CS 362 – Computer Design   Group Project   Spring 2024

The semester long group project for CS 362 is worth 30% of your final grade. There are multiple deliverables/milestones that will be due over the course of the semester. While most of the deliverables are the result of group work, some will be individual assignments.

Requirements:

Your group project must be composed of at least 2 people, but no more than 4 people.
- **You are expected to form groups with people who have lab at the same time as yourself! This will make the presentation and demonstration of your project much easier.**
- **If people are in different lab times, the instructor will pick the time for your presentation and demonstration. If some members of your group are not able to attend at your scheduled time, your grade could be lowered!**
- **There will also be time during your lab period when your group can discuss/work on aspects of your project. Your project will most likely suffer if you are in a team that cannot meet during your scheduled lab period.**

Your group project must utilize hardware components based on the number in your group.
- Must use of at least one Arduino (or similar) microcontroller per person in the group. (If group of 3 people, then need to use at least 3 Arduinos.)
- Must utilize at least two different external devices (16x2 display, LEDs, pushbuttons, touch sensors, etc.) per person in the group. (For a group of 3 people, you need to use at least a total of 6 different external devices.)
- Must utilize one different type of external devise per person in the group. (For a group 3 people, you need at least 3 different types of external devices.)

Your project must also utilize some communication mechanism (ethernet, Bluetooth, serial, etc.) between the microcontrollers.

Your project must include some original work! You can find lots of tutorials, how-to's, step by step directions for lots of projects. It is fine to start with these, but some original work MUST be included. If your idea involves original work, but none is implemented, the project will not receive a very good score.
- For example, building a 4x4x4 LED cube (http://www.instructables.com/id/The-4x4x4-LED-cube-Arduino/) is not a great project by itself. But incorporating a Bluetooth to a computer/phone/tablet to allow control of the LED cube is better or using 4x4x4 led cube in a game is even better!

The Ten Milestones to be Delivered:

1. Project Idea(s) - 1 paragraph per idea - **done individually**, posted as a follow-up to the Milestone 1 note on Piazza before 11:59pm on Friday, 1/26/24 (worth 2%)

2. Project Title, Members and Idea post – **done as a group** (2-4 people), posted on Piazza as a follow-up before 11:59pm on Friday, 2/9/24 (worth 2%)

3. Project Contract and Initial Design Document - **done in groups** (2-4 people), posted in Gradescope as a PDF before 11:59 on TUESDAY, 3/5/24. The required sections of the design docement will be specified in the assignment document. (worth 4%)

4. Updated Design Document - **done as a group** (2-4 people), posted as a pdf to Gradescope before 11:59pm on Friday, 3/29/24. Update and EXPAND the document created for Milestone 3. (worth 2%)

5. Slides of Presentation to be used for Milestone 6 are due at 11:59pm on Sunday 4/14/23 – **done as a group**. (worth 2%)

6. Design Presentation of your project at Lab on Week 14, Monday 4/15/24 - **done as a group** (2-4 people), approximately 5 minute showcasing project design including what works and what was challenging. Your group will be scheduled by the course instructors based on the lab times of the members of your group. It is expected that all members of your group will be present. Failure to have all members of your group present will result in a lower score. Thus, you must make sure that if your group has members from different lab sections, ALL members of your group can be present at ALL scheduled lab times. (worth 5%)

7. Critique of the Design Presentation of another group – **done individually**. This will occur during the same lab section when your group gives their own presentation during Lab on Week 14, Monday 4/15/24. This can occur either before or after your group's presentation. (worth 2%)

8. Project Demonstration - **done as a group** (2-4 people), on campus, during Lab on Week 15, Monday 4/22/24. Your group will be scheduled by the course instructors based on the lab times of the members of your group. It is expected that all members of your group will be present. Failure to have all members of your group present will result in a lower score. Thus you must make sure that if your group has members from different lab sections, ALL members of your group can be present at ALL scheduled lab times. (worth 5%)

9. Project Final Report - **done as a group** (2-4 people), no page requirement, but anticipate reports being 15 - 30 pages, want to see pictures, results, problems encounters, how problems were resolved, resources used, etc. Must include a build section that describes everything needed to rebuild your project. Posted as a pdf to Gradescope before 11:59 on Wednesday 4/24/24 (worth 4%)

10. Team Work Assessment - **done individually**, critique of group performance, submitted via web form before Friday 4/26/24 at 11:59pm. (worth 2%)

Note that for the Spring Semester, we may use Engineering Expo 24 to help with the Design Presentations and the Project Demonstrations. Engineering Expo 24 is scheduled on Friday, April 19, 2024. Milestones 5, 6, 7 and 8 may be done as a part of Engineering Expo 24.