Wireless Networks for Multi-Robot Communications Team

Clay Oehlke Matt Crotts Kenny McNutt Jeremy Vernon

Biweekly Report 1

Current Progress

Our group has successfully completed the proposal and presentation. We presented this to the class on the third of February, and discussed it with Dr. Gutierrez-Osuna at the group meeting later that day. He made some suggestions on the scope of the robot, as well as on our report. We also discussed various materials we needed to use for the project. One of these was advanced BASIC stamps.

The BASIC stamps used in the Boe-Bot kit were very limiting, providing only 26 bytes to be used as variables, and providing instruction storage of about 500 instructions. We contacted Parallax, and asked about exchanging the BASIC chips for a more advanced model. They agreed to provide us with the extra chips for the difference in cost. We also made inquiries about a Java based stamp called the Javelin, but it required hardware modification, so we decided against it. In the end we decided to go with the BS2P24-IC, a BASIC stamp with greatly increased speed and storage.

Dr. Gutierrez-Osuna also made a suggestion that we use some form of rechargeable battery pack, in order to money due to the repeated buying of batteries. As several teams were using the Boe-Bot as a basis for their respective projects, he suggested that we standardize on the solution. The main problem with using a rechargeable battery for the Boe-Bots is that they must use 1.5 Volt batteries, and most rechargeable batteries are 1.2 Volts. We found one company, Lenmar, which offers a 1.5 rechargeable battery called a “Chargeable”.

After finding both of these we made our orders with Steve and are waiting for the parts.

Current Objectives

Once the actual robots arrive, we can begin the assembly process. This should take us at most one week to build all of the robots. This requires few tools, and looks fairly trivial from the instructions given on the Internet. However, this will have to be done for all five robots, and so will take longer.

While the robots are being shipped, we will study the BASIC manual on the Parallax website. This will acquaint us with the version of BASIC used on the Parallax boards, and allow us to start programming the boards much faster when they arrive.

When we receive the robots, our first goal will be to implement a random search algorithm in order to find a spot of light with the photocells. This will require us to connect the photovoltaic cells and the whiskers, and support them in software.