RoboCup MSL, Proposals for 2015

Workshop, November 2014, Eindhoven

What did we achieve so far?

Hardware: Converged towards commonly used solutions

– Platform with omni-wheels

– Omnivision

– Solenoid

– Active ballhandling

Software: Obtained a set of necessary ingredients

– Path planning

– Control

– Ball detection

– Localization

– …

**All in real-time
and real-world!**

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This workshop: Standardization of inter-team robot-robot interface!

Consolidate, innovate!

Prioritize Existing Roadmap (2012)

1. Guarantee safety
2. Play on uneven terrain
3. Mandatory passing
4. Stimulate 3D ball tracking
5. Colored team shirts
6. Arbitrary ball
7. Play outdoors
8. Limit maximum energy
9. Limit wireless bandwidth

Addition 2013: allow high-level human coaching during off-time

Note

In the remainder of this presentation (++), (+), (+/-), (-), (--) is added to rule change proposals to indicate whether the discussion among workshop participants resulted in a positive or a negative advise with respect to the proposed change.

Proposed Rule Change 1: Field (++)

Goal:

- Stay the most progressive league in RoboCup towards 2050.

New rule:

- Replace green carpet by short pitched artificial turf

Goal:

- Make the game more attractive/faster, increase active game time, and reduce human referee intervention with the game.

New rule:

- Place a foam-like (absorbing) boarding around the field (±30cm). For trow-ins, goal-kicks, and corners the robot has to autonomously find the ball, grasp the ball, and bring it to the restart position. All without interference of the referee.

Proposed Rule Change 3: No Rugby

Goal:

- More team-play soccer, less rugby.

New rules/enforce existing rules:

- (+) Handout yellow and red cards more easy. For all serious pushes, immediately pull a yellow card. Don't wait for a second violation (same for refbox task interruption).

- (+/-) Introduce an in-game penalty? For pushing faults on a robot in a valid scoring-attempt, not necessarily in penalty area.

- (+) Be more strict with tackles. Pushing a defender robot backwards with a ball in-between is not allowed. A valid tackle should be an instantaneous hit, not a continuous push.

- (+) Create guidelines for 'serious pushing'

New rule:

- Do not allow lob shot from own half if there is no intention to pass, i.e., no receiving robot in place. Award a free-kick to the opponent team at the position where ball crossed the middle line.

Goal:

- Enhance fair game play. Prevent lob-shots from own half with the sole purpose of having the ball in the opponent half via a refbox task (and therefore not having to do the mandatory pass anymore).
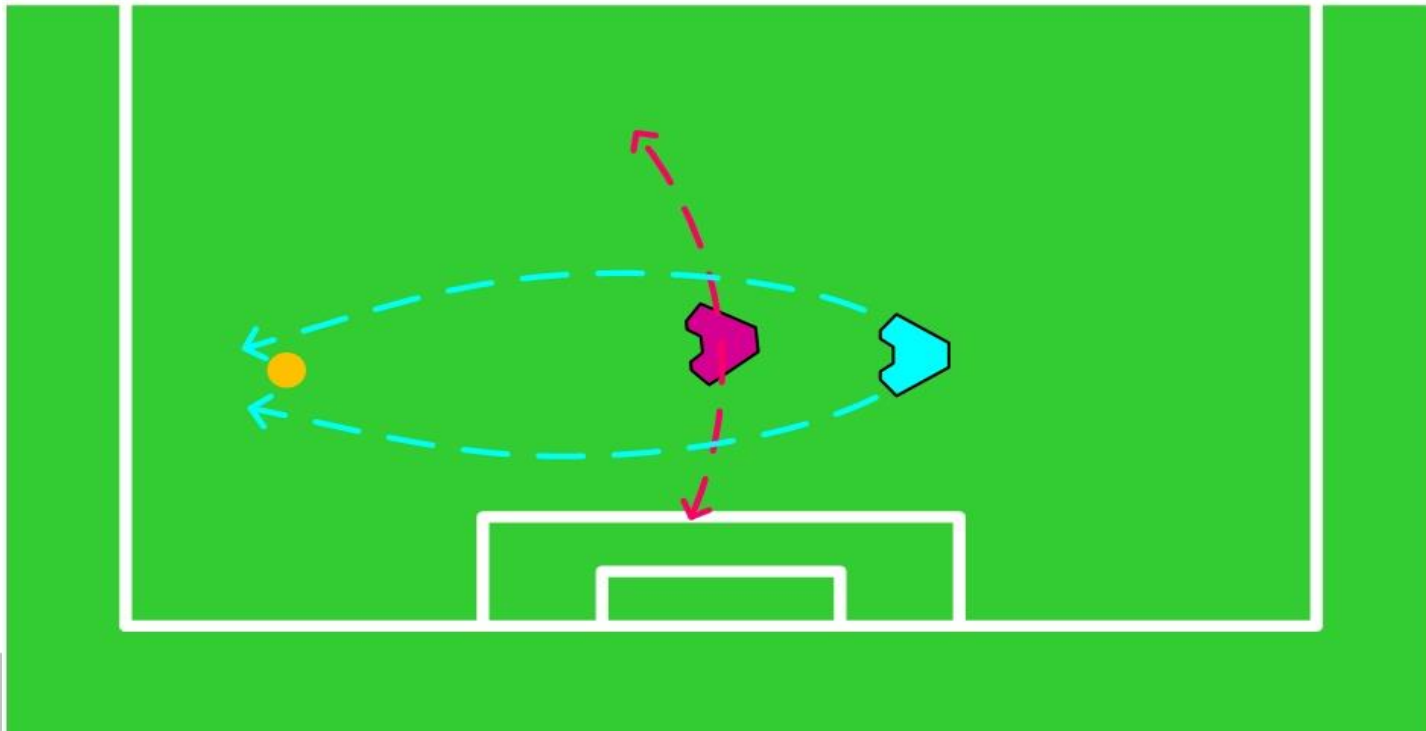
Proposed Rule Change 5: No Bullying (++)

New rule:

- Do not allow shielding a robot who is trying to get to the ball for a refbox task, such that it cannot get there. Pull a yellow card.

Example below: Free kick cyan

Proposed Rule Change 6: Real Coaching (++)

Rule change:

- Remove the exception for QR-Codes in the coaching rule. High-Level human coaching during off-time, at the team-leader position still is allowed but without using tools that are not 'natural' to human beings. So only communicate via voice or gestures.

- Exception for plain-colored gloves? (++)

Competition Rule Proposal by CAMBADA

A typical MSL match contains no more than five minutes of active playing time. Shouldn't we use pure playing time instead of continuous playing time? This will stop teams from slowing the game down on purpose. (+/-)

Alternative proposal by workshop participants: Have the refbox display pure playing time, and ask referees to take this into account to determine the number of additional minutes at the end of the half. (++)

Competition Rule Proposal by Carpe Noctem

Proper qualification materials are not rewarded well enough. A high score in the qualification procedure should give you extra starting points for the scientific challenge. (++)

Short brainstorm among workshop participants:

- mixed team
- battery efficiency challenge
- shooting accuracy, shoot through holes, or in bins
- ad-hoc network instead of current wifi setup
- lob passes
- penalty cup
- 3D ball tracking
- passing without wireless communication of any kind