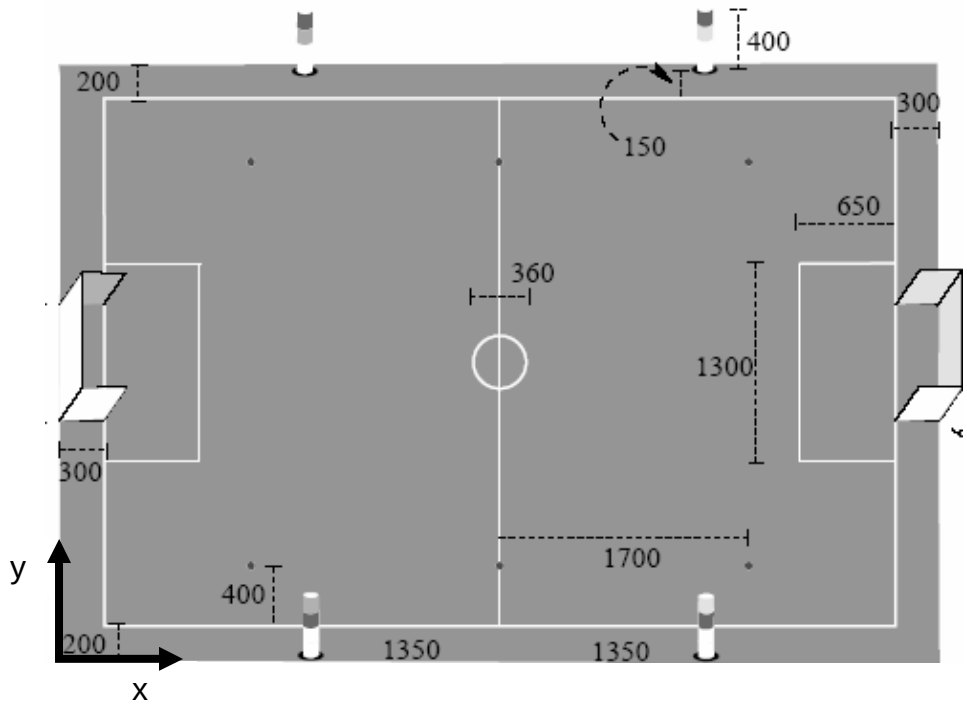
CSE 398/498 Robocup

Team Challenge 3: Localization
Challenge Date: Wednesday, 30 March 05

A. Objective: The purpose of this challenge is to demonstrate the ability of your Aibo to localize its position on the soccer field.



B. Rules & Requirements:

1. On the challenge date, representatives from each team will meet at PL450.
2. Each team is to implement a "go to position" behavior that will take an (x,y) coordinate and navigate the robot to the corresponding position on the field. Positions are relative to the x-y coordinate system as defined in the illustration above.
3. Localization is to be accomplished exclusively using color segmentation. You may use the color beacons and/or the goals to accomplish this.
4. There will be 4 trials to the challenge. For each, you will be given an objective xy coordinate. The Aibo will be placed at an arbitrary position and orientation on the field.
5. A marker will be placed upon the field at the objective position.
6. The Aibo must navigate to the objective position AND STOP.

7. Navigation will be considered successful if any one of the Aibo's feet is within 15 cm (6 inches) of the marker.
8. The winner of each trial will be the team whose robot successfully navigates to the marker in the shortest time.
9. The duration each trial will be limited to 1 minute.
10. If no robot reaches the marker within 1 minute, the robot closest to the marker at time will be considered the winner.
11. Each group will have an opportunity to recompile between trials so that new objective positions can be embedded into the code. You will implement these as behaviors in `ControllerGui`

C. Some Potentially Helpful Tips:

1. At a minimum, you will need to be able to segment three colors reliably for this challenge (blue, pink, yellow). These can be one means to distribute work.
2. You should review the relevant references from the last challenge. In particular, you should look into the RegionGenerator and BallDetectionGenerator portions of the vision pipeline.
3. Focus on the segmentation and estimation algorithms initially. We will discuss possible control approaches starting this Friday.
4. NOTE: The beacons that are currently in the lab are not made to specification. The actual beacons will be 100 mm in diameter (vice 75 mm). However, these can be used in the short term. Also, the goals may also be used for the segmentation. These will be available later this week.

D. Turn in:

5. A writeup <= 2 pages from the team leader describing *in clean detail* the approach used. A code submission is no longer required.