

MC² — Motorball Championship 2026

Robotic football, powered by BBC micro:bit

OFFICIAL RULES & REGULATIONS • TOURNAMENT FLOW • TEAM GUIDE

26–27 September 2026 • Makeramai Makerspace, Level 4, Plaza Merdeka, Kuching, Sarawak

Pre-tournament workshops: 12 September (Primary) • 13 September (Secondary)

Primary & Secondary tournaments • RM3,400 in prizes • learning.com.my/mc2

Document	Details
Version	v1.7 — 11 September 2026
Status	Final unless re-issued. Any update will be posted on learning.com.my/mc2
Contact	admin@learning.com.my • +6010 3183 700
Venue	Makeramai Makerspace, Level 4, Plaza Merdeka, Kuching

IMPORTANT NOTICE — NEW DATES The Motorball Championship 2026 moves to 26–27 September 2026 (postponed due to weather conditions in Kuching and advice from the Ministry of Education). Pre-tournament workshops proceed as planned: 12 September (Primary) and 13 September (Secondary).

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1. What is Motorball

Motorball is robotic football: two student-built robots per side, each steered by a student with a wireless controller, driving and pushing a pink ball into the opposing goal on a small octagonal pitch.

- **Students build everything:** design, wiring and programming including but limited to: motor control, driver response and match tactics. Both categories play 2v2 with driven robots only.
- **Two arenas run at once**, with a referee at each pitch keeping score and the clock.
- **Powered by BBC micro:bit**, programmed in Microsoft MakeCode, the same pocket-sized computer used to teach coding in classrooms by The Learning Curve

2. Key dates & venue

Event	Date	Venue / notes
Workshop — Primary	Sat 12 Sep 2026, 09:00–16:00	Makeramai Makerspace. Assembly, robot check, micro:bit & MakeCode sessions.
Workshop — Secondary	Sun 13 Sep 2026, 09:00–16:00	Same running order as Primary day.
Tournament Day 1	Sat 26 Sep 2026, 09:00–16:00	Briefing & inspection 09:00–09:45. Matches. Robot lodgement 15:30–16:00.
Tournament Day 2	Sun 27 Sep 2026, 09:00–16:00	Collection & systems check 09:00–09:30. Knockouts & Finals. Prize giving 15:30–16:00 (both categories).

Note: Count down from the event page: 14 days to kickoff at time of writing. Arrive 30 minutes before your first briefing.

3. Categories & eligibility

Primary and Secondary are two separate tournaments. They are never merged and have separate prize pools.

	Primary	Secondary
Schools	Primary schools (12 confirmed)	Secondary schools (8 confirmed)
Teams	12 teams	8 teams
Robots per side	2 driven robots	2 driven robots
Control	Joystick:bit (default); PS2 / other micro:bit extensions allowed	Joystick:bit (default); PS2 / other micro:bit extensions allowed
Kit	motion:bit (Cytron)	sumo:bit (Cytron)

3.1 Team composition

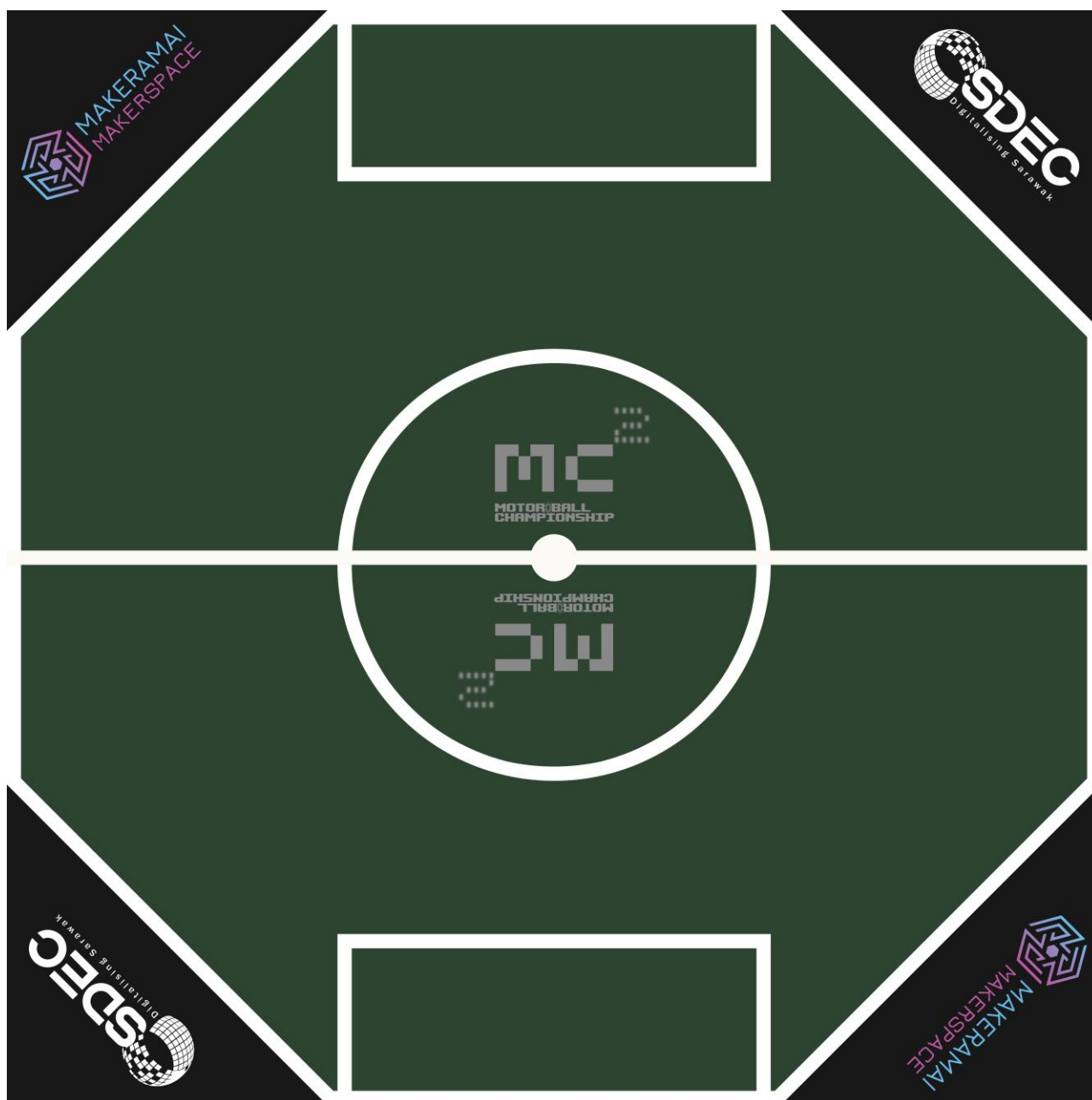
- One team per school. Each team: 3 students + 1 teacher / coach as mentor (per official invitation letter).
- Only registered students may drive. Substitutions between matches are allowed; no mid-match driver swaps except for injury/equipment fault with referee approval.
- Primary: 2 drivers at the pitch. Secondary: 2 drivers at the pitch.
- Invited schools must register before the cut-off via learning.com.my/mc2. Contact: Cik Husna — husna@learning.com.my / WhatsApp 010-318 3700.

4. Robot & kit rules

- **Provided free:** 2 robot kits per team — Cytron motion:bit (Primary) or sumo:bit (Secondary). BBC micro:bit boards are NOT included — each team must bring 4× BBC micro:bit V2 plus laptop + mouse.
- **Allowed kits:** Primary — motion:bit (Cytron). Secondary — sumo:bit (Cytron), 2 driven robots per side.
- **Controller (standard):** Joystick:bit controller extension for the micro:bit is the default controller for all teams (first choice, as used in the workshop). PS2 controllers and other micro:bit-controlled extensions are allowed but will not be covered in the workshop. Bluetooth (smartphone app) is not allowed.
- **Program:** Robots must be programmed by students using Microsoft MakeCode on the micro:bit. Sample ball-tracking code may be adapted but must be explained at inspection if asked.
- **Size & weight:** max footprint 200 mm × 200 mm, max height 100 mm, max 1.5 kg per robot (measured at inspection each match day).
- **Custom attachments (encouraged):** 3D-printed or fabricated kickers / deflectors in PLA, acrylic or recycled plastic only. All attachments must clip on with no permanent fastening (no screws, glue, bolts, etc.) and must be hand-removable from the main frame. Opponent attempts to disarm (knock off) attachments are allowed and encouraged. Not allowed: metal sharp edges, launching of projectiles, liquid or flame. Kicking mechanisms may only interact with the ball; deliberate launching at an opposing robot = immediate disqualification.
- **Power & wiring:** Only the kit battery / approved cells (sumo:bit: LiPo 7–25 V input range). All wiring secured; power switches reachable without lifting the robot. Charge only in the marked bay.
- **Ball handling:** the ball may only be held from the sides (horizontally) - the ball must stay fully visible from the top at all times. No full enclosure, lifting or carrying.
- **Allowed sensors & outputs:** sensors allowed: ultrasonic, lidar, infrared. Outputs allowed: DC motors, servos, LEDs, OLED screens. Mods encouraged as long as the robot runs on motion:bit (Primary) / sumo:bit (Secondary) with the provided battery; 3D-printed enclosures and attachments are allowed.
- **No-go:** radio jammers (e.g. CC1101), secondary dev boards (Arduino, ESP32, etc.), Wi-Fi/Bluetooth remote controls, non-approved batteries and motors, liquid or gas pumps, sharp blades/edges, high-voltage/current devices, and any speakers/buzzers except the ones on the micro:bit and extensions.

Note: Full kit dimensions and approved parts list will be confirmed at the 12/13 Sep workshops. Anything not covered here is at the chief referee's discretion.

5. Pitch, ball & goals



- **Pitch:** octagonal, 8 ft (approx. 2.45 m) across. Low walls; ball stays in play off the walls unless the referee calls a stuck-ball restart.
- **Ball:** pink or orange ping pong ball
- **Goals:** one goal at each end, 38 in wide x 6 in tall. A goal counts only when the whole ball crosses the goal line, as signalled by the referee.
- **Arenas:** 2 pitches run in parallel. Teams are assigned Arena by the schedule; warm-up only in the designated Arena, never on a live pitch.

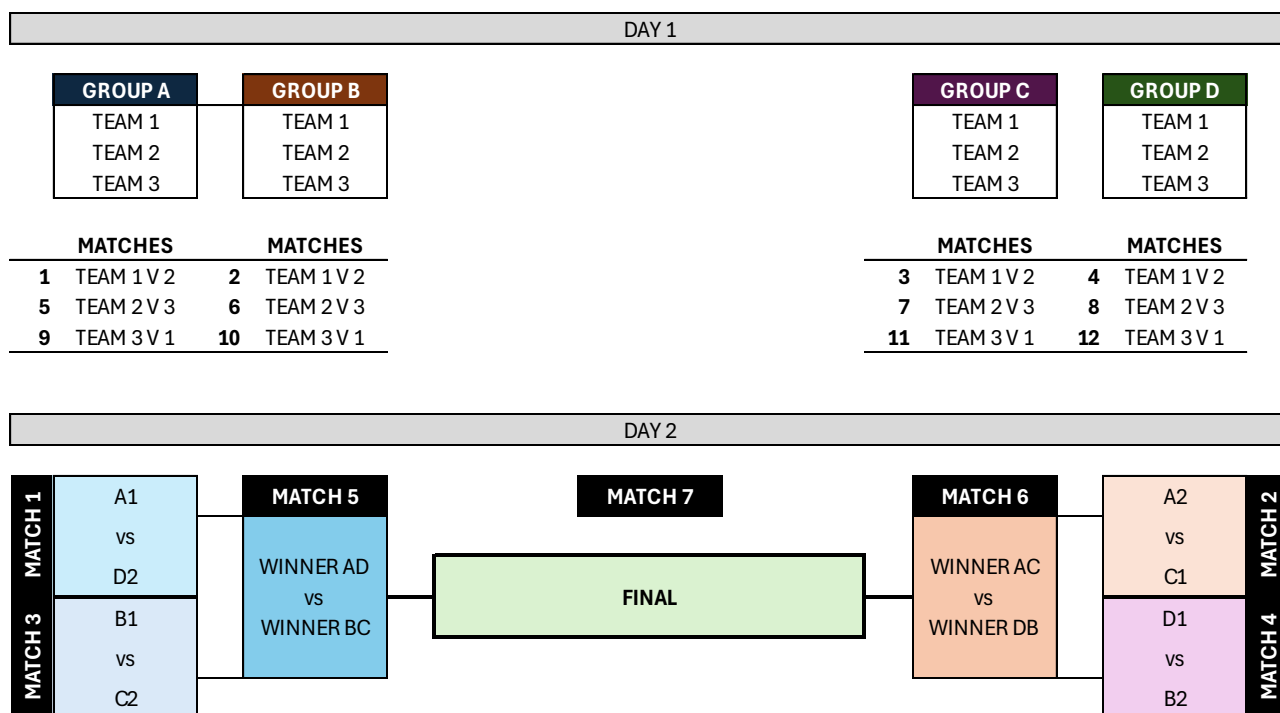
6. Tournament format & flow

6.1 Principles

- 10 minutes per match > format **4 + 2 + 4** (4-min half, 2-min half-time, 4-min half). Clock stops only on referee signal.
- Extra time: up to 5 minutes sudden-death golden goal, then carry-off decider
- Day 2: Primary quarter-finals and Secondary semi-finals, then finals

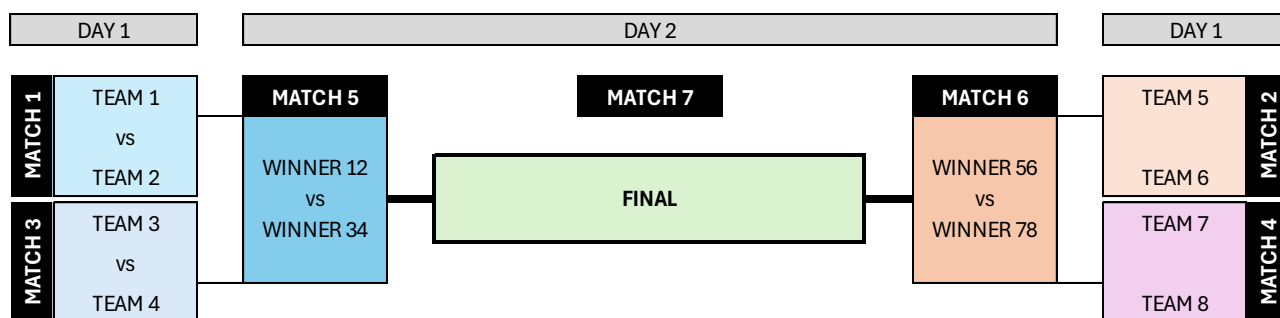
6.2 Primary - 12 teams

- Day 1 12 Matches — Groups:** 4 groups of 3, round-robin. Top 2 per group advance to Day 2 (8 teams). Points: win 3, draw 1, loss 0. Tie-break: goal difference, then goals scored, then head-to-head, then carry-off decider.
- Day 2 7 Matches — Knockouts:** Quarter-finals → Semi-finals → Final + 3rd-place playoff, all on Day 2. Every knockout is decided on the day (golden goal, then carry-off decider).



6.3 Secondary - 8 teams

- Day 1 4 Matches - Knockout quarter-finals:** 4 matches, 8 teams. Winners advance to Day 2 (4 teams). Every tie is decided on the day (golden goal, then carry-off decider).
- Day 2 3 Matches — Knockouts:** Semi-finals → Final + 3rd-place playoff. Decided on the day (golden goal, then carry-off decider).



Note: Exact group draw and match order are published after robot inspection on Day 1. The organiser may compress groups to straight knockouts if teams withdraw — announced at briefing.

	Matches			Duration		10 to 12	1 to 3
	Primary	Secondary	Total			AM	PM
Day 1	12	4	16	160 mins	3 hours	8P	4P 4S
Day 2	7	3	10	100 mins	2 hours	6P 2S	1P 1S

7. Match rules — timing, kickoff, scoring

7.1 Timing

- Match = 4 min + 2 min half-time + 4 min. Teams swap ends at half-time. Half-time is for battery/controller swap only *no code changes.
- Teams not at the pitch within 2 minutes of the call forfeit the match 0–3 (referee discretion for genuine faults).

7.2 Kickoff & restarts

- Kickoff: ball placed centre, robots start in own half. Higher-seeded / coin-toss winner kicks off first half; other team kicks off second half.
- After each goal: conceding team restarts from centre within 10 seconds.
- Stuck ball (no movement for 5 seconds, ball wedged, robots entangled): referee stops play, separates robots to own halves, drops ball at centre. No penalty.
- Out of arena (ball leaves pitch): referee replaces ball at nearest neutral spot, robots hold position until whistle.

7.3 Scoring, extra time & carry-off decider

- **Win:** most goals when the clock expires wins.
- **Golden goal:** knockout ties go to up to 5 minutes sudden-death extra time (first goal wins). Teams do not swap ends.
- **Carry-off decider (no penalties):** penalty shootouts are not use, some teams have no kicker. If golden goal expires with no goal: one nominated robot per team lines up on the centre line facing the same goal, ball placed at the centre spot. On the whistle, the first robot to carry or push the ball across the goal line wins the match.

8. Fouls, refereeing & fair play

- **Forbidden:** Pinning an opponent against the wall for >5 seconds, touching any robot during play, coaching drivers by remote signal, interfering with the or robot ball by hand results in red-card and removal of the said robot
- **Cards:** verbal warning → goal disallowed / penalty goal to opponent → match forfeit for repeated or dangerous conduct. Referee's decision is final on the pitch; appeals go to the chief referee within 15 minutes with a written note.
- **Radio fair play:** Primary teams may not switch radio group - including to disrupt other teams. Secondary teams may switch radio group. No jamming or interference with opponent controllers; Bluetooth control is not allowed. Teams must radio-check their own robots before each match - organisers and referees are not responsible for any communication loss or disruption during the event. All other participants must switch off micro:bit radio communication during matches.

9. Schedule

9.1 Workshops — same running order both days

Time	Session
09:00	Briefing
09:15	Assembly
11:00	Break
11:15	Q&A
11:30	Robot check
12:00	micro:bit & MakeCode for newcomers
12:30	Lunch break
13:00	MakeCode session
14:30	Break
14:45	MakeCode session (cont.)
16:00	Q&A and housekeeping

Sat 12 Sep — Primary schools. Sun 13 Sep — Secondary schools.

9.2 Tournament — 26–27 Sep, Makeramai Makerspace

	Day 1 — Sat 26 Sep	Day 2 — Sun 27 Sep
Morning	09:00–09:30 Briefing & robot inspection	09:00–09:30 Collection & systems check
Midday 10 – 12 AM	Primary groups stage	Primary Quarter-finals, Secondary Semi-finals
Afternoon 1 – 3 PM	Primary groups + Secondary quarter-finals 15:30–16:00 Robot lodgement (secure overnight storage)	Primary, Secondary Finals 15:30–16:00 Prize giving (both categories)

	Matches			Duration		10 to 12	1 to 3
	Primary	Secondary	Total			AM	PM
Day 1	12	4	16	160 mins	3 hours	8P	4P 4S
Day 2	7	3	10	100 mins	2 hours	6P 2S	1P 1S

10. Check-in, inspection & robot lodgement

- **Bring:** printed / digital team registration, student IDs, all robots, spare batteries, controllers, laptop with MakeCode project saved offline.
- **Inspection (Day 1, 09:00–09:30):** size/weight check, controller pairing, drive test, clip-on attachment and ball-visibility check, safety check. Failed robots get one re-check window before groups start.
- **Lodgement:** robots are lodged in secure overnight storage 15:30–16:00 Day 1 and collected 09:00–09:30 Day 2. No overnight modifications. Tamper seals apply — broken seal = re-inspection.

11. Code of conduct & safety

- Respect referees, opponents, makerspace staff and Plaza Merdeka property. No shouting at drivers or referees — coaches breaching this are removed from the pitch area.
- Batteries charge only in the marked charging bay, never unattended. Damaged Li-ion packs are withdrawn immediately.
- Closed shoes, no food/drink at the pitches, long hair tied back. The makerspace is a shared public venue — keep walkways clear.
- Photography/video is used for event coverage; tell registration if any student must be excluded.

12. Prizes

Total RM3,400. Primary and Secondary are awarded separately — never combined into one pool.

Place	Primary	Secondary
1st place	RM1,000	RM1,000
2nd place	RM700	RM700

Note: Prize giving for both categories: Day 2, 15:30–16:00. Teams must be present in team attire to collect. Medals/certificates per organiser announcement on the day.

13. What to bring (checklist)

- ☐ Four (4) × BBC micro:bit V2 + laptop with MakeCode project saved offline + mouse + USB cables (teams bring their own — not supplied)
- ☐ Robots (charged + spares) and Joystick:bit controllers (PS2 / other micro:bit extensions if used)
- ☐ Screwdrivers, tape, cable ties — labelled with school name. Spare micro:bit if available.
- ☐ Team jersey (Day 2) school attire (Day 1), water bottle. Food & drinks on workshop and tournament days are provided by the organiser.

15. Contact & updates

- Event page: learning.com.my/mc2 — this document will be re-issued there if rules change.
 - Registration & teams: Cik Husna — husna@learning.com.my / WhatsApp 010-318 3700.
 - General: admin@learning.com.my • +6010 3183 700.
 - Organiser: The Learning Curve. Title sponsor: SDEC. Venue partner: Makeramai Makerspace. Partners: MEITD, MOE (JPNS), Cytron Technologies.
 - Venue: Makeramai Makerspace, Level 4, Plaza Merdeka, Kuching, Sarawak (Open in Maps from the event page).
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