Dissertation Project Progress Report

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# Introduction (250 Words)

Dementia is a leading healthcare concern throughout the world, most prevalent among the elderly, which causes the deterioration of cognitive functioning. People living with late-stage dementia require constant support to continue living safely, which burdens informal carers and healthcare services with considerable financial and resource strain. As the average age of the world’s population is rising, the total number of cases is expected to triple to 150 million by 2050.

* Dementia is a leading healthcare concern
  + Large social and financial costs
  + Global issue
  + Aging population leads to more cases of dementia

The impact on healthcare services can be lessened by supporting individuals to maintain their safe independence for longer. This also has the desirable effect of improving the quality-of-life of the individuals, by supporting social interactions, control of their environment, and general well-being.

* Maintaining safe independence
  + Improves quality of life for individuals
  + Reduces the impact on healthcare services

Various assistive technologies exist to enable the elderly with mild cognitive impairment to maintain their autonomy and slow the further loss of cognitive functions, such as telecare systems and smart homes. This project aims to create the basis of a smart voice assistant (VA) that can reduce the rate of cognitive decline in the elderly. It will provide support through mental stimulation exercises, environmental monitoring and control, and facilitating communication with carers.

* Aim to create a voice assistant tailored for people living with dementia
  + Assistive technologies can help maintain independence
  + Smart homes and telecare projects have been implemented
  + Aims and objectives

# Project Evaluation (500 Words)

The first step of the project was to conduct a review of existing literature around dementia care and assistive technologies. I initially searched for literature on Google Scholar, however the results were difficult to extract, and many of the papers found were inaccessible. A second literature survey was instead done through multiple search queries on ScienceDirect, which ensured a consistent quality and number of sources that were accessible. Although limiting the search to a single database risks introducing bias to the results, it was deemed acceptable as the survey was primarily intended to summarise the state of research in the field, rather than scrutinize particular findings. Only 21 papers of 215 found were excluded for inaccessibility.

* Discuss lit review design
  + Discuss initial lit review strategy?

Because of ethical complications and current social distancing restrictions, it will not be feasible to test the final product with actual users. Instead, the developed VA will be measured according to its accuracy and response times. Requirements have been formalised, and the VA will be assessed to ensure it meets these requirements.

* Product Evaluation
  + Metrics to evaluate product - How many clicks it should take to perform an action
  + Not a specification, just how you will assess it
  + Data usage/size
  + Detail and justify the criteria you will use to evaluate your project – Specific, Measureable, Attainable, Relevant, Time-based
  + Relate to different aspects of your project.
  + Heuristics
  + Performance Metrics
  + Feedback/testing data

To gauge the success of the project itself, a record will be kept of hours of work expected and actually required to reach milestones. These work hours are tracked in a burndown chart. As the project is not funded at this stage, there are no budgeting goals to consider.

* Process Evaluation process
  + How to know it was successful
  + Scope
  + Project Goals
  + Schedule
  + Budget
  + Detail and justify the criteria you will use to evaluate your process – Specific, Measureable, Attainable, Relevant, Time-based
  + Relate to different aspects of your project

# Progress (500 Words)

Provide a clear snapshot of where you are in your journey and the impact on the project.

Strong evidence of progress towards achieving the aim and objectives of the project.

Following early discussions with my supervisor, an idea and topic for the project was decided and the preliminary literature survey was undertaken. From this research, specific features and requirements were considered, and the development stage of the project could be planned.

* Summary of completed work
  + Lit review / Research has been conducted
  + Planning
  + Prototyping

As part of the design stage, potential technologies were tested through the creation of prototypes. A virtual environment was set-up for development work. The use of prototypes removes risks related to the capabilities of any technology chosen.

* What has been done so far to prove viability
  + \*Tools/Environment set-up discussion\*
  + \*\*Prototype\*\*
  + Multiple Mini prototypes show risk mitigation
  + Documentation of experimentation of technical/design processes and test results

The solution will run as a Docker container.

As this project will not be evaluated through actual users – because of remote working constraints ­– there are no ethical obligations to consider for the testing stage. The developed software will however take into consideration the ethical responsibility of safeguarding user data.

* Assessment and discussion of appropriate guidelines, legal and ethical issues
* Results and discussion of any initial surveys, audits etc
* Evaluation of techniques, tools, frameworks, platforms, software etc

# Project Management (500 Words)

How the project is to be managed so as to achieve the aim and objectives of the project.

All project resources are tracked using Git for version control and the repository hosted on GitHub. GitHub built-in tools have also been used for managing the tasks and timeline of the project. An Automated Kanban boards track the progress of features which are represented as issues.

* Evidence project management
  + GitHub repo
  + Kanban board
  + Issues

The project is organised through sprints in each of which a particular feature will be developed. A general roadmap of the project was created early on which divides the development into stages.

* Planning
  + Sprints
  + \*\*Roadmap\*\*
    - Key stages and milestones
  + Burndown chart / Gantt or Something to specify what is achieved by when
    - ~400 hours of total work

A risk assessment document was created which analysed potential issues that could impact the project. Each risk was assigned values representing the damage and likelihood of it occurring. Taken together, these values were used to determine the most significant risks. With the risks organised, mitigation strategies could then be prioritised.

* Assessment & discussion of risks/contingency planning.
  + Mitigating risks
  + Risks - R1, R2, R3
  + Impact/Probability Grid
  + Risk should relate to project not so much like illness
  + I would suggest having a risk table in your appendices which lists your project specific risks. These should have ids. I would also include a risk probability impact grid which is filled with the risk ids to clearly indicate which risks are likely to have a higher impact and so should be prioritised. This Discuss how these risks will be mitigated (your mitigation strategy) and provide a plan as appropriate.

# Next Steps (250 Words)

In the previous section you provide a high level project management strategy. In this section you should focus on the more immediate step. This is a lower level (operational) description i.e. exactly what you will do, how long it will take and how this will allow you to progress.

With the research and planning completed for the project, the next step will be beginning the first sprint.

* Beginning the first sprint

# References

* Metrics
* Techniques
* Methodology

# Appendices

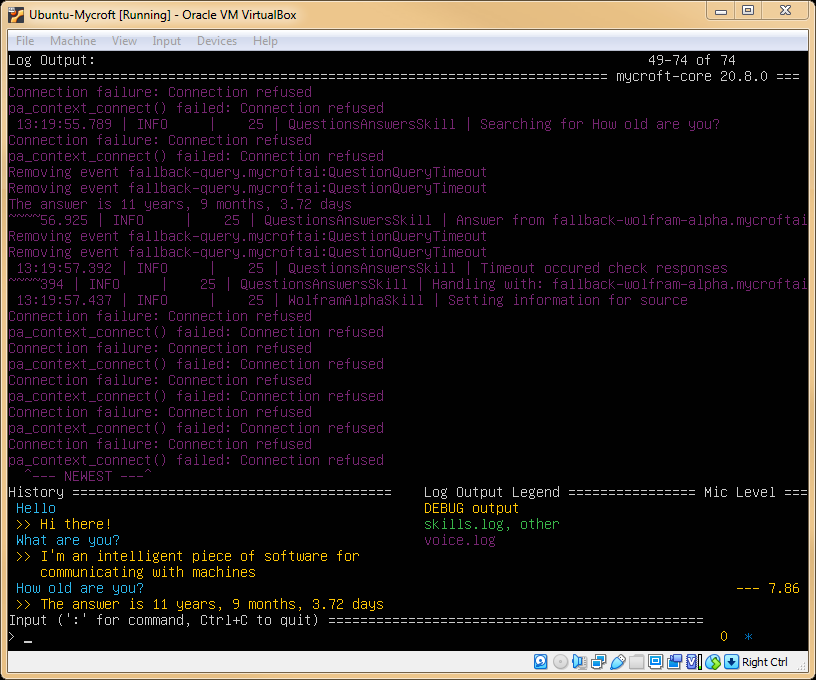
## Appendix A - Draft Literature Review

[Literature Review – To be included]

## Appendix B – Evidence

* The evidence can be organised into the appendices
  + Include progress on the project as whole rather than just of the software artefact.
  + Evidence each completed stage e.g. surveys, focus groups, prototyping, testing, etc.

### 1. Prototype



### 2. Literature Review

