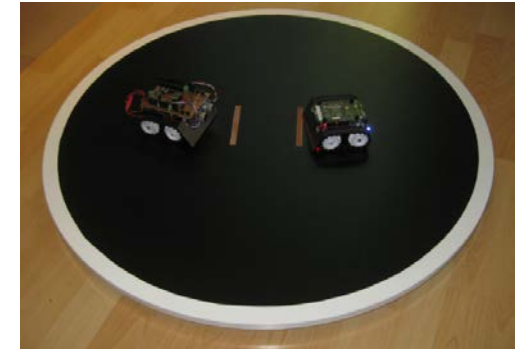# Sumo Rules

"Sumo is the Japanese version of the Swiss Wrestling."

Prof. Erich Styger
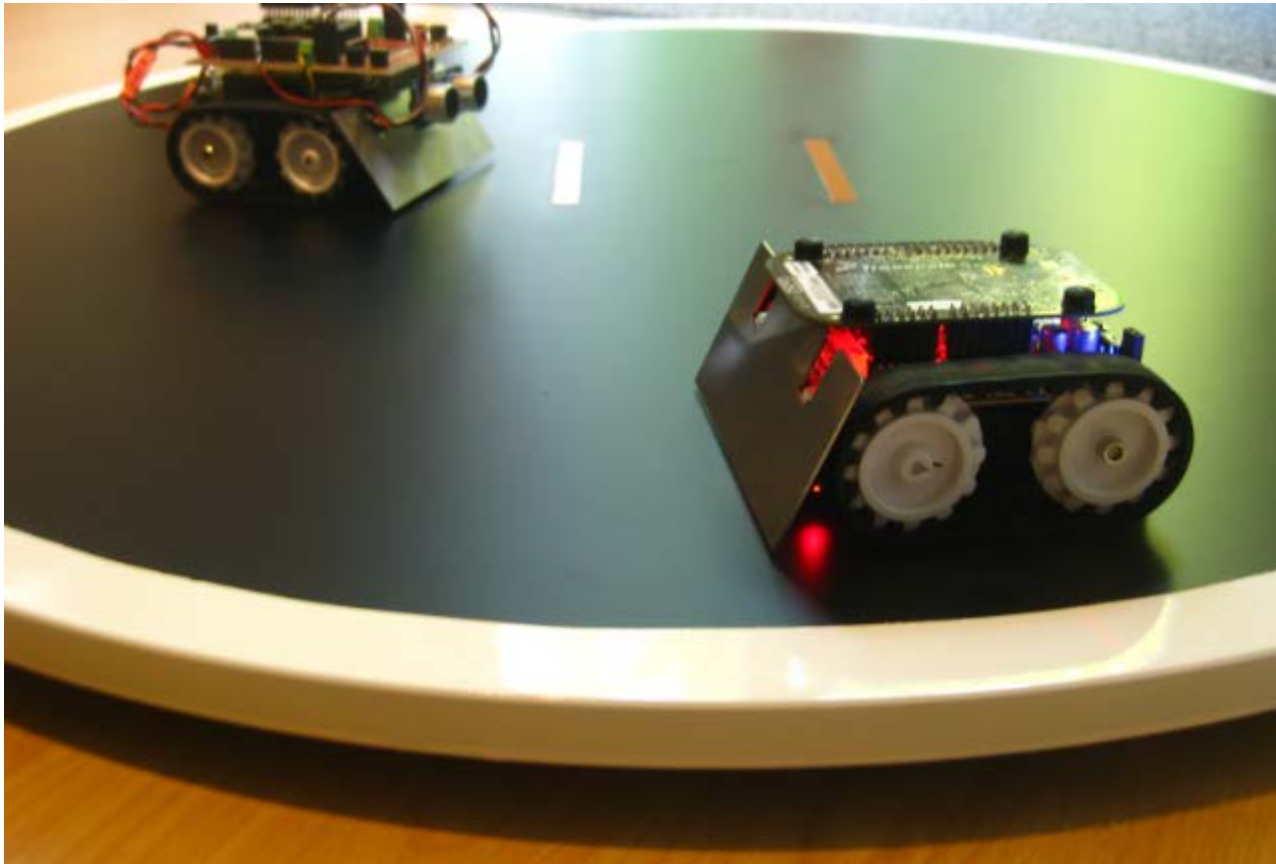*erich.styger@hslu.ch*
+41 41 349 33 01

Lab Challenge Points (Max 30 Pt)

- Voluntary: Max(Lab, Part C)

- Mini Sumo Robot Battle
    - Individual ranking/robots (12?)
    - 1st: 30pt, 2nd: 28pt (30-(rank-1)*2))

- Implementation
    - Reflectance, PID, Radio, …
    - Robot started by remote controller
    - 5 secs delay (beep, buzzer)
    - Drive around
    - Detect opponent
        - (ToF, to be provided, TBD)
    - Detect white line
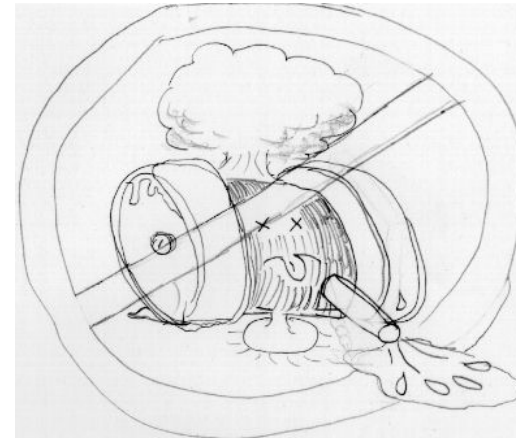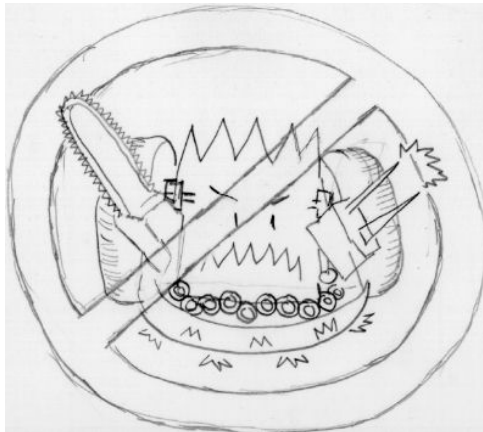   - Turn around
    - Push off opponent and win!

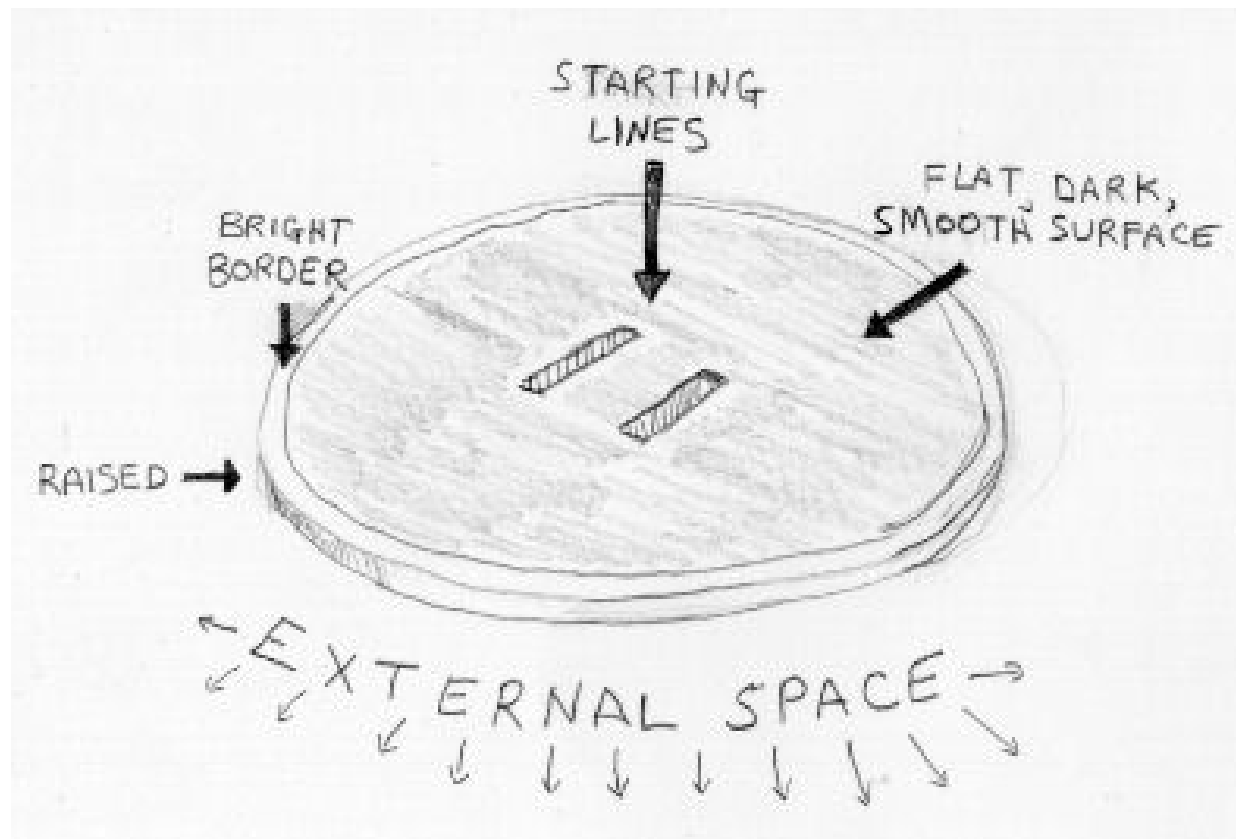| 13 | Mo 15.05.2017 | Radio (NVMC) |
	Tu 16.05.2017	Remote Control >>> 19-May: deadline Testat
14	Mo 22.05.2017	ToF Sensors Working on Bots
	Tu 23.05.2017	Working on Bots
15	Mo 29.05.2017	Q&A Working on Bots
	Tu 30.05.2017	***Competition*** Return Lab material

Introducing Mini Sumo

Mini Sumo Robot Rules

- Non-destructive, non-offensive, non-harmful
- No downward force increase: No suction, glue, sticky wheels, magnets

- Details:
  - http://www.robotroom.com/SumoRules.html
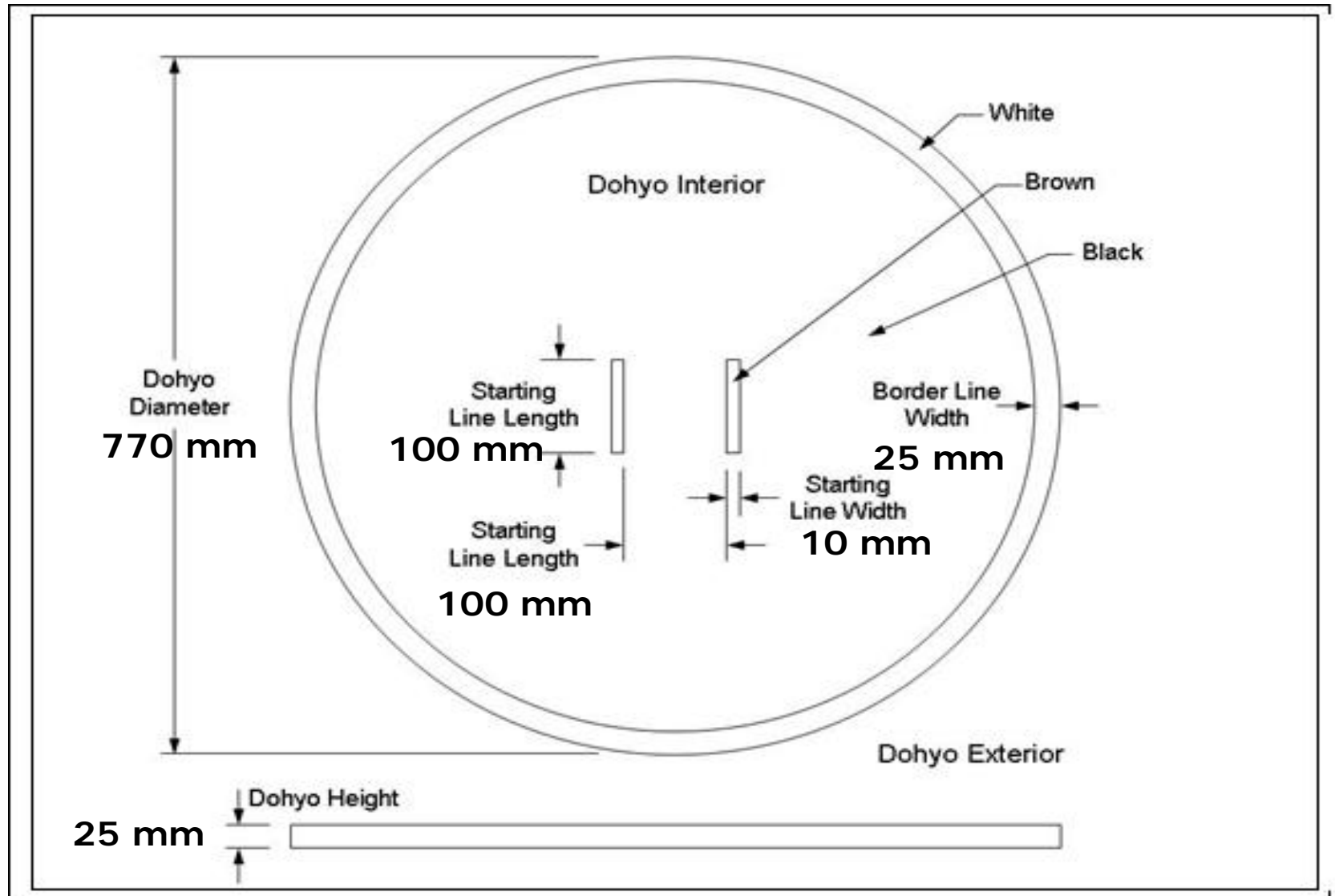 - (Drawings in this presentation are from above site)

Dohyo Ring

- Black ring with white border (Dohyo)
- Two brown starting lines (Sikiri-Sen)
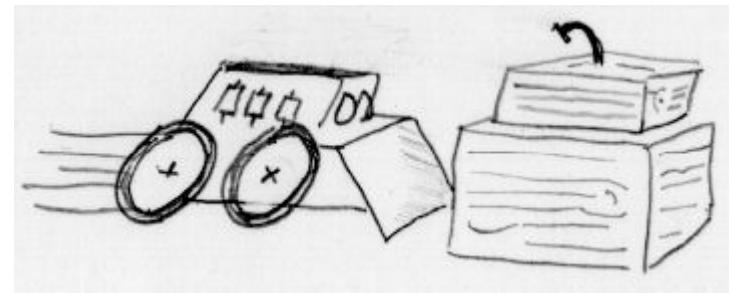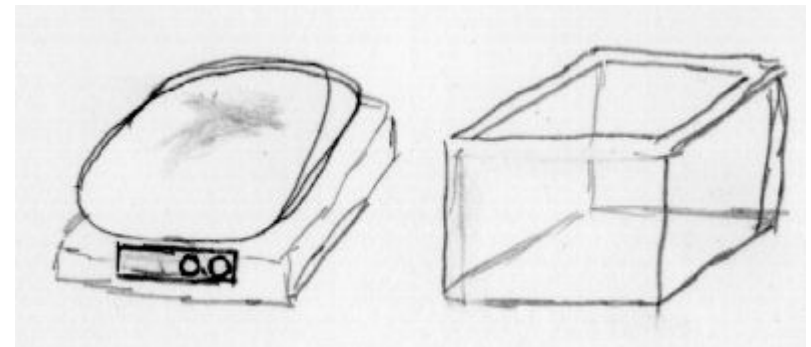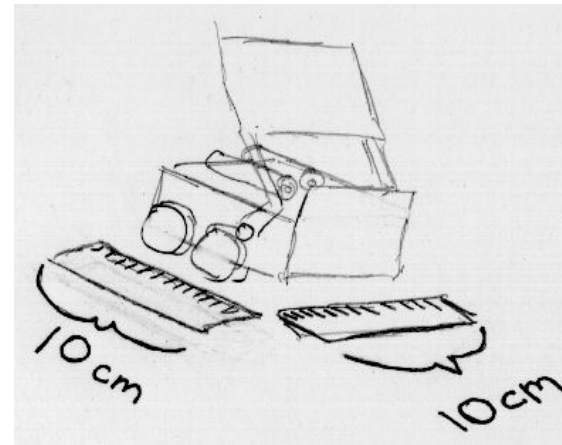- External space (1 meter around ring)
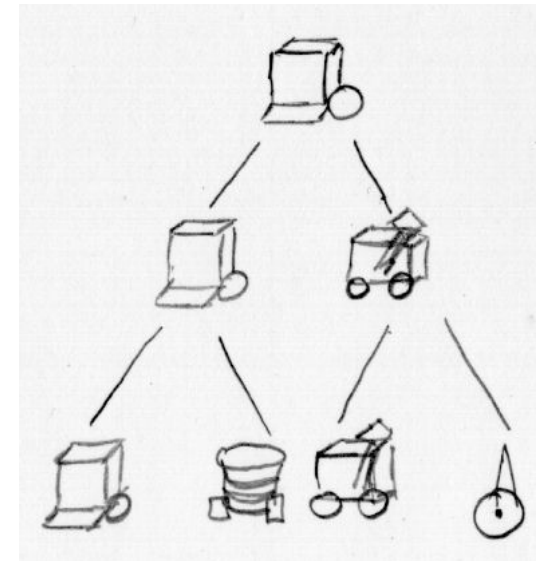
Mini Sumo: Dohyo and Sikiri-Sen

Mini Sumo

- Size:
  - 10x10cm max
  - no height limit
  - applies at start
- Mass
  - 500g max

- Inspection (size, weight, harmfullness)
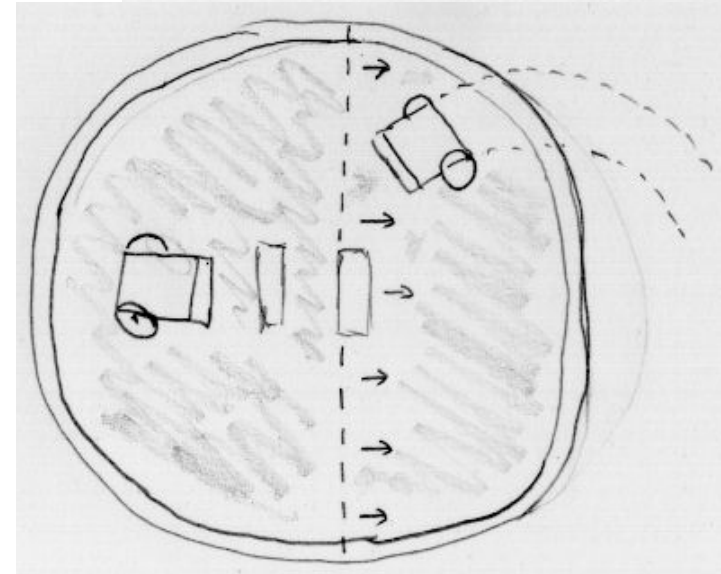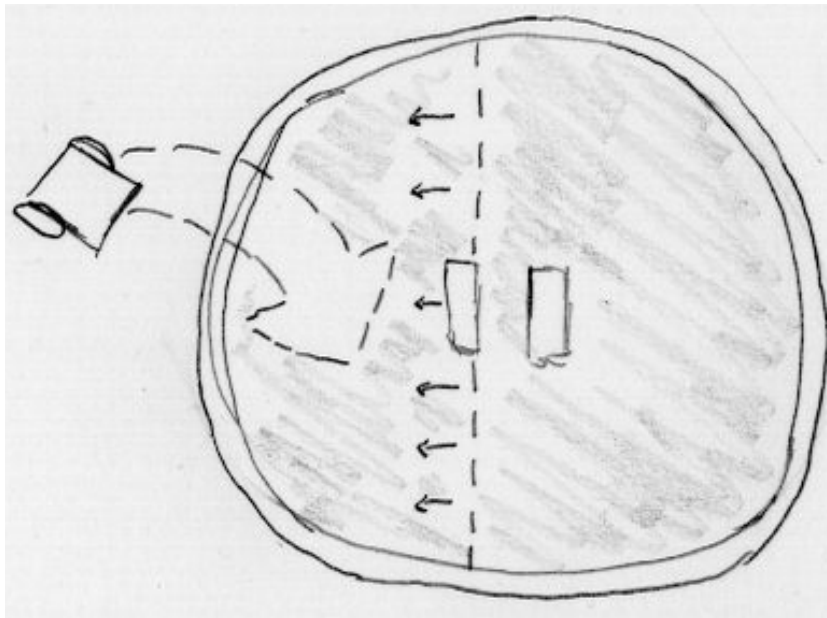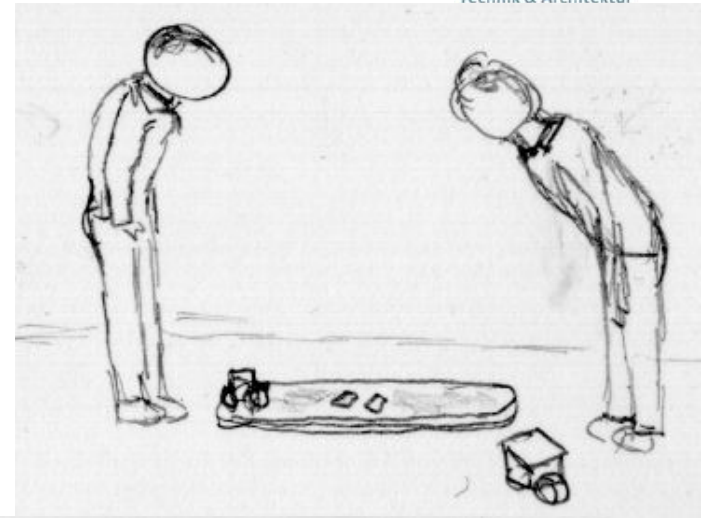- Inanimate Object Pushing

Playoffs

- Single Elimination
  - Loosing match: out of contest
- Double Elimination
  - Winning robots against winning, loosing against loosing
  - Loosing two matches: out of contest
- **Round Robin**
  - Each faces each robot
- **Swiss**
  - Best against good bots
  - Weak against weaker bots
- Heats
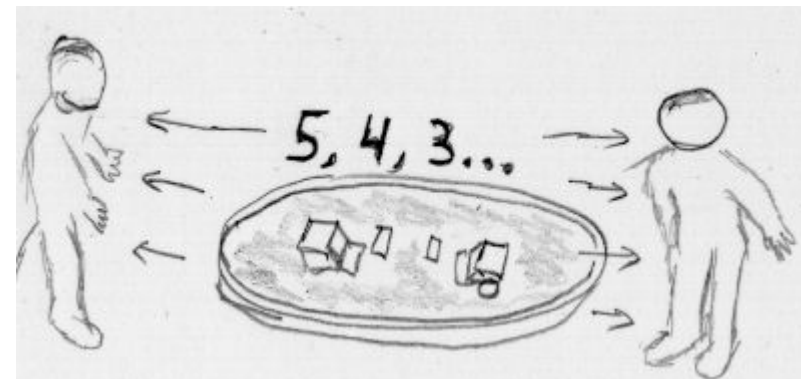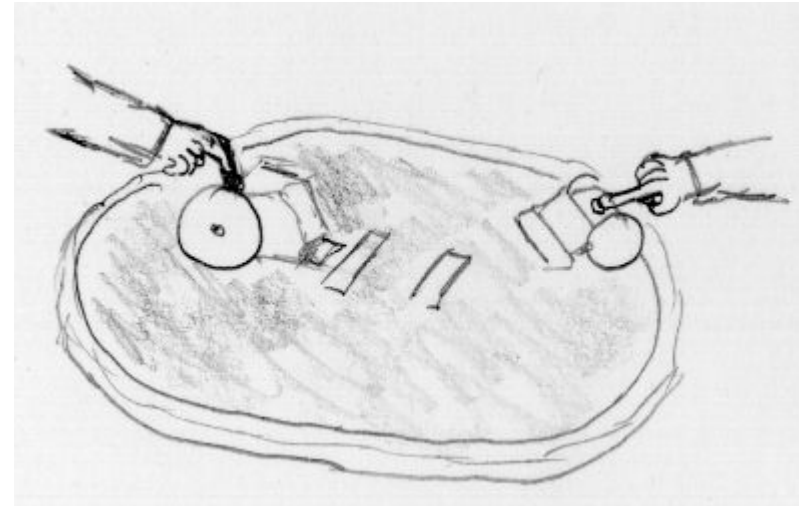 - Robots divided into groups
  - Above rules apply

A Match

- Contestant approch ring and bow to each other
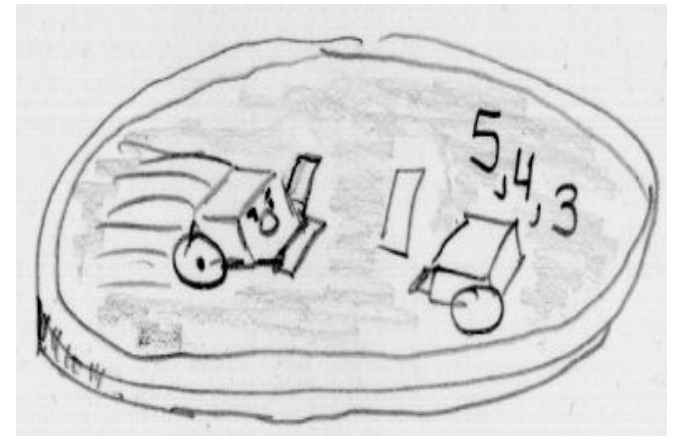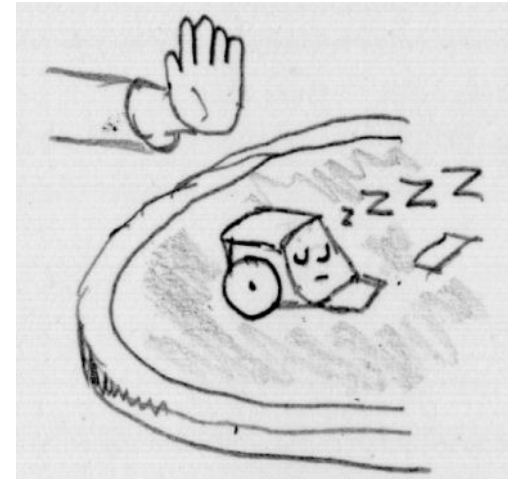- Better-ranked/won previous round robot is placed first

Ready? Set? Go!

- Placing finger to start robot
  - ➔ we use remote!
- Referee gives signal
- Starting robots
- Robots must not move for 5 seconds
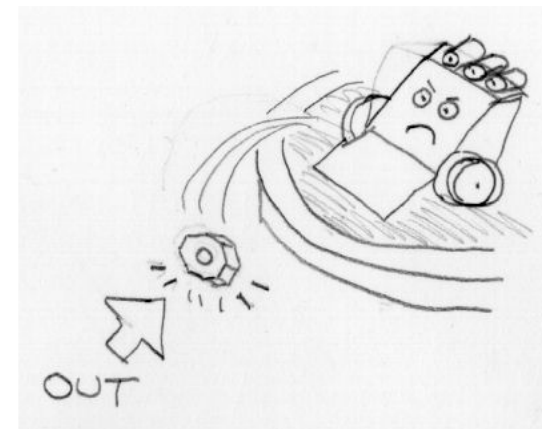
- Contestant leave exterior area
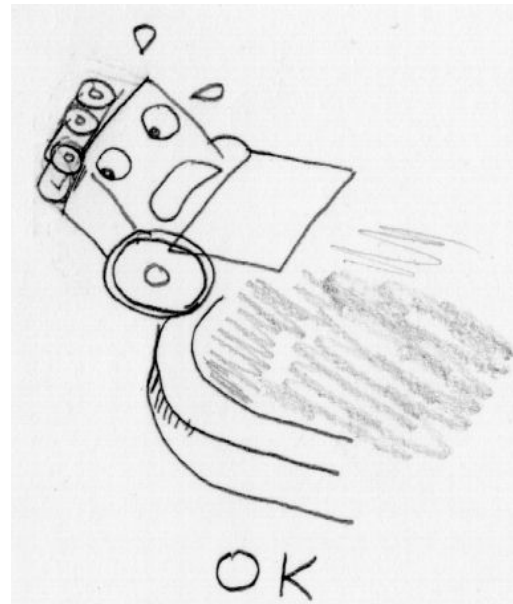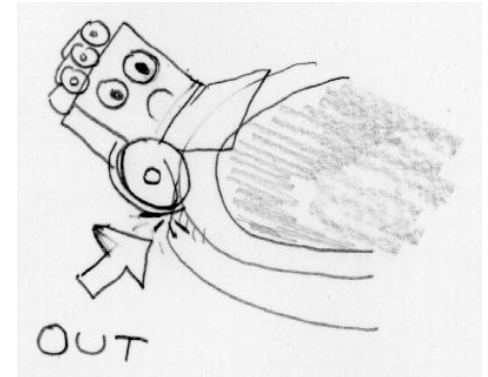
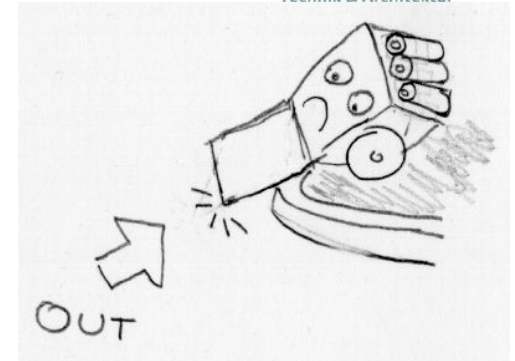# Countdown: No Start, False Start

- No Start
    - Contestant alerts referee
    - Warning given
    - Both robots will restart round

- False Start
    - Moves during countdown
    - Warning given

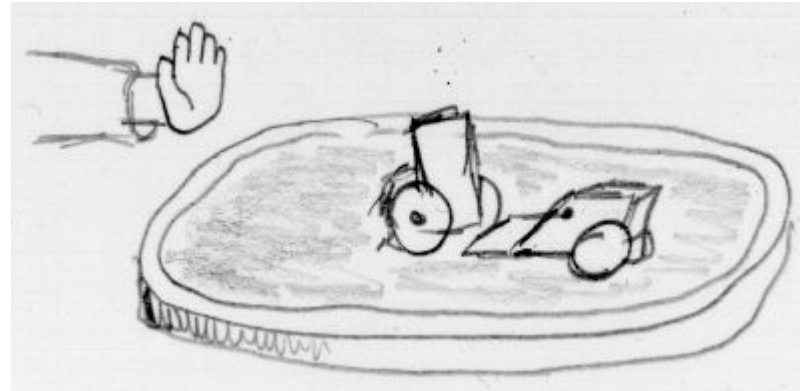- 2nd warning of any kind in round
  ➔ robot looses round

Out

- First Robot touching outside area is 'out'
- Touching Floor
- Touching the outside of the ring
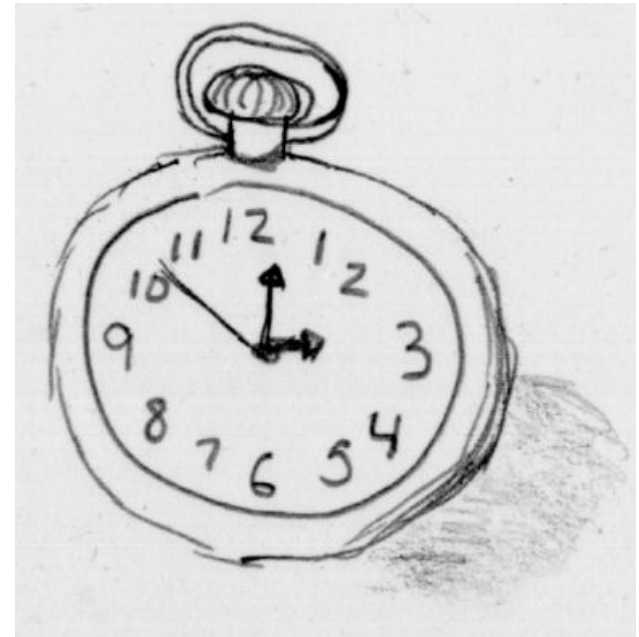- Applies to any parts of the robot

Contestant Stoppage

- Stoppage after countdown
    - Contestant enters exterior
      area
    - Signals stop to Referee
- That robot looses round

- Any not allowed communication
  with robot (after start), robot
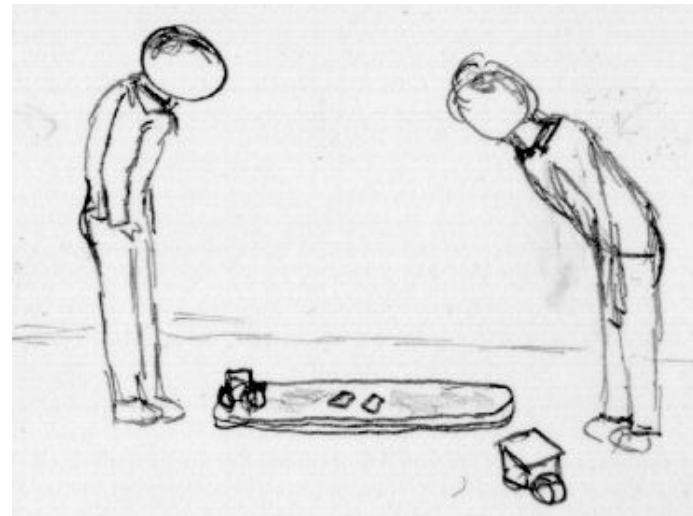 distraction, etc is considered as
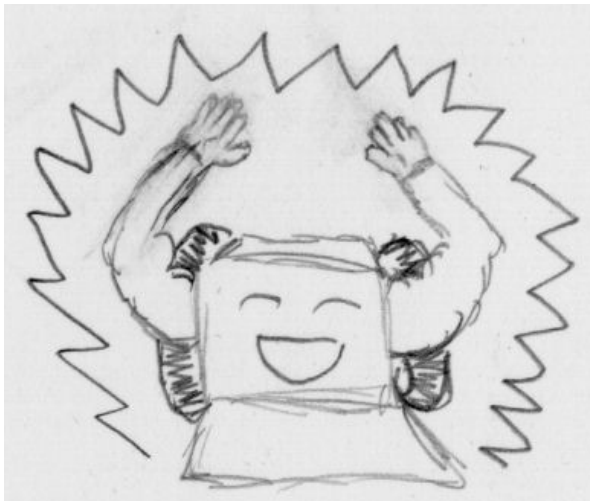 signaling stoppage

Referree Stoppage

- Referee restarts round
    - 3 Minutes expired
    - No progress
    - Failing to touch
    - Deadlocked
    - Both
        - Fail to start
        - Signal stoppage

- Referee chooses round winner
    - Smoke, fire, violoation occured
    - No progress is likely to be made

End of Match

- First robot to win two rounds, wins the match
    - A wins round 1, A wins round 2
        ➔ A wins match
    - B wins round 1, A wins round 2, B wins round 3
        ➔ B wins match
- Robots recovered after match
- Contestants bow to each other

Ranking

- Using Challonge Online System
- http://mcuoneclipse.com/2013/12/16/intro-mini-sumo-tournament-2013-lots-of-fun/
- http://challonge.com/INTRO_FS2015_FA
- http://challonge.com/INTRO_FS2015_RC

Summary/Rules

- Voluntary way to get 30 Points (max(lab,PartC))
    - Can work in groups
    - Ranking individually and by robot
    - Ranking continues until no tie
    - +3 half days reserved for lab work

- Robots
    - ToF distance sensors with drivers (share?)
    - Robot needs a name!
    - Only reversible modifications allowed!

- Sumo mini robot rules apply
    - Exception: start with remote