Technical Description Paper – Simulation 2024

- Additions compared to the 2023 version are highlighted in red

Projects Planning – from Design, to Deployment				
Key Elements	0	1-2	3-4	5-6
Requirements definition		Little sign of a list of requirements to be achieved, without any justification related to the restrictions imposed by the challenges that must be overcome in the competition.	Shows an incomplete list of requirements that must be achieved to succeed in the competition. There is a lack of definitions of what needs to be done in terms of hardware or software design, or it disregards restrictions imposed by the challenges.	Clear definition of requirements on the robot design, algorithm design, and development schedule in order to achieve success in the competition, considering competition rules and challenges.
Overall Project Plan		Little sign of stages of milestones, vague planning. Most tasks are done at the moment of decision.	Show signs of stages with milestones, sort of a project planning, however, team members were not assigned to work or a timeline schedule was not presented.	Clear progressive milestones with member assignment and scheduled timeline. Checkpoints to review project progress were also included. It can be used as an overarching guide.

Robot design				
Key Elements	0	1-2	3-4	5-6
robot configuration + sensors		Shows some details about the configuration and sensor placement. Lacks explanation about design choices.	Shows information about the configuration of the robot. Explains the design choices, keeping the weight system in mind.	Shows detailed information about the configuration of the robot and how the design choices affect the software approach, keeping the weight system in mind.

Overall Software				
Key Elements	**0**	**1-2**	**3-4**	**5-6**
Modularization and integration with diagrams such as flowchart, UML, pseudocode		Only rudimentary explanation of software architecture. Provides a rough view of the entire system and its interacting parts (modules). Provides few diagrams that are hard to follow.	Good explanation of the software architecture. Provides a view of the entire system and its interacting parts (modules), supported with diagrams. Diagrams are easy to understand.	Excellent explanation of the software architecture. Provides a view of the entire system and its interfaces (modules), with clear quality diagrams that are easy to understand.
Innovative solutions		Software has non-essential elements developed in an innovative way. The procedure is an adaptation of an existing solution, functional, but gives the team no or very little competitive advantage.	Software has one or more essential elements developed in an innovative way. The proposed procedure is an adaptation of an existing solution, functional and gives the team some competitive advantage.	Software has its main structure and one or more essential elements developed in an innovative way. The proposed design is innovative, functional and gives the team a great competitive advantage.

Navigation + implementation				
Key Elements	**0**	**1-2**	**3-4**	**5-6**
Architecture design with diagrams such as flowchart, UML, pseudocode		Only rudimentary explanation and shows some diagrams to visualize the structure and function of the code. Diagrams may be hard to follow.	Detailed explanation of the software architecture, with good diagrams that are easy to follow and shows good diagrams to visualize.	Excellent explanation of the software architecture. Has clear, quality diagrams that are easy to understand.
Research and Analysis		Barely shows the research of algorithms and prototyping.	Shows the research and analysis process of algorithms and includes some prototyping and testing.	Clearly shows the research and analysis process of algorithms, including prototyping and testing in different scenarios.
Reliability Tests and quality assurance		Shows some kind of tests, but only simple ones and doesn't keep reliability in mind.	Shows more detailed test cases with some quality assurance and reliability tests.	Clearly shows thoughtful tests, quality assurance, and integration plans.

Victim detection + implementation				
Key Elements	0	1-2	3-4	5-6
Architecture design with diagrams such as flowchart, UML, pseudocode		Only rudimentary explanation and shows some diagrams to visualize the structure and function of the code. Diagrams may be hard to follow.	Detailed explanation of the software architecture, with good diagrams that are easy to follow and shows good diagrams to visualize.	Excellent explanation of the software architecture. Has clear, quality diagrams that are easy to understand.
Research and Analysis		Barely shows the research of algorithms and prototyping.	Shows the research and analysis process of algorithms and includes some prototyping and testing.	Clearly shows the research and analysis process of algorithms, including prototyping and testing in different scenarios.
Reliability Tests and quality assurance		Shows some kind of tests, but only simple ones and doesn't keep reliability in mind.	Shows more detailed test cases with some quality assurance and reliability tests.	Clearly shows thoughtful tests, quality assurance, and integration plans.

Mapping + implementation				
Key Elements	0	1-2	3-4	5-6
Architecture design with diagrams such as flowchart, UML, pseudocode		Only rudimentary explanation and shows some diagrams to visualize the structure and function of the code. Diagrams may be hard to follow.	Detailed explanation of the software architecture, with good diagrams that are easy to follow and shows good diagrams to visualize.	Excellent explanation of the software architecture. Has clear, quality diagrams that are easy to understand.
Research and Analysis		Barely shows the research of algorithms and prototyping.	Shows the research and analysis process of algorithms and includes some prototyping and testing.	Clearly shows the research and analysis process of algorithms, including prototyping and testing in different scenarios.
Reliability Tests and quality assurance		Shows some kind of tests, but only simple ones and doesn't keep reliability in mind.	Shows more detailed test cases with some quality assurance and reliability tests.	Clearly shows thoughtful tests, quality assurance, and integration plans.

Performance Evaluation (competition challenges)				
Key Elements	**0**	**1-2**	**3-4**	**5-6**
Reliability Testing and Quality Assurance		Shows some kind of test cases but only simple ones, and lacks keeping reliability in mind. Shows little understanding of what the problem is and how to improve on it.	Shows detailed reliability tests and quality assurance. Includes somewhat insightful evaluation of the problem, but no plans on how to improve on it.	Clearly shows detailed reliability tests and quality assurance. Includes very insightful evaluation of the problem, e.g., which module causes difficulties and shows how it was fixed.

Document				
Key Elements	**0**	**1-2**	**3-4**	**5-6**
Contents, Conciseness and Clarity		Documentation does not cover all aspects of the TDP, sometimes lacks clarity, and is too lengthy in some parts.	Documentation covers most aspects of the TDP, is fairly easy to follow and concise.	Documentation includes all parts of the TDP, has a very clear structure, that is easy to follow and concise.
Formatting		Documentation does not follow the intended formatting and is hard to read.	Documentation is formatted well and is easy to read.	Excels at good formatting, and makes the information more accessible for the reader, e.g. highlighting, labeling, etc.