Contest Rule of 2019 WER educational robot invention Contest

"Artificial Intelligence"

1 Theme Introduction

In 1946, the first computer came into use in the world;

In 1969, the Internet was born...

Now, the number of netizens in the world's more than 7 billion people has exceeded 3 billion.

Information technology is changing the development of human beings in an unprecedented way, and the value of information is infinitely magnified. The amount of information, the speed of information dissemination, the speed of information processing, and the degree of applying information are all growing in a geometric progression, and computer languages become passports that connect the world.

The theme of this WER educational robot invention contest: artificial intelligence, participants should tap their potential, so that information can better serve human development!

Note: The scope of application of this rule is: The educational robot invention contest in **the primary and secondary school, secondary vocational school, higher vocational school and university contest system**.

2 Contest venue

The WER organizing committee allocates two display tables for each participating team, and the size is about 45*120cm. The specific size is subject to the scene, please pay attention to the size of the design creative works.

Power: The display area provides 220V 50HZ power supply, which socket may be far away from your display desk. Please prepare a long patch panel and remind you to pay attention to electricity safety.

3 Creative works

Creativity is the rebellion for tradition, breaking conventional philosophy, a collision of ideas, a docking of wisdom, which is different from ordinary solutions.

The theme of this session: Artificial Intelligence.

The topic of artificial intelligence is quite broad, please design innovative works around the conception of display theme to participate in the selection , the scope of the work includes but is not limited to: Can you solve the problems encountered in your life? Is the existing solution the best? Are there any better innovative products in improving people's lives? Are there any unexplored needs in life?

3D printed parts can be used in the competition, raw materials are only allowed in plastic materials, and metal materials are not allowed. 3D printers and P LA raw materials may be available at the competition site, teams can print on site, but should not totally rely on 3D printing, (The WER Organizing Committee may not provide a 3D printer according to the actual situation), participants should be prepared in advance.

The entry works should include the following points:

Originality, creative discovery and problem solving;

Matching the theme of the exhibition, reflecting the connotation of the educational robot;

Emphasize the demonstration operation and application direction of the work;

Pay attention to the scientific and artistic nature of the work;

Standardize professional report and design materials.

During the competition, the exhibition will be arranged and debugged within the specified time. The judges will score according to the scoring standard, and the participating players can introduce and demonstrate the works to the referee.

4   The other elements

4.1 Team logo

The logo of the team, reflects the essence of a team.

Teams can try to design team logo for their team and print it on cards, hats, costumes, cloaks, business cards, handicrafts... let more teams know themselves.

4.2 Poster

The poster is a perfect combination of pictures, text, color, space and other elements to convey information in a visual form.

Teams can design a poster with no subject matter. The craft is not limited to hand-painting, printing and collage. Note that the size of the poster should not be too large. It should match the size of the display table, and the length and width should not exceed 2mX1m.

4.3 Research Report

The research report should objectively record the work content, the design principle and design ideas of the work, the discussion process of the relevant design, the iterative process, reason and result of the plan , as well as the relevant test data, and reference materials.

4.4 Reply

The answering session is the interaction between the contestants and the referees. The contestants can introduce the source of inspiration for his work, how to solve the problem, and the idea of his own design. In this session, the referees can also ask questions to the contestants, and communicate about the work.

5 Contest

5.1 Team

Each team consists of 2-3 students and 1 coach (teacher or student). Students must be at the school before June 2020.

The participating team members should autonomously and properly face and deal with various problems encountered in the competition with a positive attitude; Self-esteem, self-respect, self-discipline, self-encouragement; Be friendly to teammates and opponents; Respect the volunteers, referees and all those who worked hard for the contest, try to cultivate yourself into a person with a sound personality and a healthy mind.

5.2 Contest system

The team will arrange the exhibition area (The WER Organizing Committee provides 2 tables with a size of approximately 45*120cm. The exact size is subject to the actual site.) and prepare the exhibits within a limited time(on-site announcement). The referees will inspect each team.

Determining the venue and table number when registering on site, there will be about 1 day for the participating teams to build innovative works and arrange the exhibition,which will last for about 1 day. All participating teams are required to arrange, display and dismantle according to the time announced by the WER organizing committee.

5.3 Contest process

The members of the team took the unassembled educational robots to enter the stadium and set up their own creative display works. The referee has the right to inspect the equipment carried by teams, and the equipment which will be used must comply with the relevant regulations and requirements of the organizing committee.

6　Standards of grading

The team's work score is composed of at least 2 expert scores in the contest and online voting. See the score sheet for details.

(1) Innovative points, innovation is very important，which means that your robot can do something that no other machine can do or doing something in a completely different way from any other machine. Players should clearly explain the design principle and why it is designed in this way of their works, and explain how the work is different from the others from above two aspects;

(2) Technical points, assessed from the rationality of the building structure, whether it is made ingeniously, whether the technology is properly used to solve the problem, whether the research report is strictly regulated, and whether the content is enriched;

(3) Appearance points, from the appearance integrity, aesthetics of the work, whether the on-site display is creative;

(4) Team points, from team team logo, poster design and speech performance evaluation.

7　Product model

This contest is limited to the following product models: Abilix Invention Series.

8　Awards

It is divided into primary school group, secondary school group, senior school group, secondary vocational school group, higher vocational school group and university group. For each group，there are first, second, third place and first, second and third prizes.

9　The others

9.1 During the contest, any matters not specified in the rules shall be decided by the referee committee. The WER organizing committee entrusts the referee committee to explain and modify the relevant rules according to the actual situation of the contest, including but not limited to: the contest system, the contest time, and the task scored description.

9.2 In the contest, the referee has the final ruling. Their ruling is the final. The referee will not review the replayed video of the contest. Any questions about the referee must be presented to the chief referee by a student

representative between the two contests. The organizing committee would not accept complaints from coaches or

parents of the student.

Annex 1: Score sheet

2019 WER educational robot invention Contest Score sheet						
number		Group		Rounds		
Team Name						

Item		scores	scored	Total
Innovation points	How does the work solve the problem? Why are you using this solution? Has the solution to the work existed before? What is the difference between the solution of the work and the solution of other products?	40		
	Project suitable for artificial intelligence topics	15		
	Does the work consider social significance, such as pressing social issues, and the acceptability of the market?	20		
Technical points	Is the structural framework stable and the program running normally?	30		
	Whether the prototype's display effect can solve the problem found, that is, the validity of the prototype	15		
	Whether the research report is strict and complete, whether the content is substantial, Whether a complete project process is recorded: discovery problem - analysis problem - problem solving stage	60		
Appearance points	Beautiful appearance and artistic	15		
	Works are easy to use and correspond ergonomic	15		
Team points	The speech is closely related to the theme, the goal is clear, and the work is understood.	30		
	The display board is rich in content and has a team logo.	30		
	Team mutual help, cooperation spirit (can be positively faced when the problem arises)	30		
Total team scores:				

referee: Participants:

Annex 2: Invention Contest Log Template

一、Original statement

I promise that this work is an original work, and the idea comes from me personally.

Signature of the inventor

(all Participants):

_____

_____

date:
_____

grade:
_____

school:
_____

address:
_____

二、 Brief description of the invention process

discover problem	Participants can find problems to be solved from daily life and learning, as well as from television, radio and internet, and then find solutions by brainstorming and research.
	Participants need to find out what causes the problem and what effect they have to achieve after solving the problem. The deeper the player understands the problem, the easier it is to find a solution.
analyse problem	Present different solutions through brainstorming and research,
	By comparison, determine what your solution is, what the principle of the solution is, how it works.
Solve problem	Making your own prototype from a variety of materials
	Test your own work, find its deficiencies, then correct your work, test again, and so on, until the problem is solved, and it can work properly.
	Testing also includes analyzing the pros and cons of inventions, social and environmental impacts, market and social values.
Communication	Communication means explaining problems and researching them, inventing solutions：how to solve the problem, who might use your invention, the process of creating your invention, and how to fix your own solution to make it better.

三、 **The detailed design process**

3.1 Discovery problem stage

● What problem do you want to solve? The more specific you are in describing the problem, the better your solution will be. How did you come up with this problem?

● What is the result you want to achieve? The more specific you are in describing the desired results, the better your solution will be.

3.2 Analyse problem stage

● What are the possible solutions? Which one did you choose? How did you decide which solution to try? The more specific you are in describing the solution you are about to create, the better your invention will be. How did you come up with a solution?

● Has anyone done the plan before you selected it? If so, what is the difference between your plan? Have you done any research to know that this program has been done before? Who did you communicate with? Where did you see it? Which websites did you research? You have to list 4 different pieces of evidence to prove your research, such as: communication with experts, Internet search, interviewing friends and family, etc.

A.

B.

C.

D.

● Draw a sketch of your model, mark all important parts and features, explain how the invention works, and attach paper if needed.

- What problems might you encounter? Does this design meet the sustainability principle? Who did you talk to this design (another student, parent, teacher, etc.)? What do they say about your design?

- How do you correct these problems?

- You can repeat the above 3 steps until you make a work that can run normally, during this period, you may have to draw a lot of sketches to get a satisfactory answer.

3.3   Solve problem stage

● What parts, materials and tools do you need to make inventions and how much do they cost?

● Where did you get these parts and materials?

● What additional skills or abilities do you need to complete the invention?

● Who can help you to complete these inventions?

● Obtain these parts and materials, then complete the invention

- Testing and evaluating the invention. What test did you do?

- Confirm the problems of the invention works and correct them

- Repeat the analyse and solve problem stages until you find a solution to the problem.

3.4 Communication stage

- start a name

- Panel design, design in your own way, telling the story of your invention (panel design ideas and sketches)

- Be prepared to answer questions. The following are examples of problem.

  ◆ Where did your inspiration come from?

  ◆ Who are these people affected by these problems?

  ◆ How did you come up with a solution?

  ◆ Where do you get parts and materials?

◆ Who helped you? What did they help you with?

◆ Who could use you invention? How would they evaluate it?"

◆ How do you want to improve your invention?