

System Design Project 2016 Facilities And Resources Guide

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Facilities and Resources

You will have use of Forrest Hill Room 3.D02 as your experimental and development area. Each group has been allocated two computers in the flip-desks and is provided with identical equipment on which to base your prototype from which to build there system. You have exclusive use of this area.

Each group will be issued with, a box of lego (all groups will have an equal quantity of lego, but no two kits will be identical), one arduino assembly (including power and motor boards along with the associated cables), one SRF stick, sixteen AA rechargable batteries, two 8-way battery holders, a battery charger and a battery tester. You will have the use of a locker to store your equipment and will be issued with one key per group to start off with. Extra keys may be available should you need them. Extra batteries may be issued dependent on your systems requirements.

A lego store cabinet can be found in the lab, which contains various boxes of lego parts such as plates, beams, axles, gears, wheels, fixings and all sorts of other random lego parts. This cabinet is left open 24/7 and you have free access to the part within. Please return all unused parts and all the boxes to the cabinet when you are done using them each day. Hoarding of parts in your own lockers is not allowed and action may be taken to prevent this.

A battery charging station is available in the technician's office (room 3.08) and you are allowed access during the supported hours to trade in empty batteries for charged ones on a one for one basis.

Various example robots from previous years SDP groups along with kickers, the kick-bot and motor testing diff-rigs are available to borrow from the technician's office (room 3.D02). These should be returned intact to the technicians office during technical support hours or returned to the lego store if out of hours.

A small budget for additional components is also available. With prior approval from the course technician, up to 100 pounds may be spent by each group for whatever you think would benefit your system the most. Most likely this will be extra bits of Lego for the robots, such as extra motors, but could be anything else in principle. Please note that it doesn't matter where the parts are sourced from, if they can't be provided evenly and equally to all SDP groups

then they are considered to be a chargeable part. The final project spend should be finalised and mentioned in your final report. You may of course borrow items to test and return them without being charged.

We have limited stocks of holonomic wheels and various types of motors, sensors and associated leads available from the lego store (room 3.D02A), some of which are free and some of which are chargeable parts. However if you choose to take items from these stocks and decide not to use them on your robot, then they must be returned to the store room. Hoarding of these types of parts in your group lockers is not allowed and action may be taken to prevent this.

The foosball pitches will be marked out on the floors in rooms 3.D03 and 3.D04 with a camera mounted in the ceiling looking vertically down and exporting an SVHS feed to the Vision PCs. Xawtv, VLC and Mplayer can all be used to pick up the video stream from the overhead camera. There are 4 identical vision PCs in each pitch room (the 5th PC being used for recording and streaming purposes. Each team will have one of their flip desk PCs in the main working lab connected to one of the pitch cameras (odd numbered teams are connected to room 3.D03 and even numbered teams to room 3.D04 - please note that each group will consist of a odd and even numbered team) There are two different capture devices in use and both behave slightly differently, refer to the seperate video guide for more details.

There are two projectors in the main working lab which are connected to the pitches to allow for demo and game viewing. There will be limited numbers allowed in the pitch rooms on demo and match days. Students wishing to view the proceedings are encouraged to do so via either the live feeds (links to both on the SDP wiki) or via the projectors in the main lab.

DiCE machines are maintained and have the full range of supported software but root access is not available and customisation is limited to what DiCE allows. There are a few articles on the computing support help pages that detail how to install some of the software that you may find useful.

The vision PCs have had their disk space opened up for you to make use of and this can be found in the `/scratch/sdp` folder. Be warned this space is NOT backed up and is open to the next SDP student who logs into that machine to use. Therefore it should be considered as unsecure and used only for installation and video streaming/processing use.

Each team has a group space provided for them, which can be found at: `/group/teaching/sdp/sdp1-16`. We would like to encourage you to use this for both your working area and for hosting any web-pages you create for the project. Your own group space is secure, with the exception of the `html` folder, which is world readable. The SDP archive folder can be found at `/groups/sdp/archive` and is open for you to see previous years code.

Use of Facilities

You are encouraged to make the best use possible of the given facilities and equipment. However we reserve the right to restrict anything that we deem

as being unfair or unsporting use. You are also restricted to using the equipment/parts/kit that has been (or can be) supplied to each groups equally, and kit that has been bought in under your group budget. This also includes the use of kit that has been brought in from home, which for the purposes of the project will be considered as items bought under the group's budget and looked at on an item by item basis.