

## Sensor Networks

### Case Study, Post Grad., Apr. 2015

#### **File Version:**

First version

#### **Aim:**

Make use of learned concepts to design and simulate multi sensor networks.

#### **Specs:**

- Survey and refresh your knowledge on OPNET<sup>®</sup> tool.
- Implement a sensor networks application with the following specs:
  - 3 sub networks.
  - The first and second networks consist of 20 wireless sensor nodes, the third one consists of a gateway node connected to a PC that monitor and control the operation of the other networks.
  - Each node is assumed to be equipped with a recording cam and sends its data packets regularly or upon request.
  - First and second network nodes are distributed regularly to cover the network assuming the area of each network is 250m x 400m.
  - The distance between the 1<sup>st</sup> and 2<sup>nd</sup> networks are 4.5 km while the distance between the intermediate network (2<sup>nd</sup> network) and the 3<sup>rd</sup> network is about 50 km.
  - The communication between networks is a design issue and left to the network designers.
- Simulate the system by calculating the throughput and delay at the gateways.

#### **Teams:**

3~6 students per team.

#### **Delivery time:**

Weekly follow up until the last week of the semester (duration is 2~3 weeks).