

Week 3: Initial Prototype Development

Week three is the first week where that teams have to design and build a robot to solve a mission. Essentially, teams will start executing their project plan by working towards completion of a single mission by end of week. Students are encouraged to adopt a design-code-integrate-test-evolve cycle, performing a number of iterations in this way. The goal this week is to construct a "proof of concept" robot that attempts to solve a single challenge (of their choice).

Teams will demonstrate (and be graded on) their prototype robot at the end of this week, as well as their ability to adopt a design-code-integrate-test-evolve cycle. This is as much an evaluation of teamwork as anything else.

Main Events

- attend lectures on version control (svn) and code-integrate-build-test-evolve cycles
- perform multiple code-integrate-build-test-evolve cycles
- design and develop a robot that achieves at least one mission
- develop a plan to pass teamwork challenge at end of week
- demonstrate completed challenges at end of week
- meet with supervisor to get assistance, advice, and report progress

Key Deliverables

- status report (progress against plan); submit to supervisor AND sharein on Friday
- high-level design documentation (software & hardware); note: this will not be graded until end of course, but your supervisor will need this submission to validate continuous progress towards the goals, and progress against plan
- baseline robot code (zipped and submitted to sharein) note: this will not be graded until end of course, but your supervisor will need this submission to validate continuous progress towards the goals, and progress against plan
- prototype robot demonstration (in lab on Friday)

Evaluation

- robotics proficiency test (team): as a team they must demonstrate their prototype solving a mission.

How will this challenge be graded?

1. Grading is based on results only, specifically: (a) number of attempts required, and (b) whether construction is used or not, as follows:

10 marks	Team starts from scratch, with nothing downloaded or constructed. Robot is constructed, programmed, and demonstrated in one attempt.
9 marks	Team starts from scratch, with nothing downloaded or constructed. Robot is constructed, programmed, and demonstrated in two or three attempts.
8 marks	Team starts from scratch, with nothing downloaded or constructed. Robot is constructed, programmed, and demonstrated in more than three attempts.
7 marks	Team starts with pre-built robot. Mission is completed in one attempt.
6 marks	Team starts with pre-built robot. Mission is completed in two or three attempts.
5 marks	Team starts with pre-built robot. Mission is completed in more than three attempts.
0-4 marks	Mission cannot be completed; Marks assigned at discretion of instructor.

Notes:

- construction will take place in the challenge room; you can have your parts pre-selected and in a tub;
- there is no time limit, other than the 2 hour limit for your lab
- there is no assigned order or schedule; you can demonstrate your challenge when the table is free
- if you attempt a mission more than 3 times, and it fails, you will be asked to relinquish the table to another team; you can come back and try again later in your lab sessions