

McGILL UNIVERSITY

ECSE 211: Final Design Project

Capabilities Document

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supervised by
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1 SUMMARY

This document identifies the skills and resources available to the team for solving the design problem. It clearly lists the primary roles of each member towards achieving the end goal based on their capabilities described further ahead within the document.

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2. TASK

Project: Design Principles and Methods Final Project: Capture the Flag - Team 15

Task: Design an autonomous robot that can play a one-on-one version of the Capture the Flag while navigating through an obstacle course.

3. EDIT HISTORY

a. Document Version Number

- i. 0.0.1: Version presented to Prof. Ferrie on the 2017/10/20

b. Edit History

- i. Chloe Grosdidier (17/10/17) - Initial creation of document, completion of team members' information, and ranking of team members' capabilities.
- ii. Sadhvi Mehta (18/10/17) - More detailed explanation of team members' capabilities, general explanation of team members' roles in current project, addition of table of contents.
- iii. Sadhvi Mehta (19/10/17) - Improve format of document.

4. TEAM MEMBERS

<i>Member</i>	<i>Phone Number</i>	<i>Email</i>	<i>Major</i>
Omar Yamak	514 619 7660	omar.yamak@mail.mcgill.ca	Electrical Engineering
Chloe Grosdidier	438 928 7435	chloe.grosdidier@mail.mcgill.ca	Computer Engineering
Charles Huang	514 562 9188	yin.huang2@mail.mcgill.ca	Software Engineering
Guillaume Lam	514 806 2012	guillaume.lam@mail.mcgill.ca	Software Engineering
Sadhvi Mehta	514 679 2981	sadhvi.mehta@mail.mcgill.ca	Software Engineering
Aliah Nazarudin	514 605 5557	nur.mohdnazarudin@mail.mcgill.ca	Electrical Engineering

5. CAPABILITIES

<i>Team Member</i>	<i>Software Capabilities</i>	<i>Capability Level</i>
Sadhvi Mehta	Proficient in Java, C, UML, MVC. Strong web debugging and development skills including Javascript, HTML, Bootstrap Library.	8
Omar Yamak	Not very confident but able to understand intermediate code Comp 202 Comp 250.	4
Chloe Grosdidier	Experienced in Java, JavaScript/HTML/PHP/CSS, Assembly, C and C++. Involved in with game design project in Java and Python.	7
Charles Huang	Proficient in Java and C. Experience with PHP, HTML, Assembly and Bash. Involved in the tile- based game design in Java by using UML.	8
Guillaume Lam	Experience with languages: Java, JavaScript/Node, HTML/CSS, Python, C/C++, and Bash. Experience with libraries, frameworks and tools: Ionic, OpenCV, TensorFlow, Git, and Docker.	9
Aliah Nazarudin	Beginner level in Java, only taken only two programming classes.	4

<i>Team Member</i>	<i>Hardware Capabilities</i>	<i>Capability Level</i>
Sadhvi Mehta	Taken mechanics and electrical circuits I courses. Hands-on experience with breadboard.	6
Omar Yamak	Well experienced and passionate, Circuits 1 & 2 classes and laboratories, signals and systems, digital logic and electrical fields. In addition, experienced in circuit analysis and using breadboard.	9
Chloe Grosdidier	Taken circuits 1, circuits 2 and electronics classes and laboratories. Experience with circuit analysis, Spice software, PCB creation.	8
Charles Huang	Taken circuits 1 and Digital logic. Experience with circuit analysis, VHDL and breadboard.	7
Guillaume Lam	Taken circuits 1. Some experience with Raspberry Pi, arduino and breadboards.	5
Aliah Nazarudin	Taken circuits 1,2 and currently taking electronic classes. Experienced in circuit analysis and MATLAB software.	8

<i>Team Member</i>	<i>Management Capabilities</i>	<i>Capability Level</i>
Sadhvi Mehta	Co-team leader for software project in designing a virtual game. comfortable with public speaking and presentations.	8
Omar Yamak	Studied higher level business and management in IB. High school house captain, in charge of 500 students in extracurricular activities.	9
Chloe Grosdidier	Team leader in an extracurricular engineering design team, supervising and assigning tasks to members. Part of executive committees for hackathons and student council.	8
Charles Huang	Leader in a summer camp, managing students of a class and assigning tasks to students. Co-team leader for tile-based game design.	8
Guillaume Lam	Co-Leader for startup with small team. Co-team leader for game application for software course.	8
Aliah Nazarudin	Leader in an extracurricular club, assigning tasks to members.	8

<i>Team Member</i>	<i>Documentation Capabilities</i>	<i>Capability Level</i>
Sadhvi Mehta	Several years of experience in writing lab reports. 1 year experience in web-development project documentation and confluence documentation tool.	7
Omar Yamak	Was involved in some projects which required documentation, giving me some experience. These involve 2 year extended essay project for the International Baccalaureate, 4000 words long.	7
Chloe Grosdidier	Wrote a research paper, as well as a professional poster presenting research topic. Experience with LaTeX formatting.	7
Charles Huang	Several years of experience with writing lab reports and documentation for code. Wrote research papers and a business proposal.	7
Guillaume Lam	Several years of experience with writing lab reports, research papers, and documentation for code with experience with LaTeX documents.	8
Aliah Nazarudin	Wrote research paper and several years of experience in writing lab reports. Experience with IEEE formatting.	8

6. POSSIBLE APPLICATION AREAS

For design team manager, Chloe was chosen due to her long experience in managerial positions as well as her involvement in student councils. Being a computer engineer, she will also help in the software responsibilities.

Omar was chosen as hardware team leader due to his experience with hardware and interest in it. He will also be involved with testing because often failures in tests occur due to the interaction of external factors like friction, wheel slippage with the hardware itself.

Charles is the testing team leader due to his knowledge in software as well as testing. Thus, he will be efficient in identifying any software bugs whilst testing.

Guillaume is software team leader due to his experience in programming and having held a software internship. He has the knowledge of potentially useful algorithms and software tools to optimize the code. In addition, due to heavy load of the documentation field, Guillaume will also help with documents for the project.

Sadhvi was chosen as software engineer due to her programming skills and profound knowledge of Java. She is also co-team leader of documentation due to her attention to detail.

Aliah is documentation team leader because she has experience in all domains and can thus accurately document all the information. She will also help in the hardware design because she has experience with mechanics and circuitry.

<i>Member</i>	<i>Primary position</i>	<i>Secondary position</i>
Chloe Grosdidier	Design Team Manager	Software Team Member
Omar Yamak	Hardware Team Leader	Testing Team Member
Charles Huang	Testing Team Leader	Software Team Member
Guillaume Lam	Software Team Leader	Documentation Team Member
Sadhvi Mehta	Software Team Member	Documentation Team Member
Aliah Nazarudin	Documentation Team Leader	Hardware Team Member

7. AVAILABILITY

For each member's weekly schedule, an online survey tool called *when2meet* was used. Please refer to the link below for the team's weekly, updated schedule: <https://www.when2meet.com/?6423412-XqWje>

For any special events different from a team member's weekly availabilities, a separate calendar has been developed using an online calendar tool called *teamup*. Please refer to the link below for access to the updated, semester schedule:

<https://teamup.com/ksynvaa7r6fuwxzntg>

Note: above schedule are subject to possible changes.

8. GLOSSARY OF TERMS

Electric circuits course	Course offered based on electric circuits and laws at McGill University.
Robot	The autonomous machine that will execute given tasks.
IB	Stands for International Baccalaureate. It is an international education foundation followed by many international schools.