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EE 449 – Computer Interfacing

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Final Project Report

LED Communication

October 14, 2016

I. Project Performance

The goals of the LED communication project were to detect light using an LED, program a transmitter LED to send a message, and have other LEDs be able to receive and demodulate that message. The goals of the project were not met due to setbacks and early termination of the project. The one goal that was met was being able to use the LED as a light sensor and detect changes in light. One major set back of the project was trying to program using MPLab ICD 3. MPLab was unable to configure using the configuration board given and therefore was unable to program properly. If MPLab had been known to be probably configured and working, this would have gotten rid of a lot of wasted time. The outcome of the project would not meet a customer’s satisfaction. The project still needs quite a bit of work to be complete.

Towards the end of the project deadline, there were hidden learning goals for each person. These goals included learning basic project management techniques, creative thinking when designing project, and proper project budgeting. After termination, all these goals were achieved. I learned how to create a work breakdown structure, which was an essential project management technique. I also learned how to order components and send a budget plan to my advisor.

II. Administrative Performance  
 The administration for the LED Communications project helped with getting resources together and initial setup. Administration gave the basic ideas of what the project was suppose to do but let execution up to the student. The administration also provided materials and components needed to complete the project in a timely manner. However, administration provided equipment that was unknown to be working or not. This led to a major setback in the project timeline. Overall, administration was provided necessary resources for the project and set up guidelines for the project to continue forward.

III. Organizational Structure

The organizational structure of the project simulated a real world project management setting. Each week there was given time to work on the projects during lab. The student was expected to work out of class on their own time as well. The project required meeting weekly deadlines and giving weekly progress reports. This is similar in industry where you have to give reports to your supervisor.

IV. Team Performance

The team for LED Communication was made up of one person. To work efficiently in a project environment, it would be more efficient to work with others on projects. Also, working in teams simulates real industrial projects.

V. Techniques of Project Management

The LED project consisted of techniques used in project management. The techniques in this project are Work Breakdown Structure (WBS), Pert Chart and Gantt Charts. WBS breaks down the milestones and deliverables of a project into smaller components. These components are given a color: red, yellow or green. The colors signify the difficulty of the task. An important part of the WBS is that it shows which tasks depend on others. This is extremely useful when scheduling completion dates for the project and keeping close to estimated timeline. The Pert and Gantt charts are used in a way to represent the WBS in a timeline format. The Pert chart uses boxes and arrows as a visualization of the tasks. The arrows point to the next task showing, which tasks depend on each other. The Gantt chart uses a horizontal bar graph type of format. Each task has a horizontal bar with a certain length, which signifies the length of time for that task. These are useful when trying to make sure you will make the deadlines the project requires.

VI. Benefits

The project itself was ended due to early termination and lateness on deadlines. However, the learning goals were met after termination. The learning goals helped me to have a better understanding of project management. I also have a better understanding of budgeting and meeting project deadlines. Overall, this project is beneficial for engineering students to go through. It allows students to get an idea of engineering in actual industry.