Here are notes from today's meeting if you had to leave early or couldn't make it out:

All-team meeting, scrimmage

We plan to have a all-team meeting at Harvard toward the beginning of December to see the robots driving around and to try to get a two-on-two game going on. But for that, we need the following fixed up

- break beams
- auxiliary kickers

Break Beams

The break beams are used to detect when the ball is in front of the kicker, so the robot knows exactly when to kick.

An old system we tried was a reflective break beam sensor. It did not work well because the ball was not so reflective, it was dependent on ambient light conditions, and was sensitive to the ball coming in from a variety of angles.

The current system places the emitter LED and receiver on the left and right side of the ball. The emitter sends infrared light at a certain frequency, which the receiver looks for. When the beam is broken, the receiver sends an active low signal. This is slightly more robust, though we will have to put a lot of effort into placing the emitter and receiver.

Auxiliary Kicker

We ran into some problems demonstrating the break beam boards because the aux kicker boards (which run the firmware for the break beams) have been having trouble (1) getting programmed or (2) receiving signals from serial control.

We believe these problems are due either to (1) faulty chips or to (2) the fact we upgraded our programming IDE and there may be some conflicts. Rui's looking into the IDE, but if he doesn't identify any problems, we'll order a new set of chips and replacing them.

Solenoid

I believe last week Markus and David(?) played around with the kicker. They raised it a bit, so that the center of the kicker hit the ball. A maximum of 4 m/s was attained, doubling the energy being delivered to the ball.

Markus built up a new shaft for the solenoid, which included a magnetic material for the shaft instead of a aluminium. However, when we tried to kick, it didn't work.

Plan for next week:

- debug/rebuilt aux kicker boards
- get break beams working
- test Markus's new designs