

Advanced BristleBot Competition

GAME, RULES & SCORING

RULES: THE ROBOT

- Each team will be issued:
 - Two vibrating pager motors
 - Two CR2032 batteries
 - Four crappy toothbrushes
- Each team may build ONE or TWO robots.
- One CR2032 battery is the sole power source allowed on a robot.
- A robot may have ONE or TWO motors.
- Only standard-issue motors may be used.
- Any other materials may be used (subject to rules 4, 5, and 6), provided that (A) they do not create a hazardous condition, and (B) those materials are also available to the other teams.
- The robot weight may not exceed 120 pounds.
- Each team shall pick a unique team number. The number shall be clearly labeled on the robot, with text height of at least 0.2 inches.
- You may request to exchange an empty battery for a new one. Bring your empty to the volunteer at the Battery/Motor station.
If you are wasteful of batteries, your request may not be honored.
- You may request to exchange a damaged motor for a new one. Bring your damaged motor to the volunteer at the Battery/Motor station.
- A team will be issued a maximum of TWO replacement motors.
Hint: Strain relief will prevent most motor failures.

RULES: THE GAME

- Each team may enter exactly ONE robot to EACH event.
- Outside of the Build Seasons, teams may only touch the robot to:
 - Install or replace a battery
 - Turn on/off power, or to
 - Place the robot on, or remove it from the field.
- A practice field is available for use. Please see the volunteer at the practice field to reserve a time slot.
- During regional competition, the first event is SPRINT. All functioning robots will compete sequentially by team number. Then, all functioning robots will compete in the MOUNTAIN CLIMBER event, sequentially by team number. Robots will compete in assigned pairs for the SUMO event.
- The SUMO event requires two robots. If there are an odd number of functioning teams, the team with the top combined score from the other events at the regional will be given the option to compete twice in SUMO, and keep the higher of its two scores.
- With the exception of rule 5, all scored points are cumulative.
- Each team's score shall be the sum of its scores in each of the three events.
- The Champion team shall be the team with the highest combined score for the two regional competitions. In the event of a tie, a SUMO competition will determine the winner.

RULES: GENERAL

- Requests for rule clarification may be submitted to judges, in writing.
- Rules may be clarified at any time.
- Rulings of the judges and referees are final.

EVENT 1: SPRINT

Go in a straight line.

Event type: Solo challenge

Time limit: 60 s.

Scoring:

- 1 pt: Pass the 3" mark
- 5 pt: Pass the 12" mark
- 1 pt: Pass the 15" mark
- 1 pt: Pass 12" mark in < 30 s
- 2 pt: Pass 12" mark in < 15 s
- 4 pt: Pass 12" mark in < 5 s

EVENT 2: MOUNTAIN CLIMBER

Climb an inclined plane.

Event type: Solo challenge

Time limit: 60 s.

Scoring:

- 2 pt: Pass the 3" mark
- 8 pt: Pass the 12" mark
- 2 pt: Pass the 15" mark
- 1 pt: Pass 12" mark in < 30 s
- 2 pt: Pass 12" mark in < 20 s
- 4 pt: Pass 12" mark in < 10 s

EVENT 3: SUMO

Be the last one standing.

Event type: Two-robot challenge

Time limit: 60 s.

Scoring*:

- 3 pt: Exit the starting circle
- 2 pt: Remain within the outer circle for 60 s.
- 5 pt: Contact the other robot (at least once)
- 8 pt: Be the last robot remaining in the outer circle

**Scoring note:* No Sumo points for robots that do not move.

Judges may award some or all of following additional awards (in addition to Champion):

- Engineering Excellence Award
- Aesthetic Inspiration Award
- Gracious Professionalism Award
- Spirit Award
- Judge's Award

Advanced BristleBot Competition

Competition Schedule

1:00 – 1:15	Kickoff
1:15 – 2:50	Build Season
2:50	Bag & Tag
2:50 – 3:00	Inspection
3:00 – 3:30	Regional Competition I
3:30 – 3:45	Break
3:45 – 4:15	Re-Build Season
4:15	Bag & Tag again!
4:15 – 4:45	Regional Competition II
4:45 – 5:00	Awards

SCORE SHEET: SPRINT

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (1)
Pass 12" Mark: _____ (5) @ _____ s
Pass 15" Mark: _____ (1)
Time Bonuses:
<30s: ____ (1) / <15s: ____ (2) / <5s: ____ (4)

TOTAL SCORE: _____

SCORE SHEET: MOUNTAIN CLIMBER

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

TEAM #: _____
Pass 3" Mark: _____ (2)
Pass 12" Mark: _____ (8) @ _____ s
Pass 15" Mark: _____ (2)
Time Bonuses:
<30 s: ____ (1) / <20s: ____ (2) / <10 s: ____ (4)

TOTAL SCORE: _____

SCORE SHEET: SUMO

TEAM A #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM B #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM A #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM B #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM A #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM B #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM A #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM B #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

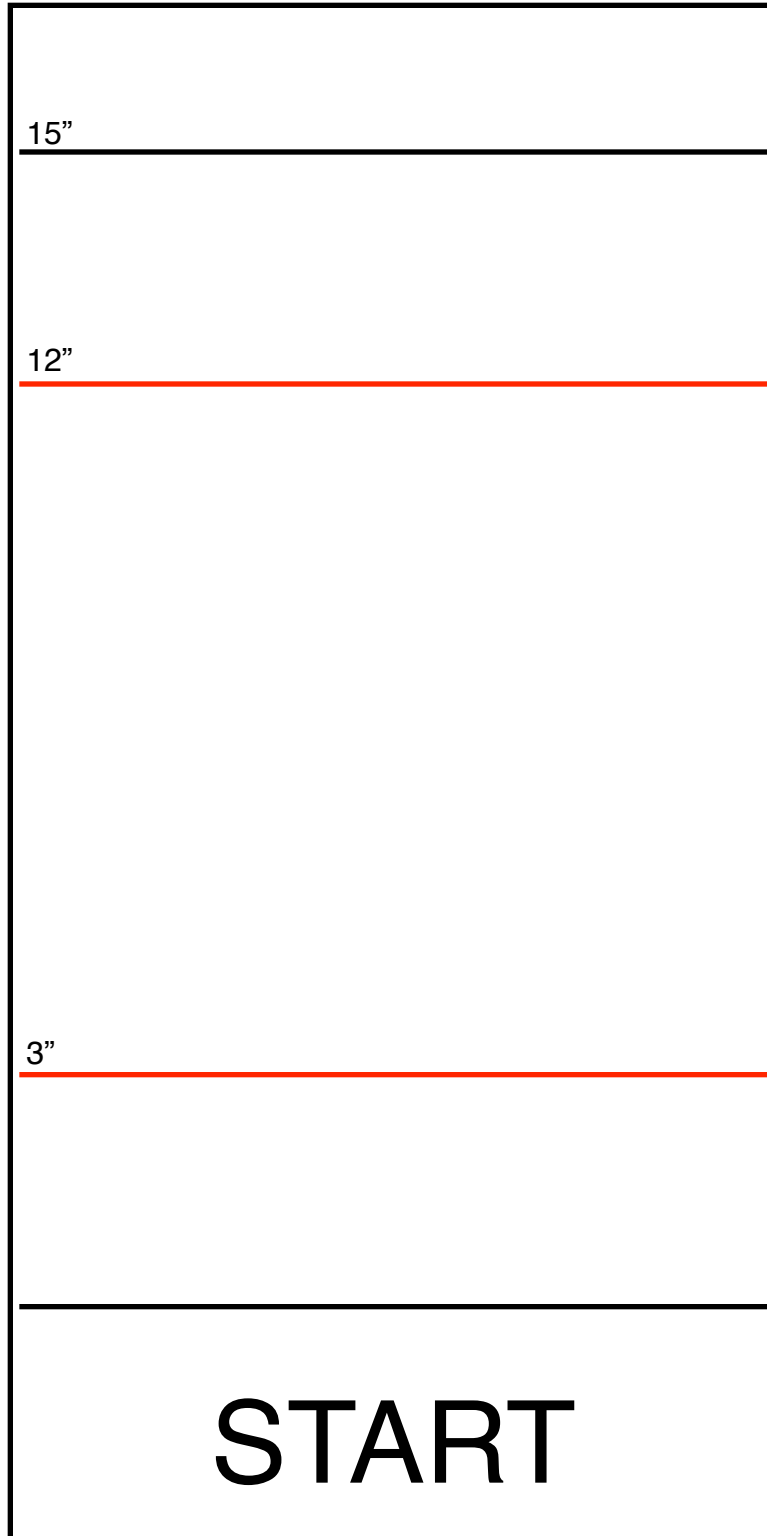
TEAM A #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

TEAM B #: _____
Exit Starting Circle: _____ (3)
Contact Other Robot _____ (5)
Remain in outer circle 60s _____ (2)
Last robot inside the outer circle _____ (8)

TOTAL SCORE: _____

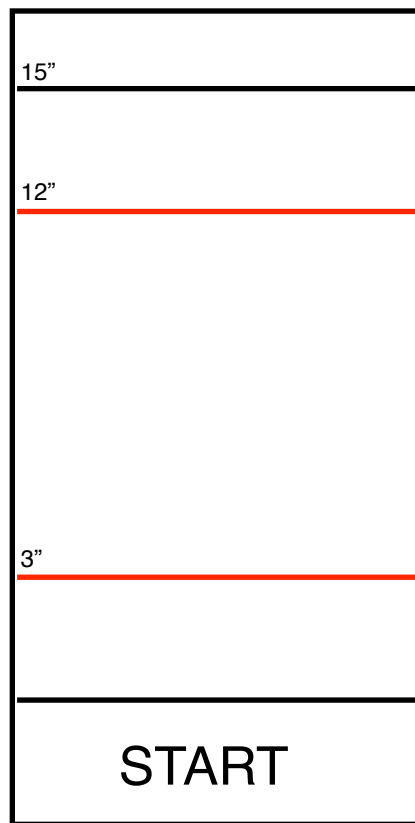
PLAYFIELD: SPRINT



Material: MDF, rigid cardboard, or wood, roughly 20" x 10". Recommend 1/4" thick.

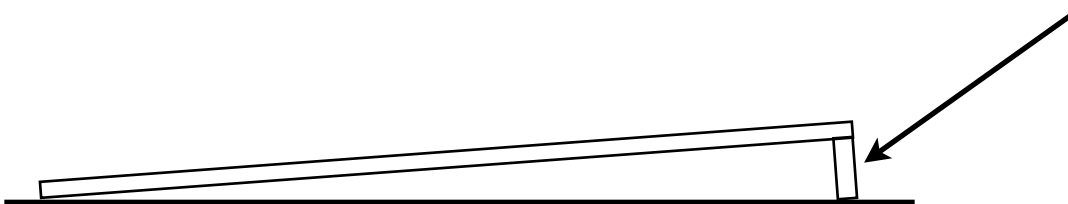
- Material must be FLAT: free of creases or curvature.
- Surface must be UNIFORM, with a texture comparable to paper.

PLAYFIELD: MOUNTAIN CLIMBER



Top surface: As for SPRINT, but angled up by 4°.

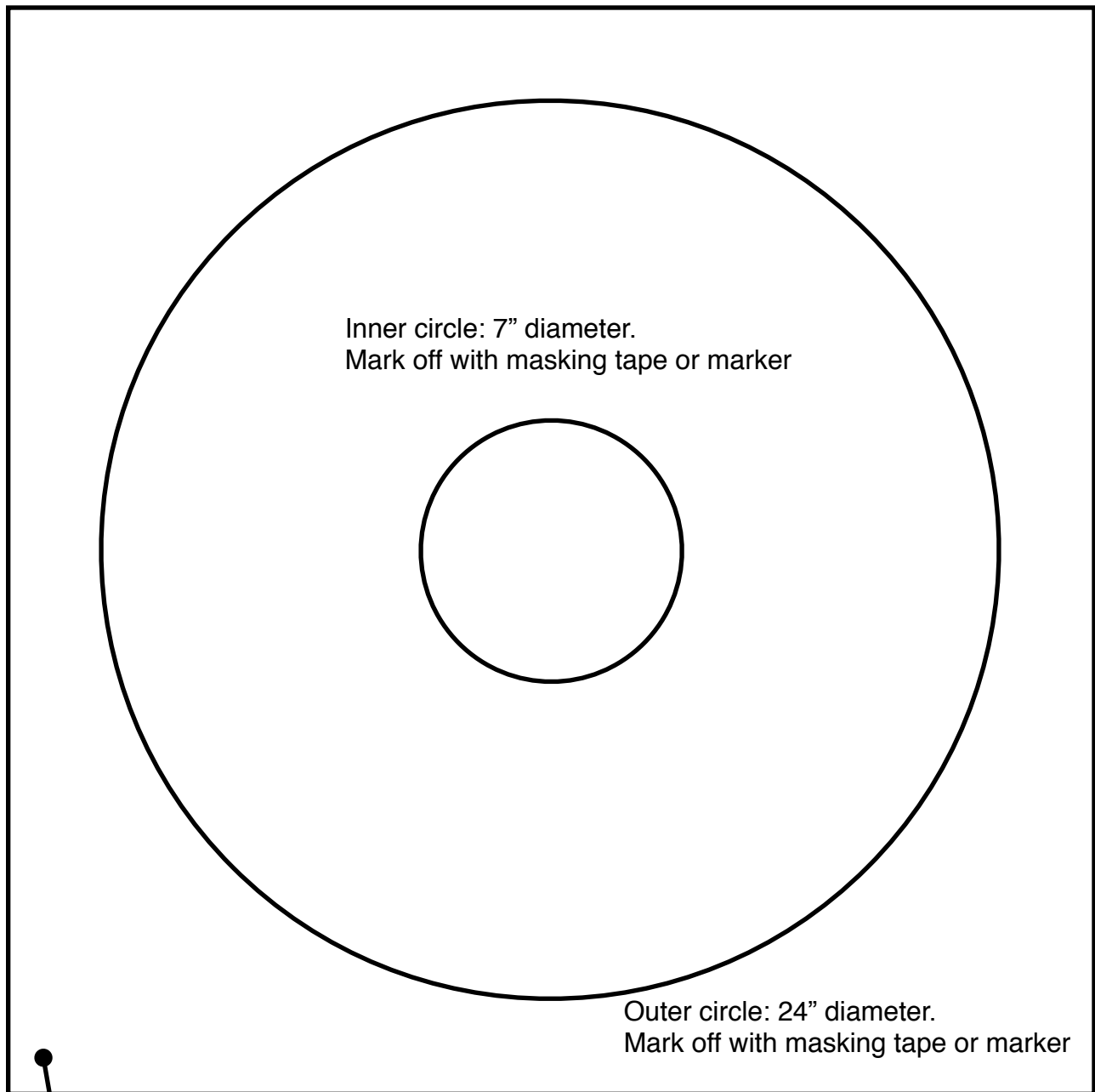
Add 1.5" spacer to bottom, rear side of playfield.



Material: MDF, rigid cardboard, or wood, roughly 20" x 10". Recommend 1/4" thick.

- Material must be FLAT: free of creases or curvature.
- Surface must be UNIFORM, with a texture comparable to paper.

PLAYFIELD: SUMO



Material: Paper, cardboard, wood, melamine, MDF or plastic, roughly 30" x 30", square.

- Material must be FLAT: free of creases or curvature.
- Surface must be UNIFORM, with a texture comparable to paper.
 - If the surface is too rough (e.g., rough-sawn wood) or too smooth (e.g., slippery plastic surfaces), it will not be conducive to good motion.
- A melamine countertop or desk, marked off with masking tape, is an excellent choice.
- Take care that markings (if made with tape) are smooth to not present an obstacle.

PRACTICE

FIELD

JUDGE'S TABLE

**BATTERY &
MOTOR**