

IAP 2011

6.270

MIT AUTONOMOUS ROBOT COMPETITION



A MATTER
OF PERSPECTIVE

ORACLE

ANALOG
DEVICES

intempce

EE
CS

LEGO

The Organizers

Email us at 6.270-organizers@mit.edu if you have any questions

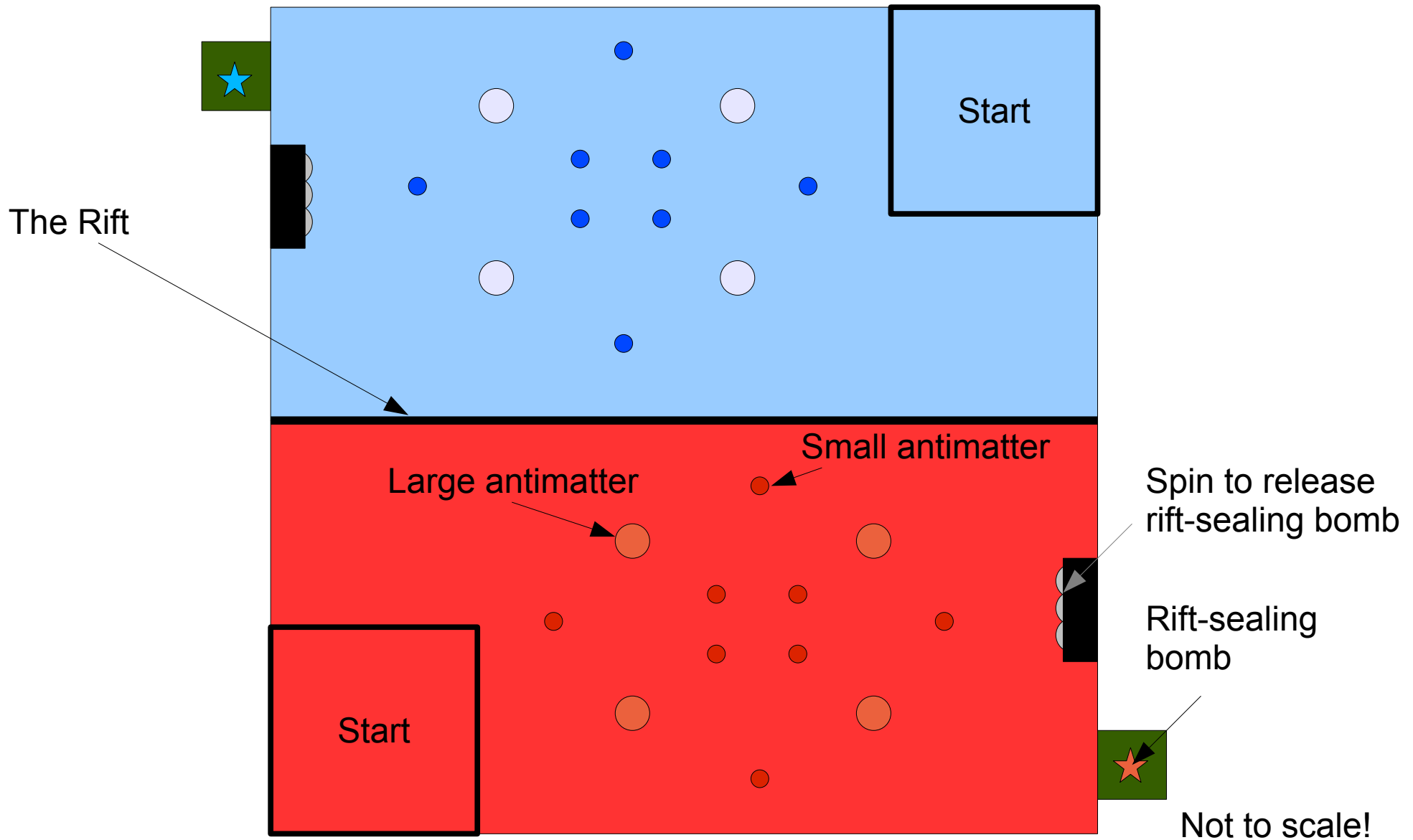
The Contest

- One-on-one
- 2 minute matches to score the most points

The Playing Field

- 8ft x 8ft area, split into two halves
- Robot starts in a 2ft starting square on your half of the board

The Playing Field (top view)



Antimatter

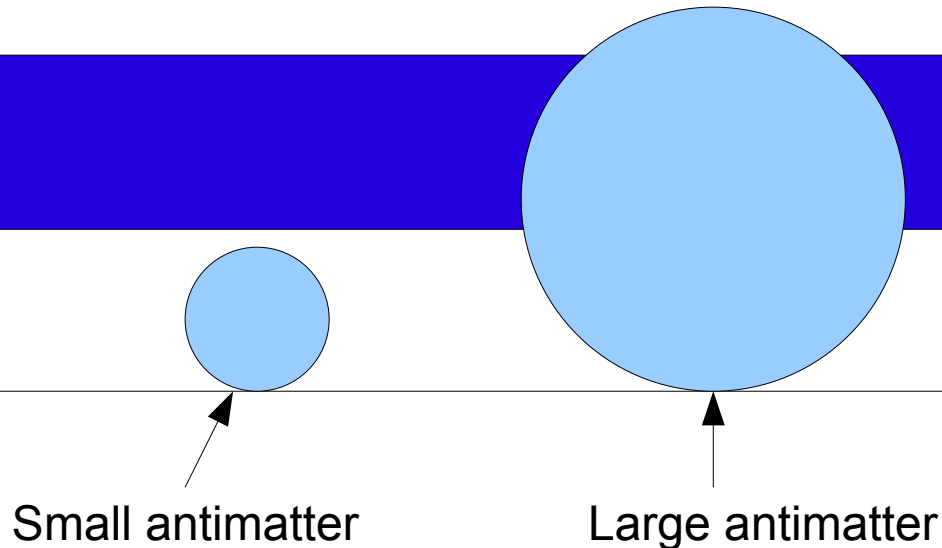
- Each team starts with 8 small and 4 large pieces of antimatter on their half
- Gain points for each piece of antimatter that starts on your side and ends on the opponent's side:
 - +1 point for small antimatter
 - +3 points for large antimatter
- Can push opponent's antimatter back to his side to prevent him from scoring

Antimatter 2

- Your antimatter worth 0 points if you knock it off playing field
- 2x penalty if you knock opponent's antimatter off the playing field – be careful!
- Score calculated based on the instantaneous position of antimatter at the end of 120 seconds

The Rift (side view)

- Small antimatter can simply roll under
- Large antimatter must be lifted/thrown over



The Rift

- Allowed to reach over/under the rift
- Do not intentionally damage or contact opponent robot
- Robot must be *entirely supported* by your half of the board (not including the rift or walls)

The Rift-Sealing Bomb

- Each team has a “rift-sealing bomb”
- This special ball begins out of play
- Release it by spinning wheels along wall of playing field – this causes the bomb to be dropped into play on your side
- If bomb on your side at end of match, damages your universe: -7 points
- If bomb on opponent's side at end of match, “seals rift”: +11 points

The Robots

- Built out of kit components only!
- Structurally constructed out of LEGO
- Rubber bands allowed for stored energy
- Electronics: HappyBoard + sensors + motors
- Programmed in C
- Must fit in 1ft cube at beginning of match
- Chassis must survive 3ft drop test

Other details

- Robots must remain “one piece” throughout match – nothing can intentionally detach during play
- Ties broken by first team to push antimatter across the rift
- If neither team scores, match is a double-loss

Complete official rules in coursenotes, to be released shortly

Academics

- 6 units of Pass/Fail credit
- Must submit robot for final competition in order to pass

Upcoming Events

- Parts Sorting at noon
- Parts distribution @ 6pm
- Workshop at 7pm
- Lectures at 11am the rest of the week

- See the calendar online for the full list of events
– the Google calendar tends to be more up to date
- Info + Lecture notes online: <http://mit.edu/6.270>