MRC GHANA 2027
CATEGORY INFORMATION SHEET

Archery

Autonomous robotic bow

19–20 February 2027 · Accra, Ghana · Venue to be announced

The current official H.E.R.O. rules take precedence
This sheet is a plain-English summary prepared by the MRC Ghana 2027 organisers. Always check the official rules before building or competing: https://www.he-ro.gr/mrc-archery

Sport overview

Archery challenges teams to build an autonomous robot bow, powered by a rubber band, that fires a lightweight, blunt-tipped arrow at a ten-ring target.

The target is shot from four distances — 40, 80, 120 and 160 cm. The robot must adjust its own aim height for each distance; adjusting by hand scores zero at that distance.

Competition objective

- Build an autonomous, vertically held robot bow with a start/stop button.
- Program automatic aim adjustment for four distances.
- Score as many ring points as possible in a single attempt.

Age eligibility

One division; each age category competes separately.

Age category	Published ages
Kids	10 to 12 years
Teens / Senior	12+ to 18 years
Adults	18+ years — The official page lists Adults as 'only for the Advanced category'

Team requirements

- Teams of 2 to 3 members. Individual entries are not accepted.
- Each team names one Technician — the only team member allowed in the waiting and competition area. The Technician may change between attempts or matches.
- Every team member must be at least 10 years old.
- Each team needs a coach aged 20 or over. A coach must bring one assistant for every three teams they register.
- One robot per team. Robots may not be swapped during the competition or shared between teams.

Format and scoring

- The robot sits on a raised base inside a marked square on the field.
- Target: a 40 cm foam disc with ten rings, centre 35 cm above the surface.
- Each attempt covers all four distances in turn: 40, 80, 120 and 160 cm.
- Code and robot adjustments are allowed between attempts, but testing is not.
- The centre ring scores 10, decreasing by one per ring; a miss scores 0. An arrow touching two rings scores the higher value.
- An attempt's score is the sum of all four distances.
- Only the best single attempt counts. Ties are broken by the previous best attempt.
- 1st, 2nd and 3rd place are awarded in each age category.

Robot and equipment requirements

- Autonomous robot: it fires by itself five seconds after the start button is pressed and adjusts its own aim height.
- The bow must be held vertically like an archer's bow, not horizontally like a crossbow.
- Maximum 25 × 25 cm footprint and 800 g. Robot plus fully drawn arrow no longer than 30 cm in the shooting direction.
- Up to 1 controller, 4 motors and 4 sensors.
- Rubber bands up to 4 mm wide.
- Arrow made by the team, under 30 g, with a rounded, non-sharp tip.

Preparation checklist

- [ ] Design a vertical bow mechanism and check size, weight and drawn length.
- [ ] Make and weigh several blunt-tipped arrows (under 30 g).
- [ ] Program the five-second delayed start and automatic height adjustment.

- [ ] Print the official target and practise at all four distances.
- [ ] Pack safety glasses and protective equipment.
- [ ] Bring a laptop with your program ready to explain to judges.

Safety notes

- Safety glasses and protective equipment are mandatory — teams without them are disqualified.
- Arrows must have rounded, non-sharp tips.
- The Technician steps back during the five-second start delay.
- No remote control, wireless links, pneumatics or parts that could cause harm.

Awaiting clarification

- For MRC Ghana 2027, ages are counted on 19 February 2027, the first day of the competition. The official rules do not set this date themselves, and adjacent bands share boundary ages (for example '10 to 12' and '12+'); the Ghana organising committee will confirm the category for anyone on a boundary age.
- The official page refers both to a single start-button press and to a button press after each shot; confirm the start procedure with the organisers.
- Adults are listed as 'only for the Advanced category', but the sport is described as having one division.

Registration guidance

- Register through the official MRC Ghana 2027 registration application: https://www.mrcghana.com/register
- Have your team name, team members, coach details and chosen sport(s) ready.
- Registration closes on 15 January 2027. Registration fees: to be announced.
- Participant information is collected only through the official registration application.
- Questions: partnerships@makersplacegh.com

Official rules and source

Official H.E.R.O. rules
https://www.he-ro.gr/mrc-archery

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