

robotex

International

GIRLS FIREFIGHTING RULES

COORDINATOR FOR THIS COMPETITION

Liina Nurmse

liina@robotex.ee



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1 Introduction

Firefighting is a competition designed for girls and women with the aim of encouraging them to develop skills necessary in engineering.

The goal of the competition is to locate four candles placed in the competition area and extinguish them within a certain time.

2 Competitors

1. The maximum number of competitors in one team is 5 people.
2. Competitors can only be female.
3. Team mentors can be either male or female.
4. The competition is divided into three age groups:
 - a. OPEN - At the competition day 19 y.o. and older.
 - b. U19 - At the competition day up to 18 y.o. (including 18 y.o.)
 - c. U14 - At the competition day up to 13 y.o. (including 13 y.o.)
5. The age group is determined by the age of the oldest member of the team.
6. A competitor must be registered in the age group they belong to on the day of the competition, not at the time of registration.
7. When registering for the competition, one must register with the correct age group. The organizers reserve the right to check the ages of the competitors if there is any doubt.
If a violation is found, the robot is disqualified.

3 The Field

1. The competition area is a 2.5 x 3.5 m white field. The field is printed on a white PVC plate marked with circles indicating the positions of the candles.
2. The boundary of the field is a 25 mm wide black line, outside of which is a 200 mm white area.
3. The total area is at least 3.5 x 4.5 m, which includes the competition area and the surrounding participant area, bordered by a white wall.
4. Each round of the competition will have a different layout. The candles are surrounded by randomly placed walls.

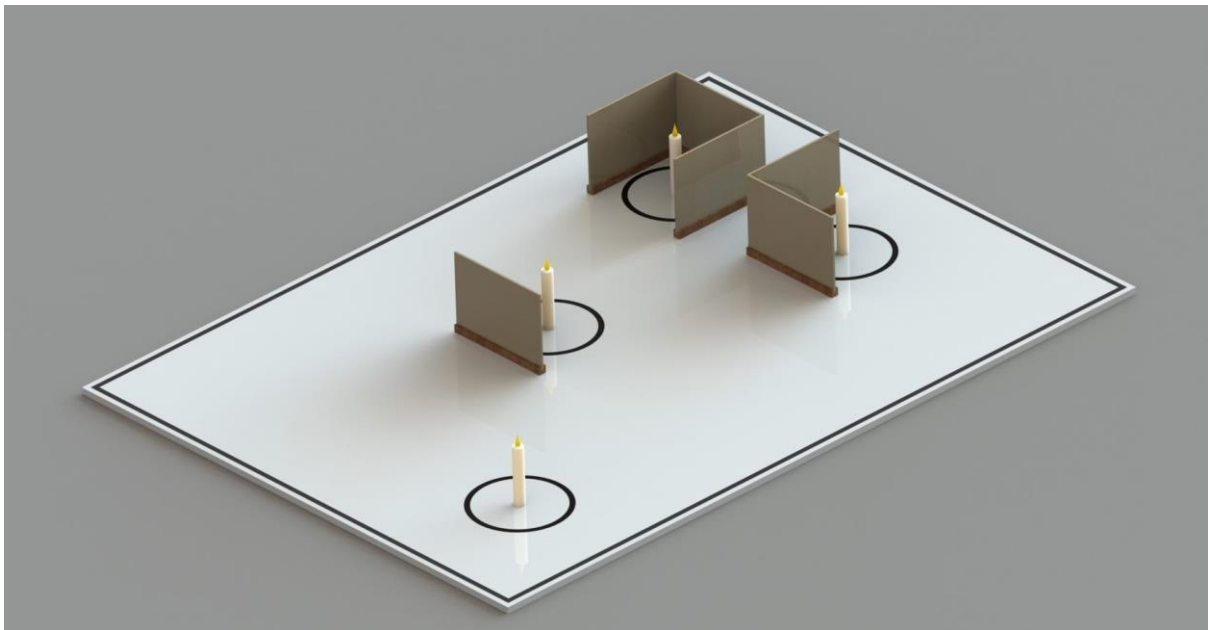


Figure 1 (Example of the field and a candle combination)

5. The candles stand in the center of a white circle with a diameter of 400 mm and are bound by a 25 mm black line (Figure 1).
6. The height of the candles depends on the age group. The height of the candles in the younger age group is up to 100 mm, and in the older group, it varies from 100 mm to 400 mm.

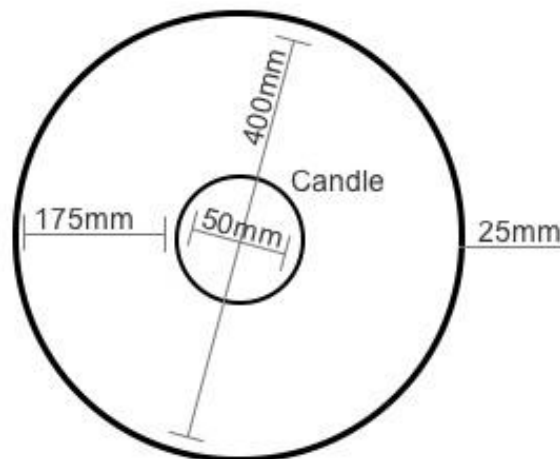


Figure 2 (Candle with the surrounding line)

7. In all age groups, walls obstruct access to the candles: one candle without a wall, one with one wall, one with two walls, and one with three walls.
8. The walls are obstacles around the candles on the field, which, together with wooden bases, are 400 mm high. The walls rest on wooden bases that are 45 mm high and 45 mm thick. The width of the walls varies from 200 mm to 350 mm. Note! It should be considered that two walls may not be tightly together, and gaps may occur.
9. The lighting conditions of the competition area are not fixed and depend on the lighting of the competition center. Competitors must consider and adapt accordingly on site.

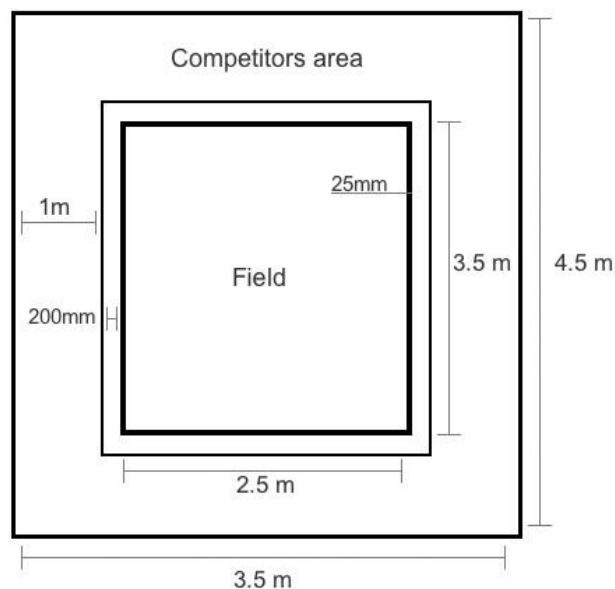


Figure 3 (The field)



Figure 4 (Top view of the field)

4 The Robot

1. The robot must be autonomous.
2. The robot must fit within 200x200mm at registration and at the start of the competition. During the competition, the robot can expand to a maximum size of 300x300mm.
3. The maximum allowed weight of the robot is 3 kg.
4. The robot must have a start and stop button or remote control.
5. The robot must not damage the field or be dangerous to spectators.
6. The robot can use any means to extinguish the fire, but it must not damage the field or be dangerous to spectators. Immediately after the competition, the field must remain clean. If necessary, the team must quickly clean it before the next competition.

5 The Competition

1. The robot starts each new round on a different field from the starting point designated by the competition referee.
2. Robots must start the attempt at the referee's command.
3. The robot must start moving within 5 seconds of the referee's start command. If the robot does not start within 5 seconds of the referee's start command, the attempt is considered a failure.
4. The first candle is in the robot's view at the start.
5. The competition is divided into two parts: the main round and the final tournament.

6. In each attempt, the robot has up to 3 minutes to extinguish 4 candles.
7. In the main round, competitors have 3 attempts. The score for the main round is the sum of the three attempt results.
8. In the final tournament round, competitors have 3 attempts. The final tournament score is the sum of the three attempt results.
9. Only competitors may handle the robot before and during the attempt.
10. If a competitor touches the robot after the start of the round, the time is stopped, and the attempt ends. The score will be based on the candles extinguished before touching the robot.
11. If the robot exits the competition area into the participant area, the time is stopped, and the attempt ends. The score will be based on the candles extinguished before exiting the competition area. A robot is considered to have exited the competition area if it completely crosses the black line surrounding the field.
12. The competition order is drawn or determined by the order of registration. The competition order and approximate competition time will be announced before the event by email after the registration for the competition ends.

6 Scoring

1. Points are awarded for each extinguished candle according to the number of extinguished candles (Appendix 1. Scoring).
2. If all candles are extinguished in less than 3 minutes, i.e., 180 seconds, the unused seconds are added to the score as points.
3. Candles are considered extinguished if the robot has entered the surrounding circle, extinguished the flame, and left the circle without touching the candle.
4. If a candle is extinguished without entering the circle, half of the possible points are awarded. A robot is considered to have entered the circle if at least one wheel touches the black line.
5. If a candle falls over after being extinguished, half of the possible points are awarded.
6. Extinguished candles become obstacles in the competition field, and no points are deducted for touching them.
7. In the main round, competitors have 3 attempts. The main round score is the sum of the three attempt results.
8. The top 4 robots with the highest scores advance to the final.
9. In the final tournament round, competitors have 3 attempts. The final tournament score is the sum of the three attempt results.
10. The top three are determined by the highest scores in the final

7 Organizing

1. The competition fields are open for practice when no official competition is taking place.
2. Before the competition, registration must be completed, during which the robot is technically inspected, the competition number is affixed, and the start-stop functions of the robot are tested.
3. The technical inspection must be completed by the time set by the organizers.
4. Questions and issues arising during the competition are resolved by the judges.
5. The judge's decisions are final and cannot be disputed. Complaints must be submitted during the competition or immediately after the competition ends. Later complaints will not be considered. In case of discrepancies or disputes, the final decision rests with the judges and/or organizers.
6. The arena has at parts uneven lighting and infrared noise, which may disrupt the work of sensors during the competition. For this reason, the organizers recommend using covers or blinds for sensors, testing the sensors under intense lighting conditions or even under direct sunlight to imitate the lighting conditions of the competition arena.
7. If the winners' team has three members, next year they should have at least one new member who was not previously on this team to compete in the same category again instead of taking a year off from it. This rule is aimed at bringing new people, giving everyone a fair chance and encouraging recurring winners to try new competitions they usually do not participate in and to educate and engage new beginners in the field of robotics. *

*** The rule complies only with Robotex International standards and is used for Robotex International competition.**

8 Changes and cancellations in the rules

Changes and cancellations made to the rules are adopted by the main organizer of the competition according to the regulation of the regulatory committee of the competition.

9 Appendix 1. Scoring matrix

	Number of candles extinguished				Total possible score
	First (No walls)	Second (One wall)	Third (Two walls)	Fourth (Three walls)	
Full Points	100	200	300	400	1000
Half points (see 6.4 ja 6.5)	50	100	150	200	
Time Bonus: Clock counts down from 180 seconds and stops when the robot extinguishes the fourth candle (see 6.2)					180

Table 1. Scoring matrix

