Problem Statement and Goals
Software Engineering

Team #10, Five of a Kind
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Table 1: Revision History

Date	Developer(s)	Change
Sept. 16, 2025	Khalid Farag	Extras

1 Problem Statement

[You should check your problem statement with the problem statement checklist. —SS]

[You can change the section headings, as long as you include the required information. —SS]

1.1 Problem

1.2 Inputs and Outputs

[Characterize the problem in terms of "high level" inputs and outputs. Use abstraction so that you can avoid details. —SS]

1.3 Stakeholders

1.4 Environment

[Hardware and software environment —SS]

2 Goals

3 Stretch Goals

4 Extras

The extras for this project are:

- **User Manual**: This manual will provide a comprehensive guide and explanations on how to effectively use the software, emphasizing the key features that differentiate it from a normal CAD software. This is useful for helping users to operate the system independently, reducing the need for direct support, and ensuring they can utilize the system to its full potential with all of the features. To make it more user-friendly, the manual will be written in a way that is easy to understand and follow, with clear instructions and examples. It will also include any safety warnings that are relevant to the software.

- **Usability Report**: This report will document the findings from usability testing, including identified pain points, user feedback, and recommendations from stakeholders for improving the user experience. It will also include information about how the testing was held, including the number of participants, the tasks they were given, the questions they were asked, and its initial results. This is useful for ensuring the product is intuitive, efficient, and satisfying for its target audience, leading to higher user adoption and satisfaction.

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?

We were able to write the problem statement and goals in timely and efficient manner due to our ability to effectively gather and apply guidance from the supervisor. The meeting held with the supervisor helped us to clarify the project's scope and goals, and to ensure that we were on the right track. This ensured that the both our team and the supervisor were on the same page, in terms of the project's requirements and expectations. Having this clear understanding early on reduced any ambiguity or confusion, allowing us to focus on the actual implementation of the project.

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

Khalid: The pain point I experienced was the time it took to select a project for the capstone. It was difficult to find a project that was both interesting and challenging, and that would be a good fit for our team. Therefore it reduced the amount of time we had to work on this document. To overcome this, the meeting with the supervisor helped us to clarify the project's scope and goals, and I was able to prioritize the work on this document.

Daniel:

Andrew:

Olivia: Overall, one of the major challenges was navigating the scope of this project. The size and undertaking of this project are very daunting when I compare it to the project I've done in the past. Therefore, I found it difficult during this milestone to determine where to start in defining this project and how to make a plan that encapsulates all that will be required, both in technical

skills as well as group collaboration. To resolve this challenge, our group took the necessary steps to understand where we stood as a group in both skills and desired team dynamics. We also took the time to properly explore different project options that we believed would be a good fit. This led to lots of debate and individual introspection before we were able to come together as a group to decide on the project. Even then, once we decided on a project, we had to have a meeting with our supervisor to gain a better understanding of the exact scope we were looking to take on with this project.

Omar:

3. How did you and your team adjust the scope of your goals to ensure they are suitable for a Capstone project (not overly ambitious but also of appropriate complexity for a senior design project)?

The team did not need to adjust the scope of our goals as we were able to meet the requirements of the project. The meeting with the supervisor further clarified the project's scope and goals, and we were able to ensure that our goals were suitable for a Capstone project.