A Coach for RoboCup
Isabella B. Tumaneng, Class of 2017

The original goal of this summer was to write code for an entirely new robot soccer team member who would have sat on a table on the side of the field and sent communication packets to the players. These packets would have been sent wirelessly and would have included information that would have helped the team players figure out where they are, where the ball is, and on which side of the field the opponent’s goal is.

However, since robot localization within the field improved when the vision system was rewritten, using a coach robot, while permitted by the league, was no longer deemed necessary by the team. In the place of this project, I spent my time working on two different projects.

The first involved improving and redesigning certain aspects of the robots’ motion. I concentrated on increasing the speed at which the robots picked themselves up after a fall, while at the same time making both major and minor changes to the robot’s limb positions to minimize strain on its joints. I also contributed efforts towards designing a new kick, and towards remaking the manner in which the goalie saves the ball by squatting and diving, making these movements quicker, less detrimental to hardware, and more efficient during game time.

For the second project I wrote code that allowed us to compete in the Drop In challenge, a smaller competition separate from the regular robot soccer tournament. In this challenge, each team contributes one robot, and are evaluated according to the performance of an individual soccer player. The first part I wrote would allow the robot to switch roles according to the roles its teammates declared via wireless communication. The second part I co-wrote to allow the human portion of the team to decide which role our robot should choose to play at starting time: striker, attacker, left or right defender, or goalie. This way, once the Drop In teams were announced, we could choose to play offensively or defensively independently of our assigned player number. In competition, we chose to play both, and claimed 8th place in this challenge.

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