



# METAL MONSTERS

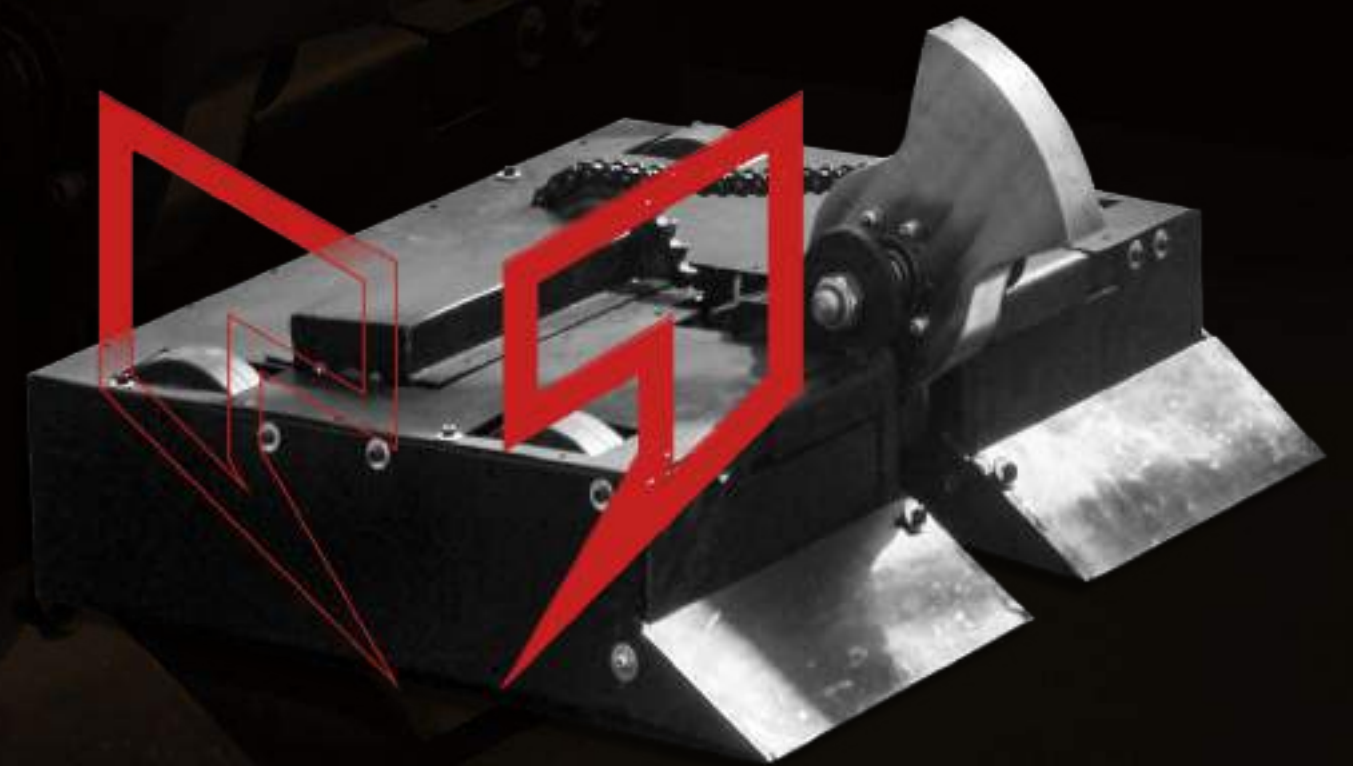
**MM Cup Rulebook 2026**

Light Weigth

# What is Metal Monsters?

Metal Monsters Cup Fight (MMF) is the MENA region leading robot fight League since 2017, that runs a mid-weight, light-weight robot fight competition cup, show and a game, to spread out knowledge of robotics and technology among non-technicals via means of an entertaining show. And to encourage contestants to build robust reliable robots so as to enhance and develop their technical skills and abilities.

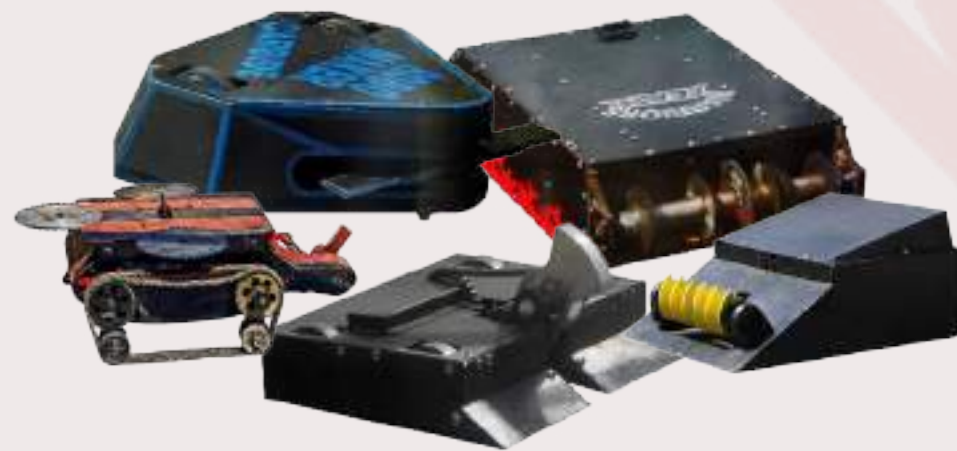
This competition is organized and prepared by Robocon Egypt initiative in collaboration with GIE with their partners.



# Metal Monsters Cup

## Categories Mid-Weight

- Max weight: 55kg
- Educational background: All
- Participant age: 12+



## Light-Weight

- † Max weight: 5kg
- Educational background: All
- Participant age: 6 ~ 18



# Arena Activities for Light-weight

It is the fight round qualifying matches for the competition finals where only 2 opponent robots compete together. It is considered a double-sided game match that is contested by two teams at once and lasts for 2 minutes

**Dual Fight Rounds**

## Quick Guide

Contest Theme "***Ancient Roots Inspires Future Fruits*** "

Egypt, the land of science origins has awakened and is reclaiming its leading role in the modern world considering the deep roots of technology and civilization, and its rich diverse cultural heritage that is powered by wisdom of the Nile, unique transcontinental geography, and smart original Egyptian ancestors.

The Egyptians throughout the ages were able to protect and preserve their land and empower the Egyptian culture against any aggression. So, Metal Monsters in its sixth edition, came to prove this inside the arena in which authentic Egyptian robots conquer the attacks of the invaders.

The Egyptian cultural and historical heritage is rich in important events that changed the future of Egypt and the shape of the whole world. The influence of the ancient Egyptians extended through history and geography in all the continents of the ancient world. It was started by the ancestors thousands of years ago, and the descendants continue it in cooperation with their friends and partners from all over the world.

***"The sixth edition of the Metal Monsters Cup competition brings you inspiration from the Egyptian civilization in all its details. What is required of the participants in this version is to build a robot capable of fighting inspired in its shape and identity, its brand from the ancient Egyptian culture, which is reflected in the design of the robot and its decoration and choosing His personality, name, colors, movements and effective weapon".***

It is possible that the weapons of the ancient Egyptians in their historical wars were a good source of inspiration for the contestants in choosing their weapons, as well as the equipment used in the conduct of ancient life matters, in addition to the distinctive ancient architecture and hieroglyphic, demotic and Coptic inscriptions. Each team consists of 2 members at least and 5 members maximum. Each team should participate with only one robot, which is manually operated via means of wireless control.

# Importance of Safety

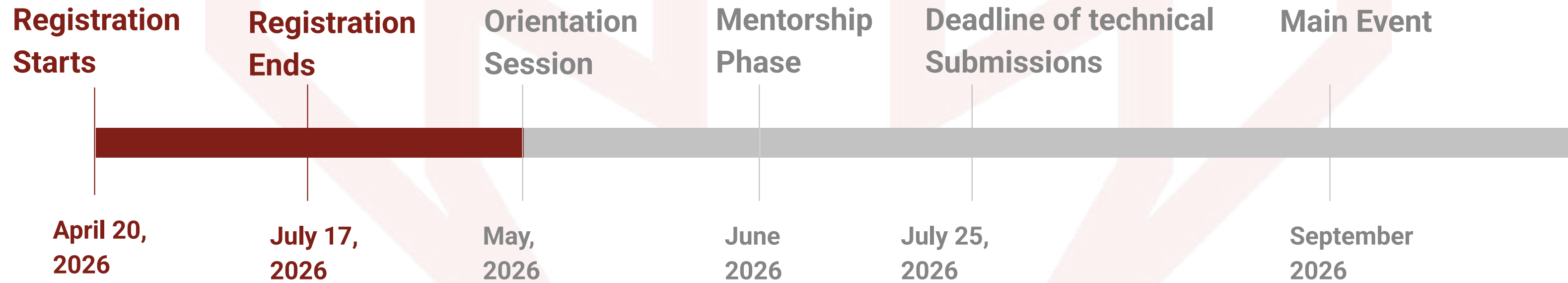


- Safety is the most important elements in the development of the Metal Monsters.
- The safety of the designed robots is the first and foremost issue for the safety principle of the contest. The participating teams, as the robot designers, are responsible for the safety of their robots.
- The teams must work and cooperate closely with the organizers to ensure the utmost safety of the contest.
- Safety must always be the top priority and it must be considered by all people involved in the contest including officials, participants and spectators in all circumstances. Teams are required to pay sufficient attention to the safety of their robots before applying to take part in the contest.

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# 1. Registration & Timeline



## 2. Game procedures

### 2.1 Setting of robots

- **30 seconds** are given for setting and deployment of robots in the arena before the match starts.
- Code uploading to robots is allowed during the "Setting time"
- AC plugs and electric power sources are not allowed to be used inside or around the arena.
- At the end of the setting time, Arena referee whistles and the team members should leave the arena immediately.
- Any team that fails to complete setting of the robots within setting time should leave the arena immediately; it is prohibited to complete setting after the start whistle.
- Only two team members from a team are allowed to set robot within the setting time.
- Only the two team members are allowed to operate and control the robot during the match.
- Team members and the pit crew members are not allowed to get into the arena during the match.
- It is not allowed to operate a robot during the setting time.

## 2. Game procedures

### 2.2 Game procedures

- Game begins after a permission from the arena referee, each team should get into the field and place their robot on their specific start zones
- Arena referee whistles to start two minutes setting time, team members should begin setting and preparing their robots for the match.
- Robots must be set at their specific start zones.
- At the end of the setting time the arena referee whistles, and team members should evacuate the battlefield immediately.
- All team members take their places outside around the arena waiting for the whistle of the arena referee to start the match.
- Each match lasts for 2 minutes.
- Teams are allowed to operate their robots only after the arena referee whistle of the match beginning.
- After the start of the match teams should fight to decide the winner and it is prohibited to get into the arena during the match time

### 3. Teams

- Team consists at least of two members and at maximum five members including supervisor.
- Players in one team may be from different ages and different backgrounds.
- The team consists of two main players called "team members" that can participate during the game at the game field.
- Other team members aren't allowed to participate during the game, they are allowed to assist in outside before the game, and they are named "pit crew".
- Only the team members are allowed to participate to set the robot during the setting time.

## 4. Robot design aspects

- Each team has to build one manual remotely controlled machines.
- All robots must have an attractive appearance of design and colors.
- All machines must be safely activated and deactivated.
- Robot can be divided or split into sub-units or connected by flexible cords.
- Robot dimensions must not exceed (55X55X30) cm (Width X Length X Height).
- Robot total weight must not exceed 5Kg.
- Robots must be manually operated via means of wireless remote controllers.
- The voltage of the power sources used is DC and has no voltage limitation.
- Readymade robots are allowed to be used like robot kits, self-built robots by team members.
- For safety issues mechanical emergency master switch is required to directly shut off electric power of the whole robot system.
- More than one emergency button is also allowed as long as it is reachable and easy to use by any of the operators.
- Jumper plugs can be also used instead of a switch as an alternative to either type of switches.
- All batteries and terminals should be isolated and protected well from any direct or indirect short circuit.
- All wires and electrical system must be inside the robot.
- A robot chassis / body must be built totally from wooden or plastic materials.
- Using pneumatics or hydraulics is not allowed, *"Dampers are allowed"*.

## 5. Robot Control

- Each robot must be controlled via a reliable remote controller e.g. commercial RC controller.
- It is preferred to use commercial RC controllers due to its high reliability as we recommend to use RC system that uses a form of Digital Spread Spectrum DSS communication with automatic pairing between the transmitter and receiver.
- All automatic moves and functions are allowed provided you are able to remotely disable or override those functions at any time.
- There is no prohibited control technique, but your control system should be reliable and stable.
- All of readymade controllers, their peripherals and shields are allowed to be used.
- Using mobile phone as a controller is also allowed.

## 6. Robot personality & theme

- Each robot must have its own unique personality.
- Robot personality can be inspired from nature, animals, manmade elements, etc
- Personality must be shown clearly in the mechanical design, colors, and decoration of the robot.
- The robot theme must be original.

## 7. Weaponizing

A weapon is that part of the robot that is powered to fight other robots, crash and smash them. Robots must have real weapon so as to compete at the METAL MONSTERS as following:

- Spinners

Spinners must be safe enough so it should follow the following rules:

- Must have a mechanical emergency stop switch or a reachable fail/safe mechanism that shuts the power off.
- Switch may be upside or downside the robot.
- Spinners must be able to reach zero speed from maximum speed within 30 seconds.

- Flippers

- A METAL MONSTERS robot can flip using any of the allowed mechanisms and techniques mentioned before such electric motors driven mechanisms.

- Hybrid or multiple weapon

- A METAL MONSTERS robot may include more than one weapon beside that the ability to use modular interchangeable weapons within robot design limits and is considered as a spare part.

## 8. Robot design restrictions

All of these restrictions below were tailored for our safety and not to cause any harm for any one during the game day.

- Drones are not allowed.
- Hydraulics are not allowed.
- Pneumatics are not allowed.
- Projectiles are not allowed.
- Radioactive materials are prohibited.
- Toxic metals, liquids and materials are not allowed.
- Organic substances and materials are not allowed to be used except wood and its products.
- Robot jamming and EMPs are prohibited.
- Liquid pouring or liquid weapons are not allowed beside glues, grease, .... etc.
- Any weapon or a way to harm any of the people outside the arena like smoke generators, bright lights and LASER are forbidden and is considered a disqualification.
- Internal Combustion Engines are not allowed to be used.

## 9. Winners & Awards

A team is said to be winner in one of these cases:

- Team can win by K.O., it occurs when knocking out the opponent team by Incapacitating their robot for 10 seconds.
- If any of the teams failed to win by K.O., Then the winner is determined by score points. The team that gets higher score is the winner.
- In case of drawing, the team who has the highest score points is the winner.

Awards:

- Financial and special awards for top Winners and best performances..

## 10. Evaluation

All of the following evaluation methods and calculations are only applied if one of the two contestant teams fail to knock out the opponent team "K.O.", score points will be classified and calculated as following:

### 1. Hitting

- Move is considered a hit when is caused by a robot or one of its weapons with an intention of pushing away the opponent.
- Hitting type is determined by two factors (Power of the hit – Reaction of the opponent's robot – effect of the hit by the opponent's robot) and decided be field judge.

### 2. Aggression & Meekness

- A robot is awarded +ve score for its aggressive attitude & -ve points are deducted for its meek attitude.
- Aggression is the intention to attack the opponent robot with high frequency of trials at time
- A robot is described to be aggressive when trying to attack an opponent using a powered weapon.
- Meekness is the intention to withdraw, run, and avoid opponent attacks without an intention to maneuver or to respond to the attack.
- A robot is described to be meek when not trying to attack the opponent.
- A meek robot has a low attack frequency of average 10 seconds between each attack trial evaluated by the field judge.

\*All score points, hits, flips points are decided and estimated by the field judges.

<b>Hitting</b>					
Soft	Soft hit occurs when causing trivial damage to the opponent's robot				<b>+1</b>
Hard	Hard hit occurs when causing serious damage to the opponent's robot				<b>+4</b>
Weapon	Weapon-to-Weapon hit occurs when attacking opponent powered/broken weapon				<b>+6</b>
<b>Aggression &amp; Meekness</b>					
<b>Aggression</b>			<b>Meekness</b>		
Normal Attack	The robot tries to hit the opponent	<b>+1</b>	Escape	-ve 1 point is deducted for a low freq. meek robot for each escape	<b>-1</b>
Powered Attack	Trying to hit with a powered weapon	<b>+2</b>	Stop	-ve 2 points are deducted every 5 secs. for a stopping robot	<b>-2</b>
Powered W-W Attack	Trying to hit opponent weapon by a powered weapon.	<b>+6</b>			

## 11. Disqualifications

A team is said to be disqualified and out of the contest if it commits any of the following:

1. Intention of harming the arena walls, ceiling and floor.
2. Causing any types of harm to the people outside the arena is considered a disqualification.
3. A robot without **proper protection** is not allowed to participate.
4. Remote control interference with others is an acceptable reason for disqualification.
5. A team that fails to pass the **technical inspection** (*Weight-Dimensions-Safety*) is considered to be disqualified.
6. A team that fails to obey safety rules and guidelines during the game days is out of the contest.

## 12. Judges

**Chief Judge** the Head Judge is responsible for all other judges and make sure that all of process going straight. and decide in the case of a tie between the Judges.

**Field Judges** There are 2 Judges for each Match. Two judges, one for each team to calculate team score. And the third judge (Organizer) for timing and any violations during the matches like: Starting Matches, Stopping Matches early, Declaring a win by KO , Declaring and administering Timeouts and Watching for safety violations.

### **Judges' Duties:**

- Deciding the outcome of matches that do not end in early termination.
- Provide information to Metal Monsters officers regarding the disqualification of teams and their robots
- Fulfill all documents required and provide it to Metal Monsters Officers.
- Perform the needed robot internal inspections and functional tests

## 13. Game Field "Arena"

Gamefield is mainly consisting of two main areas (Arena– Operators Area)

- **Arena**
  - It is the ground where robots are supposed to compete and smash.
  - Arena is a plain square area with an internal dimension of 4m length and 4m width.
  - Arena ground floor and fencing is constructed from wood.
  - Arena surrounding fence height is 20cm.
- **Safe area**
  - It is the area between the outer fencing and inner fencing which is almost 1m.
- **Operators' area**
  - It is the area around the arena where robot operators control their robot with a width of 1m.