Assignment II
Ad Hoc Networks - Mobile Ad Hoc Networks
Winter 2007/2008

Section I: Communications between Gumstix and its host

1. Why do we need a host for Gumstix (which is already a single-board computer itself)? Discuss its limitation, if any.

2. List the hardware and software required to enable the communications between Gumstix and its host. State the purpose of each item in the list.

3. Write down the objective of setting up USB network while serial communication is already available on your Gumstix. State and compare the situation when USB network is preferred over serial communications and vice versa.

4. Explain the procedure to enable Gumstix to automatically set up its network interfaces (both wired and wireless) to fit your configuration, whenever it boots or reboots. Describe every step taken to accomplish the task.

Section II: Gumstix Reflashing

1. Gumstix is shipped with the latest release of buildroot revisions at the time of production of that batch of Gumstix. Explain when and why you need to replace the flash filesystem image.

2. What is a boot loader? When does it need to be replaced? (Reflashing U-boot on Gumstix needs extreme care. You should always follow exactly the instructions published on the Gumstix Wiki page.)

3. Why do we need to cross-compile a program on the host before it is able to be run on Gumstix?

4. You have cross-compiled your C program on the host, and transferred it to Gumstix successfully. However, you get the *segfaults* error while trying to run the object file. To verify that, you compiled the same program to run on your host computer. It worked! Your written code is working. But, what is wrong with the cross-compilation?

Section III: Gumstix, for MANET

1. What is(are) the wireless communications standard(s) of the Wifistix you are using with the Connex motherboard? Describe its transmission range, data rate, transmit power and other relevant features. Discuss the benefits of using this standard in MANET.

2. What is the advantages (and disadvantages, if any) of using Gumstix as the mobile node in your MANET project? What about a Linux-based laptop or PDA?

NOTE

- You can attach any file to support your answers.

- Submit both Assignment I and Assignment II by 20th November 2007 (hard deadline).

- You should make sure that every team member understands all the tasks done, and is able to explain them during the demo.

- A gentle reminder: you are encouraged to start thinking about your project topic.