

System Design Project 2016

Course Introduction

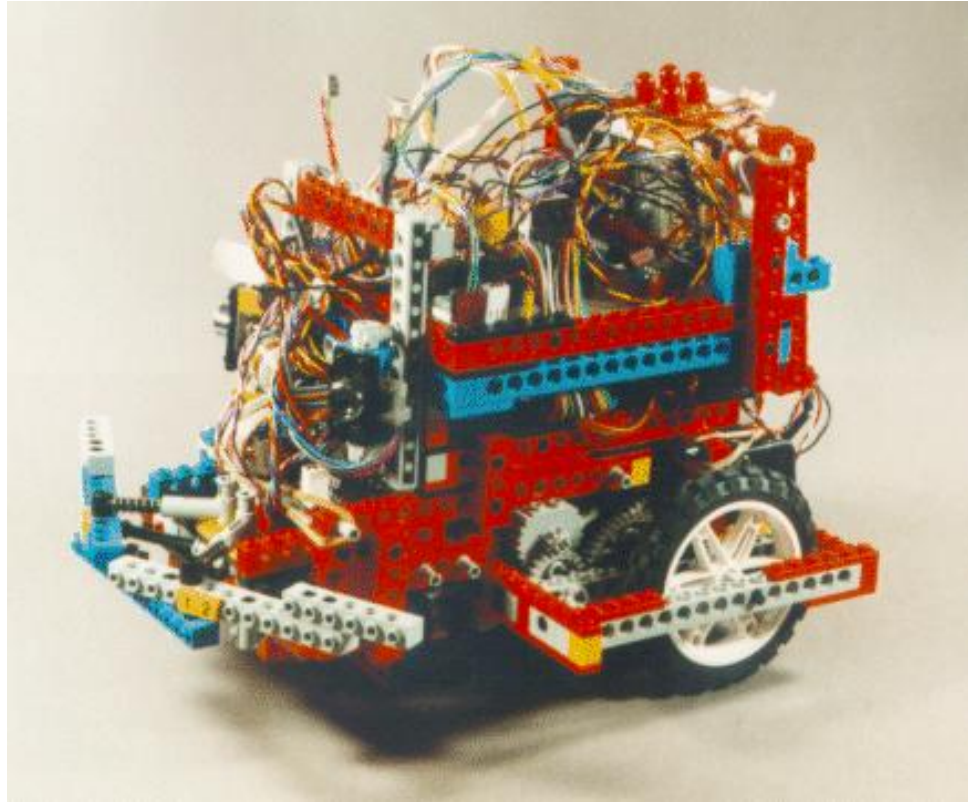
Henry S. Thompson, Course Organiser

Katharina Heil, Teaching Assistant

Garry Ellard, Course Technician

<http://www.informatics.ed.ac.uk/teaching/courses/sdp/>

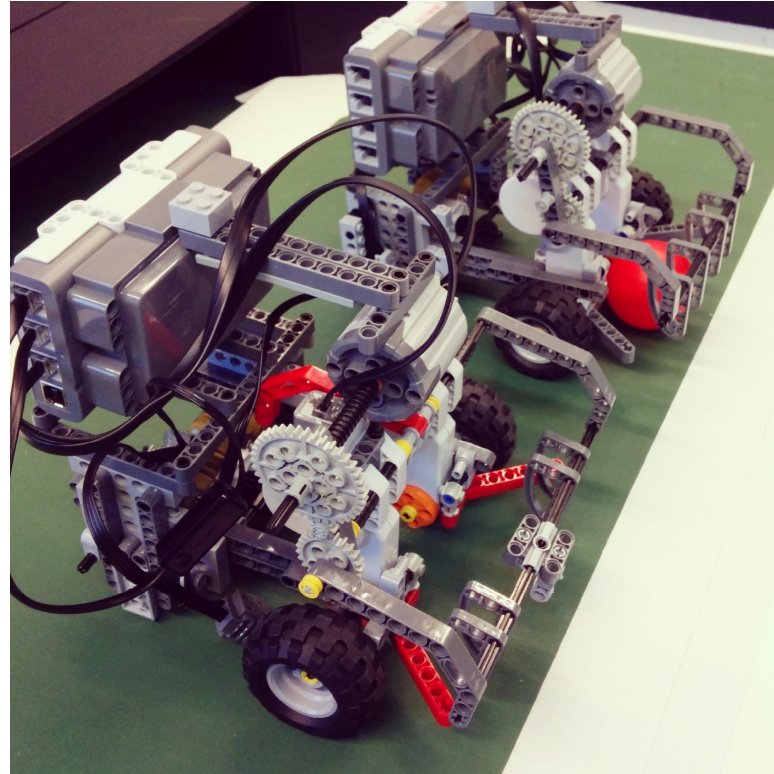
Lego football robot Up until two years, the SDP task has been 1-on-1 football, played by Lego robots:



That task had gone as far as it could go

So, since last year, *two* robots

New robots



- Smaller, Faster
- And, one group per robot
 - Groups 1–16, teams A–H
 - Groups and teams available later this morning

The old pitch

Last year's pitch was tabletop, divided into 4 zones:





This year's pitch is on the carpet, about 25% bigger, and zones are gone: we're playing 'real' two-a-side football.

Virtually all of what last year's best groups did is relevant

- Reuse previous group's work as appropriate. (It's not cheating!)
- Justify if you build from scratch rather than reuse.

Garry has a huge collection of parts, and each group has an allocation of 100 pounds for extras. . .

Highpoints of Schedule

Week	Date			Item
3	2pm	Wed	27 Jan	Milestone 1: Move and kick
3	4pm	Fri	29 Jan	Performance Review 1
[6	<i>Mon–</i>	<i>–Fri</i>	<i>16–20</i>	<i>Innovative Learning Week]</i>
12	9am	Fri	1 Apr	Final Day
–	4pm	Thu	21 Apr	Final reports
–		Fri	22 Apr	Performance Review 5

Milestone testing begins at 2 p.m. on Wednesdays in weeks 3, 5 and 8.

There will be assessed friendlies in week 10

New this year

Three introductory sessions, next week

Week	Date			Item
2	11am	Tue	19 Jan	Workshop: Robot design
2	11am	Wed	20 Jan	Workshop: Robot hardware
2	11am	Fri	22 Jan	Lecture/tutorials: System architecture, ROS, others L

Marking principles

SDP is about

- working together effectively (**Process**)
- building a successful robot (**Product**)

You'll get half your mark for each of those.

Product: Milestones

Each milestone consists of two or three tasks, each task attempted three times.

- 2 or 3 points: Perform the task reliably (all trials).
- 1 or 2 points: Perform the task unreliably (on some trials).
- 0 points: Fail to perform the task.

Typical group will earn 4 points out of 6 for each milestone.

Product: Assessed 'friendly'

A proper tournament, with group phase and single-match knockout, marked for e.g. ball skills, coordination between attacker and defender, passing and receiving the ball to some extent, at least showing *some* signs of differentiation between attacker and defender, etc.

Product: Reports

New this year, throughout the year you will be writing two documents, a *Users' Guide* and a *Technical Specification*. You will get feedback on drafts submitted at the end of weeks 4 and 10, and marked on the final versions.

Process: Performance reviews

There will be five reviews at two-week intervals: after milestones, the assessed friendlies and the final report hand-in.

Performance reviews are conducted by group members, their mentor, and the mentor from the other group in their team. Each student will fill in a web form before each meeting highlighting (in a few bullet points) their major activities in the preceding two weeks, and evaluating both their own and their fellow group members' effort and achievement.

The review will be split between group discussion of the preceding period, planning for the next period, and 5-minute individual reviews with the two mentors and each student in turn.

Scaling

In response to feedback from previous years, group members will not necessarily get their group (product) mark unchanged. The group component of each student's mark will be *scaled* to some extent by their individual (process) mark.

To put it bluntly, someone who contributes very little to their group will receive a < 1 multiple of their group's mark, and someone who contributes a lot will get a > 1 multiple.

Final Day

Final day is Friday 1 April.

Panel for Final Day includes industry representatives:

E.g. Accenture, Amazon, Cisco, Citi, Freescale, Google, IBM, and Kal.

Final day has three parts.

- **Presentations.** Strict fifteen minute time limit.
- **Tournament.** Similar format to friendly.
- **Prizegiving.** Cash awards donated by industry.

Communications

- **Piazza**, for questions to the course team
- **Slack**, for online chatroom-style interaction with your peers
- Raise problems with mentor, TA or course organizer. Earlier is better!
- In rare cases an individual may not contribute to group.
Please be sensitive! There may be factors that are not obvious.
- Discuss any problems with individuals or group dynamics with your mentor.
- If you have an issue with your mentor, see me or Katharina.
- We're happy to speak with anyone, anytime (within reason).