Introduction

Students are required to submit an individual term project. A set of suggested projects topics and ideas is included below. The project must conclude with the submission of a final report. Student must submit a well-organized proposal of two to three pages in length. The proposal should clearly describe the project to be undertaken, including the topic to be covered, any investigation, development, or experimentation to be conducted and the expected results. Proposals will be reviewed and must be approved by the instructor.

In the project, you will be analyzing, designing and (if you choose) implementing a network computing system. Through reviewing the literature, you will go through current systems to identify issues and problems and will be surveying, synthesizing and evaluating proposed solutions to such matters.

Project steps

Steps to the final project are as follows:

1. Project Proposal

Every student must decide one idea to work on for the project. Each student should read at least one survey paper from one of the IEEE journals (or similar high level journals) about the idea. The instructor will provide feedback on project ideas; if you'd like more detailed feedback, come chat with him in person.

By the proposal deadline, you must submit a two-three-page proposal describing: the problem you want to address, how you plan to address it, and what are you proposing to specifically design and implement.

Deliverables: Two-three-page proposal

2. Midterm Report

In this phase, every student will select three journal papers and three conference papers that propose different solutions related to the project idea. Selected papers must be indexed by IEEE Xplore (or similar high level conferences/journals) and must be published 2015 or after.

Based on the proposed papers every student will introduce a survey about the proposed solutions for his/her project.

Deliverables: Survey about proposed solution

3. Final Report

Every student has to choose between either proposing a new solution or implementing one or more of the solutions proposed in part two.

a. New Solution

If you decide to propose a new solution (e.g. by enhancing one of the solutions presented in part two), you need to read three more papers (same criteria as before). At the end, a final report including all of the previous deliverables in addition to the proposed solution has to be submitted.

b. Implementation

If you decide to implement one of the solutions proposed in part two, then a piece of software representing the implementation and a final report should be submitted.

A final presentation is required from student.

Deliverables: Final report

Report Guidelines

Each term project will result in a detailed 15-20 pages written technical report. The project report should be neat, readable, and self-contained. Also, it should be written with the readers in mind. Any class member should be able to understand your report, and benefit from the results you obtain. Therefore, you should include adequate references and/or background materials and you should use tables, diagrams, graphs, figures, and portions of printouts to enhance readers' comprehension of your project.
The following format is suggested. You don't have to follow it exactly. Some sections may not be needed, or additional sections may be necessary. In all cases, please type and paginate your report!

1. Abstract. It comes first in your report, but you write it last.
2. Summary. Gives succinct information on the purpose, methods, results and conclusions reported.
3. Introduction. Include background material and discuss the scope and limitations of your project.
4. Related Work. Survey of the previous work published about the same topic.
5. Discussion. The body of your report. This includes the methodology used. Be sure to fully describe any figures, tables or diagrams you include.
6. Results.
7. Conclusions.
8. Recommendations, especially for future work and unsolved problems.

9. References must always be included.
10. Appendices, including supporting material as needed.

Do not submit complete computer outputs. Relevant excerpts from program listings or output should be included, but reduced to the size of the rest of the report and containing either as figures or tables in the text or as an appendix.

General Guidelines

Grading of written reports and presentations will be based upon substantive content, appropriate organization and use of allotted report size or presentation time, and effectiveness of the presentation or report. Multiple errors in grammar and spelling are unprofessional and detract from the clarity of your report or presentation and will be graded accordingly, so use a spell checker!

NOTE: Plagiarism is stealing or passing off the ideas or words of another as one's own – using material without crediting the source. This is prohibited behavior and will not be tolerated. Take the time to properly cite material written by someone else – include references, put verbatim quotes in quotation marks, and do not paraphrase excessively. If you have questions about this, ask me.

Project Topics

You can work in theoretical research, simulation and/or software development for Internet of Things and/or Wireless Sensor Network in:

1. Applications
    a. Healthcare
    b. Sports
    c. Agriculture
    d. Military
    e. Disaster Management
    f. Traffic Monitoring
    g. Structures Monitoring
    h. Environmental Monitoring
    i. Air Quality
    j. Water Quality
    k. Snow and Ice Monitoring
    l. Detecting Forest Fires
    m. Wildlife
    n. Oil and Gas
    o. Mining
    p. Aviation and Aerospace
    q. Underwater

r. Robotics

2. Protocols
    a. Physical Layer
    b. Network Layer
    c. Transport Layer
    d. Application Layer
    e. Security