For this project, we have five overall goals we hope to reach. They are listed below in prioritized order. For each of the first three goals, we have listed, in order of level of difficulty, the subgoals we hope to achieve as part of the overall task, again in prioritized order.

**Overall goals**:

1. Filter out grass for object detection
   * Remove green grass pixels
   * Remove all pixels classified as grass (via SVM)
2. Identify white lines
   * Straight, solid lines
   * Straight, dashed lines
   * Solid arcs
3. Obstacle detection
   * Barrel detection via color classification
   * Barrel detection based on template
   * Arbitrary obstacle detection
4. Red/blue flag detection based on color
5. Report data to robot

**Timeline:**

For each week, we have allocated space for “overflow,” so any tasks that need refinement can be wrapped up as time allows.

Week 7:

* Initialize camera acquisition
  + Make camera device for stereoscopic image acquisition
  + Create LabView image acquisition program
* Manual grass filter and line detection
* Project planning

Week 8:

* Image calibration (front view -> top view)
* Grass filter via SVM
* Line detection
  + Identify pixels belonging to white lines via algorithm in “GOLD Report”
  + Find solid lines via Hough
* Identify obstacles
  + Via color classification
  + Using pattern/template matching
  + Using stereoscopic vision to detect spatial location for arbitrary obstacles
* Overflow

Week 9:

* Flag detection
* Report to robot (occupancy grid)
* Overflow

Week 10:

* Overflow week – we present on Monday so any time after that before Friday will be used to clean up and maybe make last-minute refinements