Capabilities Document

Project: Design an Autonomous Robot

Task: To design an autonomous robot that is capable of navigating to a predetermined position while avoiding obstacles and firing objects at two targets. This is to be done in the shortest time possible.

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Author: Gwyneth Pang

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# Team Members

|  |  |  |
| --- | --- | --- |
| Name | e-mail | phone |
| Eric Vuong | eric.vuong@mail.mcgill.ca | 514-561-1337 |
| James Fuh | shih-hao.fuh@mail.mcgill.ca | 514-447-2026 |
| Yu Chen Xu | yu.c.xu@mail.mcgill.ca | 514-802-9089 |
| Gwyneth Pang | chung.pang@mail.mcgill.ca | 514-627-6052 |
| Adrian Pan | ziyi.pan@mail.mcgill.ca | 778-995-6239 |
| Yutian Zheng | yutian.zheng@mail.mcgill.ca | 514-562-7126 |

# CAPABILITIES

|  |  |
| --- | --- |
| Name | Relevant Experience and Interests |
| Eric Vuong | -He enjoys coding, testing and seeing results.  -He has been in a robotics team in his CEGEP.  -He know Java programming language and object oriented-programming. |
| James Fuh | -He has basic coding skills in Java, C, and MIPS. |
| Yu Chen Xu | -He knows Java language and basic C programming.  -He is currently in McGill Robotics’ electrical division.  -He has an interest in learning Android App Development. |
| Gwyneth Pang | -She knows basic Java programming language  -She enjoys writing and planning  -She is currently in McGill EV team |
| Adrian Pan | -He knows basic Java, C and Assembly language  -He is also currently in McGill Robotics Electronics |
| Yutian Zheng | -He has basic Java, C language  -He is comfortable with hardware design. |

Every member of the team has Facebook, thus a Facebook group will be created, in order to facilitate the exchange of documents and communications with the group.

# POSSIBLE APPLCATION AREAS

|  |  |  |
| --- | --- | --- |
| Name | Main Roles | Subtasks |
| Eric Vuong | Software Design: He will mainly be responsible for a part of the coding in the software design. He will mainly be responsible for the obstacle avoidance.  Project Manager: He will ensure that the deadlines are met for every tasks and ensure and even separation of tasks for each member.  Documentation: He will ensure that documents are organized and files are uploaded on time and fix any misunderstanding in the documentations. | -In the first week, he will contribute in the hardware design in order for it to satisfy every need that the software may have.  -Once the software design has been coded, he will be responsible for testing the code that he designed, in order to maximize efficiency.  -Once his designated main tasks are finished, he will help other team members with their tasks, in order to keep the critical path as short as possible.  -Help hardware team and contribute to testing |
| James Fuh | Software Design:  He will write and edit the code. He will also help on debugging, if there are errors. He will mainly be responsible for the odometer correction part of the code. | -He will be responsible for the testing of his code.  -He will also contribute provide to a rough sketch of the mechanical design of robot.  -He will also be responsible for the software architecture of the robot. |
| Yu Chen Xu | Mechanical design:  He will mainly be responsible for the design of the robot’s hardware. | -He will be responsible for testing the hardware component of the robot.  -He will be responsible for the LDD for the robot, since he has the most experience with the software.  -If the other tasks are not on schedule, he will need to be available to help the other team members. |
| Gwyneth Pang | Documentation: She will be responsible for the general assembly of documents, records, and to make final edits on the documents.  Testing: She will be designing the tests for the hardware and the software designs. | -She will also be responsible for the assembly of the weekly PowerPoint presentations for the meetings with the professor.  -She will update the Gantt chart throughout the project if need be.  Mechanical Design:  -She will contribute to the testing and the documentation of the test of the mechanical design.  -She will need to help other team members if there are delays in the critical path. |
| Adrian Pan | Software Design: He will be mainly responsible for localization part of code in the software design. | -He will be responsible for testing and documenting the code he designed.  -He will be designing new sensor filters in order to accommodate the environmental problems with the competition area.  -He will also provide assistance on other parts of the code. |
| Yutian Zheng | Hardware Design: He will contribute to the hardware design.  Testing: He will be contributing to the designing and the testing of the software design. | -He will help with the documentation of the tests.  -He will also contribute to the coding of the software design. |

# AVAILABILITY

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
| YuChen: after 3:30pm  Gwyneth: 3:30-6pm  Adrian: 3:30-5pm  YuTian: All day | YuChen: after 1pm  Gwyneth:  After 1pm  YuTian: All day | Eric: Afternoon  YuChen: after 6:30pm  Adrian: 3:30 to 5pm | Eric: 1-4pm  James: 8am-12pm, 2-3pm  YuChen: 8-11:30am, 1-4pm  Gwyneth: 1-4pm  Adrian: after 11:30am  YuTian: All day | Eric: Afternoon  James: 9:30am-1pm, 2:30pm-Midnight  Gwyneth: After 12:30  YuTian: 3:30-6pm | Eric: All day  James: All day  YuChen: Sometimes  Gwyneth: All day  Adrian: All day  YuTian: All day | Eric: All day  James: All day  YuChen: After 3pm  Gwyneth: All day  Adrian: All day  YuTian: All day |

The only possible meeting time for all members of the team outside of the lecture periods of this class is Thursday at 1-2pm. Thus, every week, the meet will be having a meeting at that time to discuss progress and any other needs.

There will also be a meeting with the TA on Mondays at 9:50am. Finally, there will be weekly meetings with the professor on Mondays at 10:50am on Mondays.

The beta demo is on Friday, March 27th, at 3:10pm.

# GLOSSARY OF TERMS