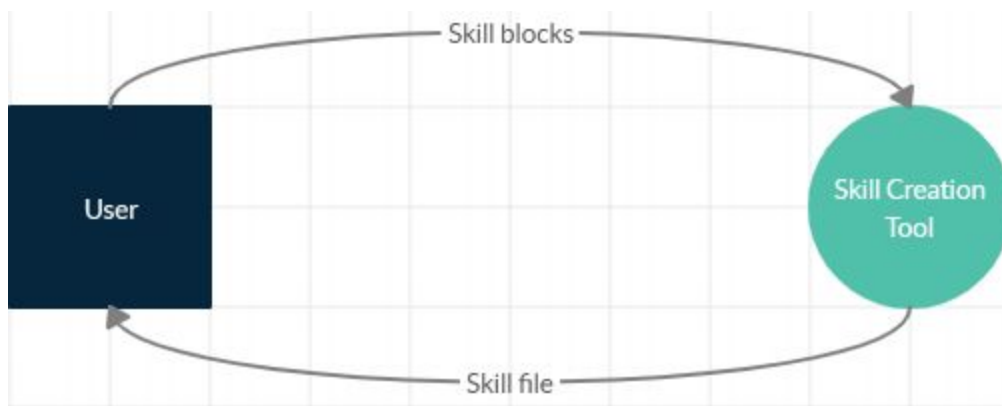
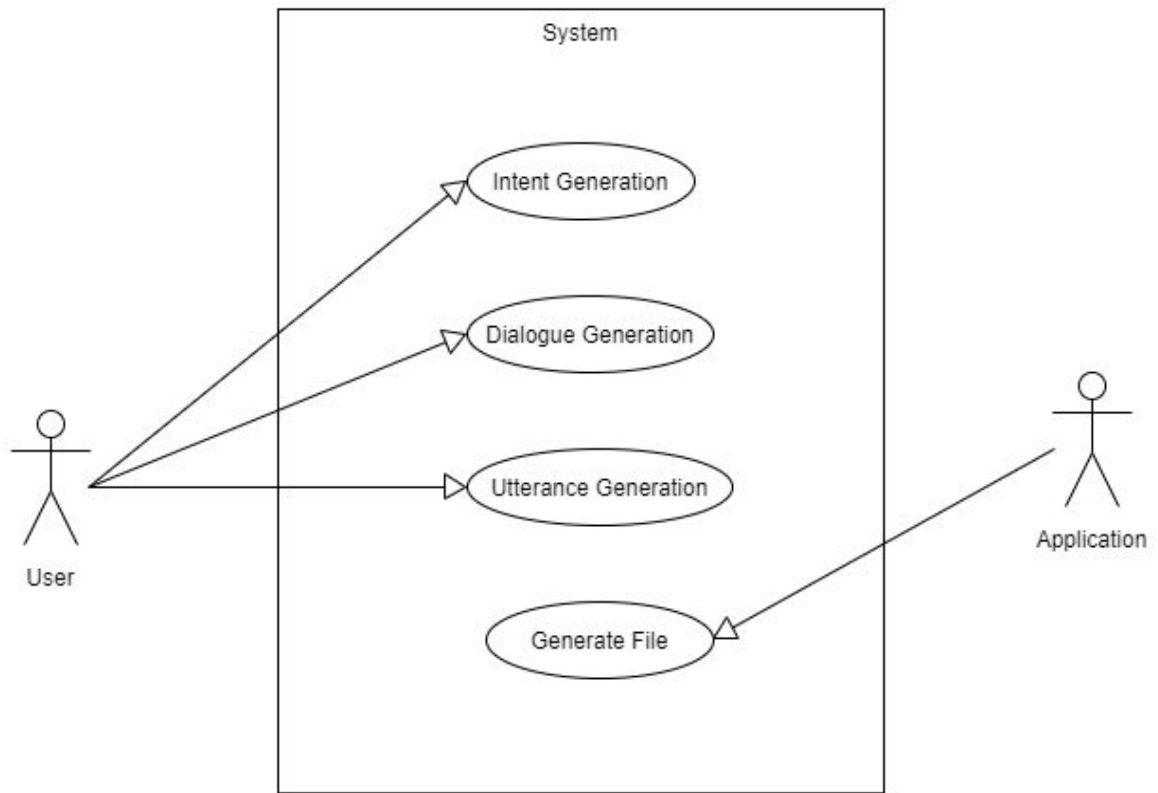
Section 3: *Success Metrics* - Defines how the success of the software will be measured

2. Specifications

2.1 Functionality

It is expected that the tool will be based on Scratch and will follow a similar format of creating apps. A user will be presented with a black canvas and several different types of interconnecting blocks with each colour representing a different aspect of the code, for example a blue block will be a string which the voice assistant replies, red will be the wake word and so on. Most of the blocks will have 2 sockets, one that connects to the block before it and one to the block after, however the wake word block will only one socket which fits into the block after as it will always be the first block. Each block type will have its own socket and connector and which will guide the user in what order the blocks should be placed and which goes first. For example the imports that the skill will need would be placed at the top followed by a block adding functionality. This way the user learns small amount of programming knowledge while playing around with the application

It is expected that a user will not have to have an account to access the application, all they would have to do is to download and install it, once installed the software will allow the user to create skills. After the user is happy with the skill they created and they save it the program generates the file necessary.



2.2 Usability

The system will have a simple, easy to understand design that is expected to be created using Tkinter. It will comprise different coloured rectangles that will represent different aspects of the code. Colours will be segregated into their own sections and descriptively labeled with a short blurb describing what this section is to help the user understand their functions and easily sort through the ones they need.

2.3 Reliability

As the software doesn't need to be connected to any external systems like a database the application should work almost all of the time, with crashes only occurring if a users system is extremely old and is unable to handle the software.

2.4 Performance

Due to the fact that the application will have a simple design and function it will have very low hardware requirements and so it will not take up many resources, it is expected that virtually any existing PC or laptop will be able to run it. The program will aim to respond within 0.2 seconds to user feedback.

2.5 Support

Once released the software is expected to be easy to maintain as it will be decoupled from external systems so no need for routine maintenance checks. The software is expected to receive updates allowing it to create more complex skills.

3. Target Market

The target audience of this tool are Mycroft users no matter what their programming abilities, however they will need to have a minimal knowledge of the Mycroft skill structure. This tool is aimed at anyone that wishes to build skills for Mycroft but has no to little programming experience. The tool will be tested by giving the current build out to users and let them attempt to make an app with and see how far they manage to get before either finishing their app or giving up and see why they gave up

4. Success Metrics

The expected success metric for the project would be how many different skills and of what complexity are the users able to create with the provided code blocks.

5. Conclusion

While the technology and functional designs are complete, developing the app itself will provide a substantial challenge as the lack of experience with the tools will provide additional obstacles while in development. The project is expected to be ready at the end of Q1 2020 as the abundance of resources on the internet as well as books and scientific papers on the technologies used will help expedite the development process

Declaration

- I declare that all material in this submission e.g. thesis/essay/project/assignment is entirely my/our own work except where duly acknowledged.
- I have cited the sources of all quotations, paraphrases, summaries of information, tables, diagrams or other material; including software and other electronic media in which intellectual property rights may reside.
- I have provided a complete bibliography of all works and sources used in the preparation of this submission.
- I understand that failure to comply with the Institute's regulations governing plagiarism constitutes a serious offense.

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