Christian Schindelhauer

Freiburg, 5 Jan 2007
Due until 9 Jan 2007

Exercises of lecture

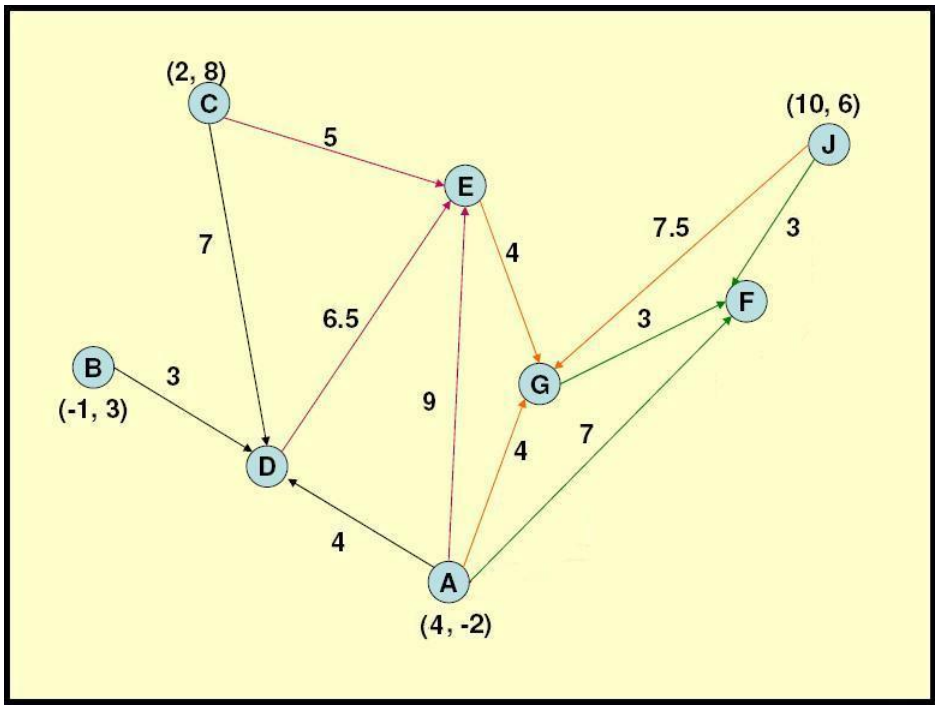
# Wireless Sensor Networks

Winter 2006/2007

Sheet 8

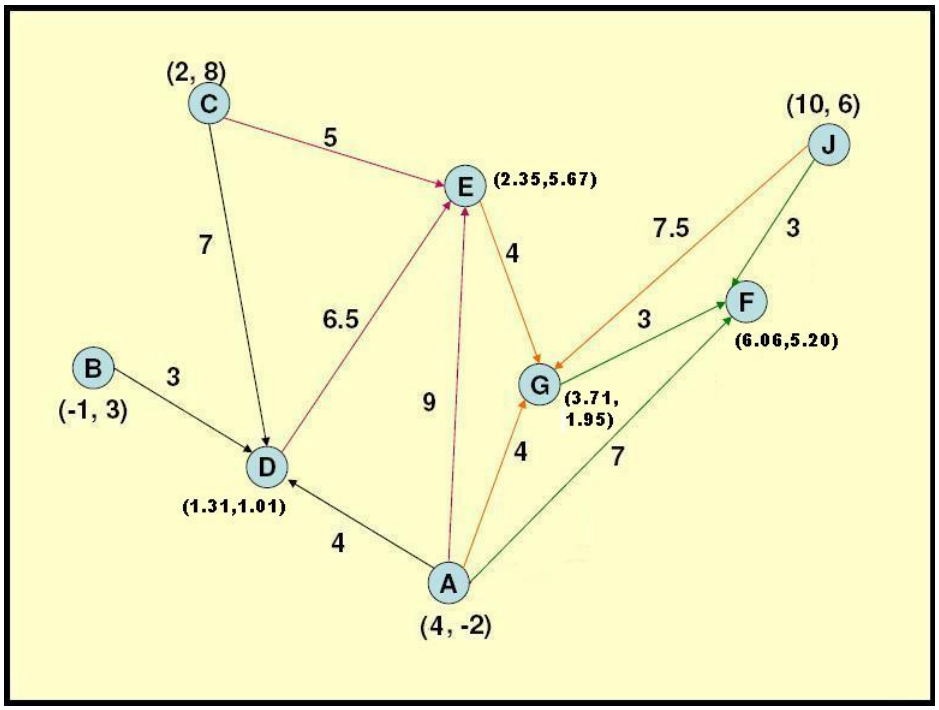
**SECTION 1:**
Localization

1. Based on the diagram below, find out the location of each sensor node based on iterative multilateration with the information of anchor node coordinates and distance between nodes given in the picture.




**Solution:**

(a) Based on iterative multilateration, the coordinates for node D, E, F, G are calculated with the aid of excel file named multihop-localize at *http://cone.informatik.uni-freiburg.de/teaching/lecture/wsn-w06/exercise/solutions/multihop-localize.xls* and 2-unknown calculator at *http://www.1728.com/unknwn2.htm*. First, find out the coordinates of node D, then node E, node G and finally node F. The results are shown in the diagram below.


(2, 8)
C
5
(10, 6)
J
E
(2.35,5.67)
7
4
7.5
3
6.5
F
3
(6.06,5.20)
B
3
(-1, 3)
G
(3.71,
1.95)
9
4
7
D
(1.31,1.01)
4
A
(4, -2)