Software Requirements Specification for Software Engineering: subtitle describing software

Team #23, Project Proxi
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October 9, 2025

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Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

1 Purpose of the Project

1.1 User Business

Proxi is an AI-powered desktop assistant that lets people operate a computer entirely through natural speech. It targets users who face barriers with traditional input devices (keyboard, mouse, complex UIs) and organizations that want to provide inclusive access to essential digital tasks (communication, learning, work). Proxi augments independence and reduces the digital divide by turning voice into safe, precise computer actions. While accessibility is the primary driver, Proxi is equally intended for general users who want faster, lower-friction workflows so it benefits both disabled and non-disabled users.

1.2 Goals of the Project

G-1 (Latency) Spoken system responses for common commands shall begin within ≤ 2.0 s from end-of-speech in a quiet environment.

G-2 (Recognition Accuracy) Command recognition accuracy for supported language(s) in quiet environment shall be $\geq 90\%$ intent-level accuracy.

G-3 (Task Coverage) Users from the primary user group shall complete $\geq 80\%$ of a predefined core task suite (open app/file, browse, compose, save, schedule) using voice or keyboard.

G-4 (Effectiveness) Compared to baseline (traditional input for same users), Proxi shall improve task completion rate by $\geq 20\%$.

G-5 (Satisfaction) Accessibility-focused usability tests shall yield 4.0/5.0 satisfaction score.

G-6 (Stretch Goals) Voice recognition improvements, offline capabilities, multimodal interaction support, personalized profiles, enhanced accessibility

2 Stakeholders

2.1 Client

The clients for this project are the SFWRENG 4G06A Capstone teaching team at McMaster University (course Instructor and assigned Teaching Assistants), serving as the product owners on behalf of the department. Their mandate is to ensure the solution meets accessibility, usability, and engineering quality standards appropriate for a capstone deliverable and potential real-world piloting within academic environments. They provide domain expectations (accessibility best practices, privacy/compliance constraints in academic settings) and approve scope and milestones.

2.2 Customer

Our customers are the end-users and organizations that will deploy Proxi to enable inclusive and more efficient computer use:

- **Educational institutions** (libraries, computer labs, accessibility services) seeking hands-free or low-friction access to standard desktops and web apps
- **Healthcare and community organizations** supporting users with motor/vision/ hearing challenges
- **General consumers and power users** who prefer faster, voice-first or mixed- modality workflows

2.3 Other Stakeholders

Other stakeholders include any person or group with interest beyond the client and the customer:

- **Team Proxi (development team):** responsible for requirements, design, implementation, testing, and deployment artefacts
- **Course Staff (Instructor & TA):** guidance, assessment, feedback, and approvals
- **Accessibility Advisors (if engaged):** best practices for WCAG/AT compatibility

- **Pilot participants:** individuals who will use the system during user studies and provide feedback

2.4 Hands-On Users of the Project

Primary hands-on users who will directly interact with Proxi:

- **Accessibility-focused users:** People with motor impairments or temporary/situational limitations needing hands-free or simplified control
- **General users/power users:** Users seeking faster workflows via voice/text commands with optional keyboard/mouse confirmation

2.5 Personas

- **P1: Amrita (72) - Elderly User:** Amrita is a retired teacher who uses her desktop to check emails, pay bills, and video call her family. She struggles with small buttons, complicated menus, and remembering multi-step actions, which makes her anxious about using technology. She needs a way to perform common tasks more easily and with clear guidance to feel confident online.
- **P2: Leo (21) - User with Motor Disability:** Leo is a computer science student who finds it difficult to use a keyboard or mouse due to a motor impairment. He needs to read PDFs, take notes, and switch between different apps for his coursework. He requires a way to interact with his computer hands-free and complete his work without relying on physical input.
- **P3: Ari (28) - Power User:** Ari works with spreadsheets, emails, and web tools throughout the day and often repeats the same steps over and over. Switching between programs slows him down, and remembering different commands and shortcuts is frustrating. He needs a more efficient way to complete multi-step tasks and manage his work without constant interruptions.

2.6 Priorities Assigned to Users

The **highest priority** users for this project are **accessibility-focused** users, including elderly users like Amrita and users with motor impairments like

Leo, as the main goal is to improve computer access and usability for people who face physical challenges or find current systems difficult to use. Their needs guide the core features and design decisions of the project. **Power users** like Ari are the **secondary priority** because, while they do not face accessibility barriers, their focus on speed and efficiency helps shape advanced features that make the system useful to a wider audience. Prioritizing these groups ensures the solution is both inclusive for those who need accessibility support and valuable for everyday users seeking more efficient workflows.

2.7 User Participation

Estimated participation during the project will primarily involve end users and the development team. Accessibility-focused users are expected to participate for about 1 hour per week through remote or in-lab sessions focused on usability testing, feedback, and formative evaluations. General users and power users will contribute roughly 1 hour per week by taking part in efficiency and performance testing of new features. Additionally, the development team will dedicate around 8–10 hours per week to designing, building, testing, and refining the system based on user feedback and project milestones.

2.8 Maintenance Users and Service Technicians

The primary maintenance users for this project will be the development team. During the capstone project, they will be responsible for identifying and fixing issues, releasing updates and patches, and ensuring that the system continues to function as expected throughout development. They will also create and maintain documentation such as installation guides and user manuals to support future use and potential handoff of the project after completion.

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Appendix — Reflection

The purpose of reflection questions is to give you a chance to assess your own learning and that of your group as a whole, and to find ways to improve in the future. Reflection is an important part of the learning process. Reflection is also an essential component of a successful software development process.

Reflections are most interesting and useful when they're honest, even if the stories they tell are imperfect. You will be marked based on your depth of thought and analysis, and not based on the content of the reflections themselves. Thus, for full marks we encourage you to answer openly and honestly and to avoid simply writing "what you think the evaluator wants to hear."

Please answer the following questions. Some questions can be answered on the team level, but where appropriate, each team member should write their own response:

1. What went well while writing this deliverable?

2. What pain points did you experience during this deliverable, and how did you resolve them?

3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?

4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.

5. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.

6. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?