

**EE579 Spring 2014 Contiki Programming Assignment**  
**USC Ming Hsieh Department of Electrical Engineering**  
**Instructor: Amitabha Ghosh**  
**TA: Suvil Deora**  
**Assignment Due: Wednesday, March 5**

**APPLICATION REQUIREMENTS:**

In this assignment you will need to use Contiki programming environment to create a very simple sensor network and plot PRR/RSSI values. Your application will need 2 nodes (Tmotes) and one laptop as hardware. Your application must include the following features:

**Sender Node:** One Tmote should periodically send data(any data), and transmit the result to the Base Station, which is the second Tmote.

**Base Station:** The second Tmote. It should listen to the radio and receive the data from the "Sender Node". The "Base Station" should be connected to your PC. The Base Station node is also responsible to measure the communication link quality by counting the PRR (packet reception rate) and the link quality (RSSI).

**DELIVERABLE (HOW WE TEST YOUR APPLICATION):**

Once the sensor link is set up, we will vary the distance between the Sender Node and Base Station. We expect to see the link quality change. You should submit two plots: PRR and RSSI versus distance(1m, 2m, 5m, 10m, 15m, 20m) with sufficiently many sample points(atleast 150 for every distance value).

**SUBMISSION:**

Submit the plots described as above. You need to vary the distance systematically from 1 to 20 meters. For each location, make sure the sender node transmits 150 - 200 packets. Submit the plots and your code via blackboard assignment system by March 5. You should include names.txt file in your submission, which contains names of the group members and their USC email ID.

Please make use of Figure 8 from the Tmote Sky Datasheet. Here is the link for it.

<http://www.eecs.harvard.edu/~konrad/projects/shimmer/references/tmote-sky-datash eet.pdf>

**ACADEMIC INTEGRITY:**

Each group need only submit one solution to this assignment. All participating students in each team should work together on this problem.