University of Waterloo

ECE 750 Intelligent Sensors and Sensor Network Project Deliverables and Timeline

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Agenda

- Introduction
- Types of Projects
- Tools
- Project Consultation
- Project Ideas
- Project Timeline
- Project Deliverables
- Grading Scheme
- Notes and Links

Introduction

Project Objectives

- Deepen the students understanding of complex sensor network issues.
- Develop of hands-on experience in WSNs area.
- Advance the students research abilities.
- Improve their research outcome presentation skills.

Why have deliverable?

- To make your life easier
- Continuous feedback throughout the term
- A chance to apply comments and fix mistakes

Quality papers will be considered for publication

Types of Projects

1. Comparative study of the State-of-the –Art,
   - Single student,
   - provides a new taxonomy or classification,
   - cannot be a simple duplication of prior work
2. Implementation of published work with critical and experimental analysis
   - Team of two students,
   - cannot be a simple duplication of prior work
3. Proposing a novel idea and implementing it,
   - Team of two students
   - Compare to related work,

Tools

- Use whatever tool you like,
- Use whatever language you like,
- Justify you choice.

- Popular tools:
  - Network Simulator 2 (NS2) http://www.isi.edu/nsnam/ns/
  - Matlab http://www.mathworks.com/products/matlab/

Project Consultation

Project Consultation Office Hours

- Tuesday Jun 19th, 2012 Between 9:30am to 3:30pm
- Wednesday Jun 20th, 2012 Between 9:30am to 3:30pm
- Thursday Jun 21th, 2012 Between 9:30am to 3:30pm

Notes

- Please, book an appointment by email.
- Come prepared with several ideas for the project
- Ideas for projects can be found at:
  - http://pami.uwaterloo.ca/~basir/ECE750/readings.htm
  - http://pami.uwaterloo.ca/~basir/ECE750/suggested-presentation-topics.pdf

Project Ideas

- Energy Efficient WSN Routing or Medium Access
- Bandwidth-aware WSN Medium Access
- Quality of Service on MANETs and WSNS
- Localization (Indoor/outdoor)
- Soft vs Hard data fusion
  - distrubited
- Application-based:
  - Surveillance WSNs
  - Habitat monitoring
  - Oil-spill detection
- Underwater sensor networks
- Multimedia sensor networks
- Vehicular sensor networks
- Body area sensor networks
- Delay tolerance in sensor networks
- Cognitive radio for sensor networks
  - Spectrum sensing
- Context and situation awareness
- Industrial automation using WSNs
  - Applying WSNs to Power Grids

Project Timeline

ID	Milestones	% Total project Grade	Start	Finish	Duration
1	Form Teams of maximum two	0%	8/May/2012	15/Jun/2012	39d
2	Problem Statement*	5%	14/May/2012	24/Jun/2012	42d
3	Literature Survey	10%	31/May/2012	27/Jun/2012	28d
4	Proposal and System Model	15%	14/Jun/2012	4/Jul/2012	21d
5	Simulation Environment and Evaluation Metrics	10%	28/Jun/2012	11/Jul/2012	14d
6	Preliminary results	10%	12/Jul/2012	25/Jul/2012	14d
7	Project Presentation***	10%	12/Jul/2012	29/Jul/2012	18d
8	Project Final Paper	50%	26/Jul/2012	7/Aug/2012	13d

Project Deliverables

Form Teams of maximum two	0%	Names of members of each team with their contact email, and program.
Problem Statement*	5%	1 page that includes problem statement, motivation, and hypothesis
Literature Survey	10%	2 page critical study of the related work
Proposal and System Model	15%	2 page proposal to address the problem at hand, and definition od the system model
Simulation Environment and Evaluation Metrics	10%	1 page includes simulation tools**, environment setup, and evaluation metric
Preliminary results	10%	1 page preliminary results with data analysis and explanation
Project Presentation***	10%	10 minute presentation (maximum 10 slides)
Project Final Paper	50%	Up to 10 pages double column IEEE Journal format paper in PDF. Also include the latex/word files, as well as, the simulation source code & its documentation.

Grading Scheme

Report Grading Scheme

Title	% of Total Grade
Relevance	65%
Completeness	20%
Readability and Presentation	10%
References	5%

Presentation Grading Scheme

Title	% of Total Grade
Depth	40%
Presentation	20%
Relevance	30%
Q&A	10%

Project Grading Scheme

Title	% of Total Grade
Quality of Contribution	30%
Completeness	25%
Readability and Presentation	20%
Academic Paper Format	5%
Flow	10%
References	10%

Notes and Links

- The course project papers will be check for plagiarism via specialized software.
  - Plagiarism will result in a project grade of zero and may implicate further consequences.

- All report will be submitted via learn at https://learn.uwaterloo.ca/

- Notes on how to cite research material can be found in http://www.lib.uwaterloo.ca/ait/knowhowtocitesources.html Also, useful hints can be found in http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWcitations.html

- IEEE Transaction Template can be found at http://www.ieee.org/publications_standards/publications/authors/authors_journals.html