System Design Project

Biser Hong – s0840625 – Group 12

Individual Report 2

Introduction

The goal of this report is to show my current progress and achievements in relation to the work of group 12.

Logo

I developed a second version of a logo for the group which was chosen as the team logo after a group vote.

Simulator

As the group began preparation and work for the second milestone, it soon became apparent that we need some way of testing and trying out ideas about such a crucial part of the project as the behavior of the robot, which we could approve or reject without having to disrupt the work of the motion and construction teams and without depending on them. I started developing a simulator for the robots, ball, and pitch. The goal for the second milestone was to develop a basic simulation of the pitch and one of robots in order to test the performance of the suggested potential field algorithm and any future algorithms.

The simulator developed has two basic modes of operation. One accepts two types of commands which allow the robot the move forward or backward with a chosen speed and rotate in place. The other simulates the actual wheels of the robot and accepts two parameters which represent the speed of both wheels which allows it to move along a curved path and closely resembles the robot's real behavior. The first one also supports collision detection for the pitch but the next step will be to generalize this for all objects on the field.

The simulator was integrated with the main program and strategy with the help of Behzad who implemented the current strategy in use. It accepts commands in real time and feeds back the new coordinates and orientation of objects to achieve a full simulation of the system without the vision part. The robot also accepts movement commands from the keyboard which will be of help in future testing of strategies where the person testing could interact with the algorithm to simulate real conditions that might arise and evaluate the robustness of the strategies employed. Further optimization and refactoring of the code needed to provide for extensibility.