**Project: Motion Primitives for Freddy**

* 5 User stories:

1. Build/implement the previous semester's SDP project (25 April to 9 May)
2. Individual wheel unit control (9 May to 23 May)
3. Platform alignment with ramp (23 May to 6 Jun)
4. Ramp up behaviour on Freddy (11 July to 25 July)
5. Build complete state machine (25 July to 15 August)

* User stories:

1. Build/implement the previous semester's SDP project (25 April to 9 May)
   1. Task description:
      1. Understand force control distribution on Freddy robot
      2. Test previous SDP code on Freddy
      3. Evaluate overlap between previous SDP and ramping behaviour
      4. Implement relevant code required for ramping motion
   2. Acceptance criteria:
      1. The code should run successfully on Freddy
      2. The overlapped code should be implemented for ramping behaviour
2. Individual wheel unit control (9 May to 23 May)
   1. Task description:
      1. Orient wheel units to the desired configuration w.r.t. base of the robot
   2. Acceptance criteria:
      1. Bring the wheels to 0, 90, 180, and 270 degrees
3. Platform alignment with the base of the ramp (23 May to 6 Jun)
   1. Assumption:
      1. Given that the robot is in front of the ramp
   2. Task description:
      1. Align the robot to the ramp baseline
   3. Acceptance criteria:
      1. The robot should be aligned with the baseline of the ramp from the different starting orientations **(TODO: add figures)**
         1. W.r.t to the baseline of the ramp, 1) positive slope, 2) negative slope and 3) parallel to the line
4. Ramp up behaviour on Freddy (11 July to 25 July)
   1. Task description:
      1. Understand the ramp-up behaviour for the Freddy robot
      2. Implement ramping behaviour on the robot
   2. Acceptance criteria:
      1. The robot should be able to complete the ramp slope
      2. The robot should be able to safely stop after finishing the ramp
      3. The robot should also be able to run over a small bump (ramp up and down)
5. Build complete state machine for ramp behaviour (25 July to 15 August)
   1. Task description:
      1. Integrate all sub-modules as a complete state machine
   2. Acceptance criteria:
      1. The robot should be able to autonomously drive over the ramp
      2. The robot should be stopped after the finishing ramp behaviour