**ROBOCUP IRANOPEN 2024**

**DEMO LEAGUE**

**TEAM DESCRIPTION PAPER**

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| --- | --- |
| **League Name:**  |   |
| **Age Group:**  |   |
| **Team Name:**  |   |
| **Team Website:**  |   |
| **Participants and Technical Roles**  |   |
| **Team Photo**  |   |
| **Mentor Name:**  |   |
| **Institution:**  |   |
| **Region:**  |   |
| **Contact Person:**  |   |
| **Contact Email:**  |   |
| **Date:**  |   |

**Robocup Iranopen 2024**

**Demo League**

**Team Description Paper**

League Name

 Team Name

Student 1, Student 2, …

(AFFILIATION)

# Abstract

Abstracts are typically 100–250 words and comprise one or two paragraphs. In the abstract, please discuss all the need-to-know details of your Team Description Paper (TDP): purpose (what problem it attempts to solve), method (the methodology of your research), results and discussion (conclusive outcome and significance). Please concentrate on your robot, its main capabilities, algorithms, strategies, and innovation.

Keywords: at least 4 keywords (separated by dash-)

# Introduction

## Team

* Team background, including website and video link (if you have).
* Brief description of roles of each participant in the team and past experiences.

## Paper structure

Briefly describe the sections that will be covered in the TDP, such as business planning, projects planning and etc.

## Technology Readiness Level

Mention that what is the robot or product TRL or even MRL.

# Benchmark and business planning

* A comprehensive literature review is crucial for understanding the current state of knowledge and best practices relevant to your team's project.
* Benchmarking industry standards will help identify areas for improvement by comparing your team's performance and processes with those of industry leaders.
* Incorporating business studies will provide insights into the economic, organizational, and strategic aspects pertinent to your team's project.
* It is imperative to cite and reference all sources used in adherence to the required citation style to give credit to the original authors and researchers.

# Project Planning

## Overall project plan

* Talk about your aim for the competition.
* Describe the overall project plan.
* Explain your milestones. (Gantt chart, WBS and more)
* How has analyzing the task and its constraints influenced your project plan?

## Integration plan

* Explain the structure of your system and how the different parts work together.

## Testing

* Describe the testing procedures you implemented to verify your robot’s performance.
* Explain how you analyzed the test results and how they impacted your development.

# Software

## General software architecture

* Describe the general structure of your software.
* Use diagrams, flowcharts, or pseudo code to illustrate your explanations.
* Talk about how the solutions to different parts of the whole task are integrated.

## Innovative solutions

* Explain any innovative and unusual solutions/approaches you used to tackle the challenge.
* Provide data and illustrations to reason your design choices.
* Any “AI” tools, such as ChatGPT used in solving the problem?

## Source code

If you wish to include part of your source code for explanation, please add it as an appendix.

# Hardware

* + - Give a high-level overview over the hardware design of your robot.
		- Highlight important features and talk about how everything comes together.

## Mechanical design and manufacturing

* + - Go into detail on aspects such as:

Main structure, Actuators and power, important subassemblies/modules, etc.

* + - Provide drawings, equations and diagrams to support your explanations and reasoning for your design choices.

## Electronic design and manufacturing

* + - Go into detail on aspects such as:

Sensors, Main controller, Power subsystem, etc.

* + - Provide drawings, equations and diagrams to support your explanation and reasoning for your design choices

# Performance Evaluation (Results)

* + - Evaluate the performance of your robot.

# Research Contributions and Intellectual Property

Each team member should outline their individual research contributions and unique intellectual property generated throughout the project. This may include innovative ideas, methodologies, or solutions developed during the course of the team's work.

It is important to acknowledge and respect the intellectual property rights of each team member. Any collaborative or individual contributions should be clearly documented and attributed to the respective team member, ensuring fair recognition for their work.

If any intellectual property has the potential for commercialization or patenting, it is essential to discuss the necessary steps for protection and ownership within the team. This includes considering any legal or ethical implications of intellectual property development within the project.

# Discussion and Conclusion

* + - Brief conclusion of this paper.
		- Discuss on the impact of your hardware design / software algorithm to the project.
		- Share your team’s learning experience.
		- Description of future works.

# Acknowledgements

* + - This could be someone from a sponsoring institution, a funding agency, other researchers, or even family members or friends who have helped in the preparation.

# References

* + - References to external sources used for major parts of the development process.

**Appendix (optional)**

The appendix is NOT to continue writing the main text. It should be reserved for additional info if the reader is interested or curious to know more. Teams may link to external documentation as an alternative to the appendix.