NAZARBAYEV UNIVERSITY
SCHOOL OF SCIENCE AND TECHNOLOGY

Laboratory Assignment #3

ROBT 305 – EMBEDDED SYSTEMS

Fall Semester 2015

INTRODUCTION TO BEAGLEBONE BLACK BOARDS

DURATION

- 1 lab session;

LEVEL OF COLLABORATION ALLOWED

You will be working in groups

REFERENCES

Derek Molloy,"Exploring BeagleBone. Tools and Techniques for Building with Embedded Linux", Wiley, 2015 (available in Moodle)

INTRODUCTION

Read Chapter 1 of the "Exploring BeagleBone" textbook (available in Moodle)

GET FAMILIAR WITH THE SAFETY RULES ON PAGE 21 OF THE TEXTBOOK

TASK 1: CONNECTION BBB WITH PC AND SETTING UP INTERNET CONNECTION OVER USB CABLE

We will be connecting BeagleBone Black (BBB) boards to the host Ubuntu OS PC using USB cable.

1. Connect BBB to a host PC running Ubuntu OS.
2. By default, the host PC IP is 192.168.7.1 and the BBB board IP address is 192.168.7.2
3. Verify if the BBB is connected by typing 192.168.7.2 in an Internet Browser window. Please read Chapter 2 of the textbook for more details (page 27).
4. For setting up Internet-over-USB connection, you need to activate Network Sharing in the host Ubuntu PC. Follow instructions on page 29 of the textbook.
5. You will be communicating BBB boards using SSH connection. Read corresponding section on page 33 of the textbook and type instruction

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ssh -X root@192.168.7.2
```

in the Ubuntu terminal window to access the embedded Debian Linux on BBB.

6. Follow the instructions on Page 43 to set up and verify Internet connection on BBB.

TASK 2: TRANSFERRING FILES OVER SSH AND BASIC LINUX OPERATIONS

1. Follow the instructions from Page 35 and practice file transfer to BBB over SSH connection.

   Note: while working on Ubuntu instead of the command ‘psftp’ use ’sfpt’ in the Ubuntu terminal.

   Note: instead of the local directory ‘c:/temp’ use ‘/home/robot/temp’

2. Follow the steps from Page 37 till 44 to practice basic Linux commands, file editing using Nano and updating Time settings on BBB.

SUBMISSION REQUIREMENTS

You group is required to prepare and submit the report with Linux terminal screenshots for all major tasks and steps from this lab.