

Course Project

The purpose of this project is to provide you an opportunity to foster your research perspectives via an in-depth study on an open issue in wireless and sensor networks. There is great flexibility in what you do and how you do it. This document outlines the requirements and the milestones of this project. Please read all sections of this document and the suggested topics and **start early**.

This project is divided into four phases. Each phase provides a well-defined point for the instructor to provide feedback and evaluate your team's effort. Here are the details of what is expected and what needs to be delivered for each phase.

Grading: This project accounts for 70% of the final course grade, allocated among the four phases as follows: Phase I (5%), Phase II (20%), Phase III (20%), and Phase IV (25%).

• Phase I: Project Proposal and Team Forming [Due Feb 9]

Each project is undertaken by an individual or a team of no more than 3 students. It is recommended that you work in a team. You can greatly benefit from the discussions with other team members and accomplish a project with better quality in a team.

Your team can propose to conduct any wireless-related project of your interest. It is encouraged that the project is related to your research topic. For your reference, a list of suggested topics are provided at OAK system (<http://www.vanderbilt.edu/oak/>). The instructor will assess your proposed topic. And if it is believed to have suitable scope and difficulty, the proposal will be approved and you can go ahead for the next phase. Otherwise, you have to revise or refine the topic. For this reason, it is *strongly recommended* that your team schedules an appointment with the instructor to go over your proposed topic before you submit the proposal. By the due date, you need to submit a proposal (1 – 2 pages) which includes the following information.

- Title of your topic.
- Names of your team members.
- The goal of your project. Explain what problem your project addresses and why it would be an interesting and important problem.
- Discuss what technical areas you will explore in order to identify the algorithms and protocols for your project.
- List some references to the published literatures and web resources, based on which you plan to conduct the background survey.

• Phase II: Background Survey Report [Due March 2]

The survey report should be around 2 pages in IEEE Transaction format (refer to OAK system for its template). The report should present the existing literatures in the technical areas of your project along with specific references. In the report, please also discuss the open issues

which are not addressed in this area, explain how your project is different from existing efforts, and makes progress towards solving one or more open issues.

- **Phase III: Design Report [Due March 28]**

You are required to finish the design of your solution by the due date of phase III. Submit a report (3–5 pages in IEEE Transaction format) that describes your solution and the challenges you have faced in designing your solution. In particular, the report needs to contain:

- The problem statement/formulation of your project, system model (if any), algorithm and/or the protocol with a focus on the novelty and uniqueness.
- The evaluation method of your project. Explain how you would evaluate your project. Identify one of your evaluation methods – theoretical analysis, simulation study, system implementation and experiment, or a combination. Then explain how the method(s) would provide validation and/or evaluation of your design.

- **Phase IV: Final Report and Poster Presentation [Due April 20/April 25]**

In this phase, you will evaluate your design and wrap up your project. The final deliverables are listed as follows.

- *Final report.* Submit the final report of your project (8 – 10 pages in IEEE Transaction format) by **April 20**. The final report extends the survey report and the design report with the evaluation results. It needs to be well-organized, and well-written. A brief evaluation report of each team member’s contribution in this project also needs to be submitted along with your final report. This final report counts for 15% of your final grade. The instructor will take into consideration of your responses to questions and your system demonstration (if any) during the poster session towards grading your report (see details below).
- *Poster Presentation.* A poster session is scheduled in the class of **April 25** for project presentation. Your project poster should: (i) remind us what problem your project addresses, (ii) present how you approach this problem, and what specific technique/algorithm has been applied in designing the solution, (iii) identify how your solution is different from existing work, (iv) show how good your solution is. The quality of your project and the performance of your team in the poster session will be evaluated by your peers. It counts for 10% of your final grade. During the session, your team will also be asked about your solution and related works. Questions may be directed to any member of the group. If your solution involves a system implementation, your team also needs to demonstrate the system during the session. Your responses to questions and your system demonstration will be factored towards grading your report by the instructor.