Problem Statement and Goals
ProgName

Team #, Team Name
Student 1 name
Student 2 name
Student 3 name
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Table 1: Revision History

Date	Developer(s)	Change
September 21st, 2025	Burhanuddin Kharodawala	Added Section 1 information

1 Problem Statement

1.1 Problem

The process of commuting to and from university presents numerous challenges. The major challenges include the increasing cost of fuel, GO bus fares, and the high cost of parking near the university premises. An average student and university staff/faculty member ends up paying more than \$150/month to \$250/month just on transportation (Chanda and So, 2025). These not only put a financial strain on them but also add an emotional burden. This money could be well spent somewhere else. An example could be their home loans or their housing rent. They usually have to be very conservative on their leisure spending to save for these high transportation costs. Moreover, the impact of commuters commuting to universities with their personal vehicles leave a significant impact on the environment. Universities Canada's 2024 footprint report states that **single occupancy** vehicle commuting contributed to around 36% of GHG emissions (Kebirungi, 2024). The air quality significantly drops due to the pollution caused by these emmisions, which negatively affects people's health. To tackle these problems, commuters choose to carpool. However, even these bring new challenges. Applications like Kijiji, Facebook Marketplace, Poparide provide a solution to this problem; however, they come with minimal safety measures. These applications have drivers coming from all sorts of backgrounds

with minimal verifications. They lack a centralized verification system to track driver's details and background. **Hitchly** is an application that aims to make the process of commuting to McMaster University and back home, streamlined, affordable and safe for its users, and sustainable for the environment.

1.2 Inputs and Outputs

1.2.1 Inputs

1. **User data:** The user adds their personal information, commute details, university email, timetable and their location.

2. **Driver Data:** The drivers specifically add their vehicle and license details in the app. They also add their cost estimation of fuel and parking into the app.

1.2.2 Outputs

1. **User data:** Hitchly will match users (drivers and riders) based on their schedule and location. The app will also output a summary of the trip upon completion.

2. **Driver Data:** Hitchly will generate a price estimate for the driver to decide the price per rider for a trip.

1.3 Stakeholders

1.3.1 Direct Stakeholders

The main direct stakeholders are **McMaster students** and **McMaster staff** and **faculty members**. They commute to the university and home frequently for studies and work and often look for opportunities to save and earn extra money. They can use this application to either provide a rideshare service as drivers or use those services as riders.

1.3.2 Indirect Stakeholders

1. **McMaster University:** The university will see a reduction in the congestion of traffic near its premises because of the application's carpooling services.

2. **Hamilton Community and McMaster University Neighborhood:** The area will see a lot less congestion due to the reduction of cars. Moreover, it will also see a significant reduction in GHG emissions.

3. **Student and Staff Families:** They will have a sense of relief and peace of mind for their carpooling family members due to the increased reliability and credibility of the ride sharing app.

1.4 Environment

This application will be compatible on all mobile devices. It will also be supported by the two major operating systems, Android and IOS. GitHub will be used for version controlling and VS Code will be used for coding and developing the application.

2 Goals

3 Stretch Goals

4 Extras

[For CAS 741: State whether the project is a research project. This designation, with the approval (or request) of the instructor, can be modified over the course of the term. —SS]

[For SE Capstone: List your extras. Potential extras include usability testing, code walkthroughs, user documentation, formal proof, GenderMag personas, Design Thinking, etc. (The full list is on the course outline and in Lecture 02.) Normally the number of extras will be two. Approval of the extras will be part of the discussion with the instructor for approving the project. The extras, with the approval (or request) of the instructor, can be modified over the course of the term. —SS]

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 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)?

References

Amélie Chanda and Dorinda So. How sustainable transportation pays off for colleges and universities. 2025. URL https://pointa.ca/2025/06/20/how-sustainable-transportation-pays-off-for-colleges-and-universities/.

Lucy Kebirungi. Commuting costs are putting financial and emotional strain on students. *The Eyeopener*, 2024. URL https://theeyeopener.com/2024/10/commuting-costs-are-putting-financial-and-emotional-strain-on-students/.