

Milestone 4 – Updated Design Document**Due: Friday, 11/8/19 at 11:59pm**

In this document, your group is to expand on the report submitted with Milestone 3. This should reflect the work done so far on the project and flesh out those general ideas included in Milestone 3.

There will be one more Design Document that will be due during the last week of the semester. The expectation of this Final Design Document is that it will include ALL details and information to be able to recreate your project.

Overview:

- Updates Document to show progress on Project
- Should reflect the current state of your Project at a point in time from 11/4/19 to 11/6/19
- Submitted to Gradescope as a PDF before 11:59pm on Friday, 11/8/19
- This is a group project. Only a single document per group.

Submission to Gradescope **MUST INCLUDE THE FOLLOWING:**

- Names, NetId's and Email address of ALL team members
- Name of your project
- Abstract of your project (HARD LIMIT of 100 words or LESS!!!)
- Detailed Project Ideas
 - **7** Required Sections
 1. Overall Description of Project Idea
 2. **UPDATED** Project Design stating how Multiple Arduinos will be used
 3. **UPDATED** Plan for Use and Communication between the multiple Arduinos
 4. **UPDATED** Project Design stating Expected Inputs/Outputs
 5. **UPDATED** Description of the original work being attempted by your project.
 6. **Discussion on how to build your project (think Lab Reports)**
 7. **Discussion on how to your project is to be used (think User Guide)**
 - No limit on size of each section
 - Each section **MUST** be at least a paragraph long (multiple paragraphs preferred)
- **REQUIRED** Supporting Materials
 - **Timeline of Development** given in a week-by-week format **of completed items**
 - **Timeline of Development** given in a week-by-week format **of work still to do**
 - Timeline needs to include Design Presentation on Monday 11/25/19
 - Timeline needs to include Project Demonstration on Monday 12/2/19
 - **UPDATED** List of Materials Expected to be Needed
 - **UPDATED** List of References
 - **UPDATED** Inclusion of one or more diagrams to help identify your project's hardware is **REQUIRED** (diagrams should use Fritzing diagrams)
 - **UPDATED** Inclusion of one or more code sketches to help identify your project's software is **REQUIRED** (should be more "real code" than "pseudo-code")

Hint: write your abstract **AFTER** you write the 3 sections for your Detail Project Ideas.

When submitting to Gradescope, this will be submitted as a Group Project. You will need to specify/select ALL MEMBERS of your group at time of submission. It will be the responsibility of the group to ensure that this is properly done.

Original Requirements for the Project

Must work in groups of at least 2 people, but no more than 4 people. Group project should utilize number people x requirements below (if group of 3 people, then need to use 3 Arduinos and a total of 6 different external devices)

Make use of at least one Arduino (or similar) microcontroller per person in the group.

Utilize at least two different external devices (16x2 display, LEDs, pushbuttons, touch sensors, etc.) per person in the group.

Utilize some communication mechanism (Ethernet, Bluetooth, serial, etc.)

Involve some original work - You can find lots of tutorials, how to's, step by step directions for lots of projects. I am fine with you starting 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 another idea.