CS 4222
Programming Assignment I

January 28, 2012

Important Dates

Due: Feb 10, 23:59
Late Penalty: 10% per day

Overview

The assignment aims to warm you up for more programming using TinyOS/NesC. It involves writing a simple program that turns a desired LED(s) ON/OFF for a desired duration of time. Students will mainly learn the following.

- Basic programming using TinyOS/NesC
- Compilation and downloading of TinyOS code onto the motes
- Mote to PC and PC to mote communication

Tasks

1 PC-side programming — Program a client that communicates a few input parameters to a mote. The input parameters should specify one or more desired LEDS, corresponding flags indicating the desired action (ON/OFF), and time durations in seconds for which the LEDS should stay ON/OFF. Moreover, the client should also be able to display acknowledgement messages received from the mote.

2 Mote-side programming — Mote program should receive input parameters from the client, control the LEDS according to the input, and send an acknowledgement message back to the PC at the end of the specified control action.

For example, the command "./client RED, GREEN, ON, ON, 1s, 2s" indicates that RED LED must be turned ON for a duration of one second whereas GREEN LED must be switched ON for a duration of two seconds. If the LEDS are already ON then reset their ON duration.

Submission

Please submit your code to IVLE workbin as a single zip/tar file. The zip/tar file should be called *CS4222_PA1_USERNAME.tgz*, where USERNAME is your student ID. The submitted code must satisfy the following.

1 The code should be compilable.

2 Please include a README file explaining how to compile and execute your code.

If you submit multiple versions, only the last version will be graded. If the last version is a late submission, marks will be deducted based on the date of submission.

Grading

Points are allocated as follows:

25 points — correct choice of components and compilation

25 points — PC to mote communication

25 points — mote to PC communication

25 points — desired control of LEDS

Weightage towards the final assessment is 5%