Peer-graded Assignment: Contiki Hands-on

Course: Embedded Hardware and Operating System

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Date: 2020-06-20

NOTE: The all tasks use: <u>Instant Contiki 3.0</u> and <u>Contiki 3.0</u>

Task 1

Setup

The Task 1 setup contains **eight (8)** Sky mote types random positioned, follow the mote type information:

- **Contiki source**: contiki/examples/ipv6/sample-udp-rpl/broadcast-example.c
- Contiki firmware: contiki/examples/ipv6/sample-udp-rpl/broadcast-example.sky
- Compile commands: make broadcast-example.sky TARGET=sky

Figure 1: A screenshot demonstrating the running simulation executing Task 1

Parts of the system

The simulation is demonstrated in Figure 1, wherein the *Network* screen the green circle indicates the coverage region from mote with ID 4, conform show in the *Mote output* screen.

 Applications Places 1 En 🖇 4)) 2:33 PM 😃 ⊗ 😑 🌼 My simulation - Cooja: The Contiki Network Simulator Log Listener Listens to log output from all simulated motes. Right-click the main area for a popup menu with more options. Enter notes here Start Pause Step Reload Time: 01:30.337 You may filter shown logs by entering regular expressions in the bottom text field. Filtering is performed on both the Mote and the Data columns. File Edit View Filter examples: Hello\$ logs ending with 'Hello' ^ID:[2-5]\$ logs from motes 2 to 5 ^ID:[2-5] Contiki logs from motes 2 to 5 starting with 'Contiki' user@instant-contiki... 2

Task 2

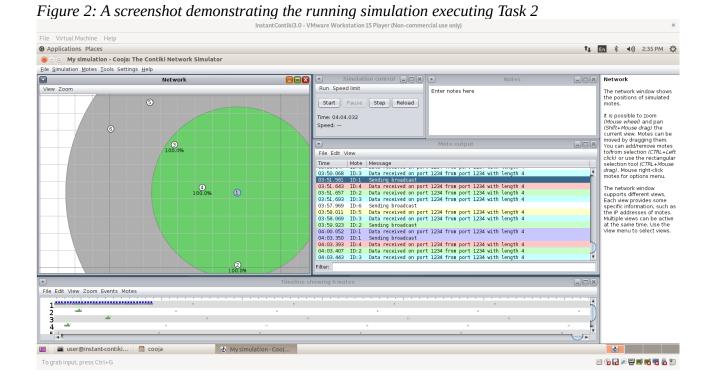
Setup

The Task 2 setup contains **six (6)** Sky mote types random positioned, follow the mote type information:

- **Contiki source**: contiki/examples/ipv6/sample-udp-rpl/broadcast-example.c
- Contiki firmware: contiki/examples/ipv6/sample-udp-rpl/broadcast-example.sky
- Compile commands: make broadcast-example.sky TARGET=sky

Parts of the system

The simulation is demonstrated in Figure 2, wherein the *Network* screen the green circle indicates the coverage region from mote with ID 1, conform show in the *Mote output* screen. *Different* from Task 1, the motes in Task 2 are more disperse.



Task 3

Setup

The Task 3 setup contains **six (6)** Sky mote types random positioned, follow the mote type information:

- Contiki source: contiki/examples/rime/example-abc.c
- Contiki firmware: contiki/examples/rime/example-abc.sky
- Compile commands: make example-abc.sky TARGET=sky

The original source code (contiki/examples/rime/example-abc.c) was modify:

- Line 56: printf("MY COURSERA ABC message received '%s'\n", (char *)packetbuf_dataptr());
- Line 80: printf("MY COURSERA ABC sent\n");

Parts of the system

The simulation is demonstrated in Figure 3, wherein the *Network* screen the green circle indicates the coverage region from mote with ID 1, conform show in the *Mote output* screen.

Figure 3: A screenshot demonstrating the running simulation executing Task 3 Applications Places 1 En 🔻 4)) 2:52 PM 😃 My simulation - Cooja: The Contiki Network Simulator File Simulation Motes Tools Settings Help Listens to log output from all simulated motes. Right-click the main area for a popup menu with more options. Enter notes here Start Pause Step Reload Time: 01:02.824 You may filter shown logs by entering regular expressions in the bottom text field. Filtering is performed on both the Mote and the Data columns. Filter examples: Hello logs containing the string 'Hello' ^Contiki logs starting with 'Contiki Hello\$ logs ending with 'Hello ^ID:[2-5]\$ logs from motes 2 to 5 ^ID:[2-5] Contiki logs from motes 2 to 5 starting with 'Contiki' File Edit View Zoom Events Motes user@instant-contiki...