

## Final Report for the Work under NSF Project CCF 084091

Risa Ito

Computer Science Department

West Chester University

West Chester, PA 19383

RI684696@wcupa.edu

From the research work under the NSF project “CCF 0840891: TF: SING-A new method for resource management in wireless sensor networks” that we worked on this past summer, we learned the software lifecycle from building the software program, questioning the existing solution/algorithm, and exploring new algorithms for the targeted problem.

For the classroom projects, students tend to write a code just to get the software program to work. Once the program is working in a test case, students become satisfied and submit the program regardless of the performance, cost, and completion of such a program.

The research support work we conducted this summer involved a complex software evolution lifecycle. Getting the program to work was only one week of the process. The next four months of our time was used to maintain the program. The code was rewritten numerous times to be free of bugs and errors. In addition, as a tool to prove the correctness of research results, the performance and the cost of such a program were evaluated. In order to reach the research goal, the algorithms implemented in such a program are reviewed and changed multiple times after being constructed and brought to the working system. We even developed another program to collect those performance results and displayed them in computer graphics. We have realized that the research support work is a great opportunity to learn what it is like to finalize a project, and also how important the evolution steps are.

In the research work, it is important to explore some new areas and to solve the problems. It is also important to question the existing solutions for problems in order to improve the performance. During the course of research, the researchers also focus on whether the existing solution is applicable and which algorithm is more suitable.

In conclusion, the research work gave us a great opportunity not only to learn what the research work is about but also the importance of the development lifecycle in building the software program, and finding the algorithm effective for the targeted problem.