Hello Everyone,

The following is an informal report of all the proceedings that went on this week (Including any thoughts or concerns).

We received the kit on Monday (January 8th). A lot of work this week has been exploring all the features and assessing the practically of the algorithms and other components of the project we'll need to implement. To date the project has been split into two components, the robot design and the WSN. The robot has been completed and other then a few alignment issues it can drive in a straight line – testing on turning will commence shortly, we do not foresee any issues with this part of the project. The team is now entirely focused on the WSN which can be split into three components:

        1) The connection between the robot and a particular MICA2 mote.
        2) The algorithm for receiving sensor information from the source mote with the sensor attachment.
        3) Exploring options for implementing the algorithms proposed last Friday.

Progress:
1) This is currently our biggest concern a lot of time has been spent on this. The main concern is determining which approach to take and if it's feasible. Currently we are attempting to use an I2C output port (clock/data) on the MICA2 to talk to the robot (HC12 board). We have created code for the Mica 2 to output to the IC2 interface. The simulator seems successful and implementation will be tested this weekend. On Monday we are going to ask for assistance from a few people at YorkU regarding the circuitry required for the HC12 controller to recognize signals from the MICA2. We might have to develop an external circuitry to pull enough current out of the mote's IC2 port. Also, an interface for the 51 pin connector of the MICA2 has been purchased to expose external connections. If this is not successful, in driving the pins, we are contemplating on using one of Crossbow's Data Acquisition Board. Feasibility of the current solution should be determined within the next week.
2) This is very easy and we have already implemented an algorithm to get all the data off the sensor board using examples and tutorials.
3) To implement any of the algorithms suggested the first thing we will do is produce an algorithm that will control a particular mote (i.e. get it to do something) once the base station sends it a particular packet. We can already do the part of this!, we can program the MICA2 motes to start a counter (display part of it on its 3 leds) it can then transmit this information to another mote, it will then display the same information on it self. There are tutorials that accomplish part of the above, we are currently modifying them and adding new components. The reason for doing this is to enable the base station to issue the recovery command.

Equipment:
We will definitely require more motes, the kit itself came with 3 of them, one of which needs to be attached to the base station to let it communicate with the rest of the network. In other words this currently leaves us playing with only two of them (one of which will be on the robot and the other will have the sensor board on it).

Because we are still uncertain about the connection to the robot we are going to wait until next week so we can finalize this. Once we are certain we can do so with the current equipment we will order more parts (There is a firm deadline of the end of next week for us to accomplish this).

Video Transmission:
Unlike the previous kit we were planning on using there is no camera/video built into the sensor. Unfortunately this will make it difficult for us to attach an external sensor. We are going to ignore this and use one of the sensors already built onto the board (sound, light, temperature…) to transmit across the network. What we can possibly do time permitting is the following: we can purchase another base station (interface to the computer) and let it connect to a computer with a video camera. Take the video output and place the content into packets and send it across the network. This will definitely prove to be difficult but if there is time we will be able to implement it.

Side Note:
We have acquired a locker in the ISPM lab. If access is required, contact Hamdi. All documentations, manuals and devices will be stored in the locker to allow all members full access for any development.

Thoughts / Concerns.