1.0 Awards Overview

	Name of Award	**Brief Explanation**	**Application Documents**
Pod Showcase Awards	High Power Award	Recognizes outstanding battery and ESC design	Pod Showcase and/or Track Demonstration Registration
	Low Power Award	Recognizes best low power system component (hardware, firmware, or software)	
	Mechanical Award	Recognizes best mechanical design and manufacturing of mechanical parts	
	Aeroshell Award	Recognizes outstanding design, analysis and construction of hyperloop aeroshell	
	Propulsion & Levitation Award	Recognizes outstanding gearbox or levitation design	
	Best Pod Award	Recognizes best overall pod	Pod Showcase **and** Track Demonstration Registration
Non-Technical Awards	Growth Award	Recognizes a team that has implemented changes to become a better team	Additional Application
	Leader Award	Recognizes a team lead nominated by team members	Additional Application

2.0 Details of Awards

2.1 Pod Showcase Awards

All pod showcase awards are open to any team that has completed their application to the Track Demonstration and/or Pod Showcase. To be considered for the Best Pod Award, teams must demonstrate their pod's ability on track. For all other awards, there is no specific application process to be considered, however teams can expect an increased chance of receiving awards based on good documentation, convincing 1-on-1 design review meetings, physical proof, and demonstration of the concept on track.

The following documents affect the assessment of your system

2.1.1 Letter of Intent: Form to enroll in the competition

2.1.2 Team White Paper: Outlines the pod design

2.1.3 Final Design Package: Full engineering documentation featuring all relevant information that went into designing the pod - Guidelines on cahyperloop.ca under competition

2.1.4 Team Safety Procedure: How a Team ensures that nothing goes wrong on the track and, more importantly, makes sure that there is no damage if something goes wrong - Guidelines on cahyperloop.ca under competition

2.1.5 Waiver Form: Releases CHC from liability during the event - Guidelines on cahyperloop.ca under competition

2.1.1 High Power Award

The CHC High Power Award will be awarded to a team who has outstanding battery design, inverter (ESC) innovation, safety and analysis of electrical components of their hyperloop pod.

Criteria	5	4	3	2	1
Battery design: Battery is configured to output required power. Shows attention to detail in all aspects of wiring and soldering. No unnecessary wires are visible and BMS is properly configured. Battery follows all safety standards to output at required spec including proper insulation.					

Inverter (ESC) Innovation: Using new technology or innovative design to power motors on the pod. Doing a clean and professional installation.					
Safety: No safety hazards are present, all wires are insulated and soldered to components cleanly. Proper configuration of power relays and precharge are implemented. All components are within the working spec of the pod.					
Analysis: Power delivery is analyzed using temperate probes and/or thermal cameras. Circuit has aspects analyzed using PSIM and/or LTspice.					

2.1.2 Low Power Award

The CHC Low Power Award will be presented to a team which has demonstrated a skillful implementation of any low power system component on their hyperloop pod. For the scope of this award, low power system components will be classified as any electronics hardware, firmware, or software that contributes to the management of the pod's state/operations.

Criteria	5	4	3	2	1
Design: A detailed overview of the component is given. This should include: what it is, what problem it is trying to solve, and its proposed functionality.					
Safety: The proposed design and implementation considers points of failure and ensures the pod operates safely at all times.					
Testing: Components are modeled and tested as best as possible prior to development/manufacture to validate design. For example: ERC checks, SPICE models, Simulink models, etc...					

Performance: The team is able to clearly demonstrate/explain the component's functionality and that it works the way it is intended.					

2.1.3 Mechanical Award

The CHC Mechanical Award will be awarded to a team who has outstanding mechanical design, analysis and construction of a particular part of the hyperloop pod. This award aims to encourage teams to think innovatively in mechanical design and to have the ability of transforming a design idea to a fully functional part with various analysis and tools. The CHC team would like to see the design process for each team, why certain design decisions have been made during the process and how each decision influences the outcome.

Criteria	5	4	3	2	1
Mechanical design: The team has a design plan with specific requirements and criteria. The team demonstrates critical thinking skill in mechanical design and is able to explain why they chose a certain approach over another.					
Mechanical analysis: The team has performed different mechanical analysis of the part using calculations or software analysis. The results obtained from analysis are proven to support their design requirements and criteria.					
Prototyping: The team is able to implement their design idea into a fully functional prototype and work towards a finished part.					
Improvement: The team is able to reflect on what worked and what didn't work as well as how to improve them for next prototypes.					

2.1.4 Aeroshell Award

The CHC Aeroshell Award will be awarded to a team who has outstanding design, analysis and construction of hyperloop aeroshell. The team demonstrates excellent understanding of aerodynamics and fluid mechanics and is able to apply their knowledge into the design and manufacture of aeroshell. The CHC team would like to see the design plan, the mechanical simulation/analysis and the manufacturing of each team's aeroshell.

Criteria	5	4	3	2	1
Aeroshell design: The team provides a design plan listing the requirements and criteria of their aeroshell. The team demonstrates excellent understanding of the function of aeroshell and is able to make the most optimal decision regarding material selection and geometric design.					
Mechanical analysis: The team performs aerodynamics analysis of the part using simulation software. The team is able to provide results from analysis and make comments on whether the result is in line with their design plan.					
Prototyping/manufacturing: The team demonstrates extensive research in the manufacturing of aeroshell and provides a detailed plan on how it would be done. The team is able to make a prototype/finished aeroshell.					
Improvement: The team is able to reflect on what worked and what didn't work as well as how to improve them for next prototypes. The team also has insight on the scalability and optimizing manufacturing of aeroshell for real size hyperloop pods.					

2.1.5 Propulsion & Levitation Award

The CHC propulsion and levitation Award will be awarded to a team who has outstanding gearbox design, levitation design, acceleration, and analysis of propulsion and levitation in the pod.

Criteria	5	4	3	2	1
Gearbox/LIM Design: Gearbox shows exceptional layout and design to house the motors. The gearbox can maintain the power the motors put out with minimal friction. The Linear Induction Motors show a custom made design that shows thoughtful design with calculations to support the specs.					
Levitation Design: The levitation system is designed with minimal friction in mind. The levitation system has safety in mind evanly levitating the pod. The levitation system can withstand the forces of acceleration and deceleration with incredible margin.					
Acceleration: Acceleration of the pod is maximized and pushed to what is possible within spec. Acceleration is safe and smooth through operation.					
Analysis: All aspects of propulsion and levitation are analyzed using calculations and/or simulation. This proves that the pod can maintain a minimum safety.					

2.1.6 Best Pod Award

The CHC Best Pod Award is given to a team that excels in all sub-categories and demonstrates the capabilities via a fully functioning pod on the track. The judgment is not based on a sum of placements subsystem awards but rather if the overall system works well.

2.2 Non-Technical Awards

Non-technical awards are open to any team or team member who has completed an application to the technology showcase and/or track demonstration. These awards are designed to celebrate teams and individuals within the hyperloop community who have shown great improvement in leadership skills. The award recipients will be announced during the 2022 Canadian Hyperloop Competition.

2.2.1 Growth Award

The CHC Growth Award will be awarded to a team which has undergone changes to become a better team. This award aims to encourage teams who can identify their mistakes, use problem-solving skills to solve roadblocks, and improve their team structure consistently. The CHC team would like to see the difficulties each team has faced, how they have responded, and how their experiences have improved their teams.

Rules for Application:

- Each team can only submit one application.
- Each application will be written in 12 font size, Times New Roman, single line spacing, and a maximum of 3 pages in total.
- The team director needs to email the application report to the CHC team (chc@cahyperloop.ca)
- Teams who have not applied to the technology showcase or track demonstration cannot apply to this award.

Application Report:
The application report will consist of four sections: team information, background, growth and future. We want you to explain the journey of your team from the time the director(s) took control until you submit this report.

1. Team information: This section is your cover page. Make sure to include the following details on your cover page:
    a. Team name
    b. Team contact person name & contact information
    c. Team faculty advisor name & contact information
2. Background: In this section, please introduce us to your team and its history. You should include the details of when your director took over. Some example questions to consider:
    a. How was the team when the director(s) took over?
    b. How old was your team?
    c. How much funding did your team receive?
    d. How big was your team?

    e. How did it operate?
    f. Before the current director(s), what were some accomplishments or challenges the previous team faced?
3. Growth: In this section, we want teams to explain the experiences they went through, how they responded, and how their experiences changed their team. We recommend teams to follow a format similar to the following:
    a. Challenges Faced
    b. Approach taken
        i. How did you face a challenge?
        ii. How did it challenge you?
    c. Accomplishments & Learnings
        i. What came out of it?
        ii. How did it improve your attitude?
4. Future: In this section, we want teams to self-reflect on their experiences, responses, and how they could use their experiences in the future. Some questions they should try to answer:
    a. What can be further improved?
    b. How will the team move forward?
    c. How will you use your learnings?
    d. How will you prevent the obstacles you once faced?
    e. How will you use your skills outside of hyperloop?

Criteria	5	4	3	2	1
Identification: The team is able to identify their strengths & weaknesses, and are able to exemplify through concrete situations.					
Improvement: The team identifies their shortcomings and proposes solutions.					
Reflection: The team is able to think about their experiences and reflect how they have changed the team's perspective/approach.					
Humility: The team is able to understand their shortcomings and the negative experiences they faced.					
Team-effort: The team as a whole displays growth in leadership, problem-solving, self-reflection, and this is exemplified through concrete situations.					

2.2.2 Leader Award

The CHC Leader Award will be awarded to an individual who has gone above and beyond in their leadership skills and dedication to the hyperloop community. This award aims to encourage leaders who change the course of their team, set an example for other team members to follow, inspire members in the hyperloop community to take on challenges, support others in overcoming challenges, and create a positive environment in which team members feel comfortable. The award recipients will be announced during the 2022 Canadian Hyperloop Competition.

Nominee Criteria:

- Nominees must be an undergraduate or graduate student from a university.
- Nominees must be involved in and pursuing a leadership position in a hyperloop team that has applied to the 2022 Canadian Hyperloop Competition, either Track Demonstration or Pod Showcase.
- Nominees must be in charge of at least 5 team members.
- Nominees must have at least 1 year of experience managing their team members before the 2022 Canadian Hyperloop Competition.

Nomination Criteria:

- Each team can nominate at most 2 individuals from their team.
- Nominations must come from individuals who:
    - Work under the nominee
    - Manage the nominee
    - Or supervise the nominee's hyperloop design team as a faculty advisor.
- Nominations cannot be canceled after they have been made.

Application Format:

- Each nominee must fill in an information questionnaire which will ask the nominee the following:
    - An essay about their leadership experience
    - Their position in the team
    - Nominators information
    - Letter of registration from their university
    - Official confirmation of involvement at the hyperloop design team from team advisor or a faculty member from the hyperloop design team the nominee is from
- Nominators will need to submit their letter of recommendation through a form. In this letter of recommendation, nominators should address the following:
    - The nominee's leadership qualities displayed through their work in their hyperloop design team

- The impact of the nominee's work in relevant communities (student bodies, hyperloop community, etc.)

Criteria	5	4	3	2	1
Truthfulness: Testaments provided by the nominee and the nominators should support statements made by one another.					
Personal Legacy: The nominee should have a distinguishable personal legacy that has made an impact on their hyperloop design team, university, greater hyperloop community or relevant communities.					
Improvement: The nominee should exemplify their leadership skills and how they have improved their team.					
Challenge: The nominee and nominators must convey the challenges the nominee has faced and how they have overcome these challenges.					