R·I·T	**Rochester Institute of Technology** **Department of Information Technology**

VKSF 582/782 Lab 2 – Sensor Network Basics

Preparation Questions

Instructions

In order for you, the student, to properly prepare for following laboratory exercises a series of questions has been devised to familiarize and acquaint you with the operating environment.

1. What is a mote and what purpose does it serve? Give two model number examples and describe their main difference.

Motes are battery powered devices that run TinyOS and support mesh radio networks. Their basic role is to relay the data captured by the sensor board to the gateway via wireless communication. An example of two different models is the MICA2 and the MICA2DOT. Their main difference lies in the size, while one is about the size of a matchbox the other is similar in size to a quarter. Another major difference is the reduced capability of the MICA2DOT input output channels.

2. What is a sensor board and what purpose does it serve. Give two model number examples and describe their main difference.

Sensor boards plug into the Mote Processor Radio boards and serve as the data gathering devices by sensing the immediate surrounding environment. MTS101 is a sensor board which is capable of processing light and temperature readings. The MTS310 is able to gather light, temperature, tone, acceleration, magnetic readings.

3. What device utilized within the sensor network topology is commonly referred to as a gateway and what is (are) its main purpose(s)? Give two model examples and explain their main difference.

The device commonly referred to as the gateway is the mote programming or interface board. This device serves two main purposes; it receives the data transmitted by motes and also relays that data through the serial interface to a computer for further processing. The board is also used for uploading TinyOS code onto the motes. MIB600 is a board outfitted with an Ethernet network interface and is therefore able to connect to a PC via an Ethernet cable. The MIB510 is a serial interface board which enables it to communicate with a computer utilizing a serial connection.

4. List the names and model numbers of the equipment you will be utilizing through this course (mote, sensor board, and gateway). If you are unsure of the names and model numbers, check the equipment cage.

MIB510 serial interface programming board
MICA2 mote
MTS310 multi sensor module

5. In the activity Sensor and Data Acquisition Boards contained within the subsequent lab you will be asked to create a sensor network. Draw a hypothetical topology picture of this activity. Be as specific as possible including names and model numbers, labeling connections etc.