# Final Project

[*Submit on Blackboard*](https://blackboard.usc.edu/)

## Goals

* Create a connect device prototype proposal of your own design
* Device should demonstrate mastery of the concepts discussed in the course
* Device should include elements not explicitly covered in class

## Overview

The project is to create a prototype of a connected device. The final submission does not need to be “ready for manufacturing” but it must work and demonstrate the key functioning elements.

will have list of sensors to choose from. Perhaps include budget for students who want to purchase extra components? Minimum number of sensors types to use? Decisions based on multiple sensor states?

Components

* Argon
* Breadboard
* 1 x speaker
* 1 x LED
* 2 x push buttons (plus any necessary resistors)
* Jumper wire (standard male-male)

Project Requirements

* Be design and built by the student solely. Inspiration may be taken from online and other sources, but sources must be cited and final project must be substantially different.
* Use at least two sensors we discussed in class
* Use cloud / internet connectivity in a meaningful way
* Must send data to a cloud system
* Must receive feedback from cloud / online system to produce effects in the physical world
* Build an interface app to enable communication between a user and a device.
* Control a device from an interface app.
* Plan features to account for accessibility.
* Comment your code and follow consistent coding convention
* Your project has to compile and run *(projects that fail to run will receive a 50% penalty)*
* No late submission will be accepted

Possible Project Ideas

## Deliverables

**Proposal – due 4/9/18 at 11:59 pm**

* Write a proposal document with following details:
  + Describe the problem or need you have identified, why you believe it is necessary to address, and how your device would address this need.
  + Describe the target audience
  + List the key features, sensors, interaction patterns (e.g. how will users interact with the device), and internet / cloud platforms
  + Rough budget for how much it would cost to build your device. You should include items in your kit as well as items not in your kit (e.g. building supplies, other sensors, etc.)
* *Note: If you later modify your project from your original proposal, you* ***must*** *submit a revised proposal which describes any changes. Failure to do will lose 10%*

**Project Milestone – in-class 4/18/19** *(please note this is an* ***earlier date than in the syllabus****)*

* Requirements
  + Fritzing diagram

**Project – code due on Blackboard 4/30/19 at 11:59 pm;   
15 min in-person app demonstration TBD (probably 5/1 or 5/3)**sign up on piazza poll

* Final Fritzing diagram
* C++ source code
* Device prototype
* Interface app
* In-person demonstration
* UX testing report
  + You must ask five (5) different people (non-programmers) to use your app to complete at least three (3) tasks.
  + Incorporate any changes they describe into the UI / design.
  + Submit a Word document / PDF describing (with screenshots) what issues they encountered and how you changed it.
  + Report should look clean and professional—see sample reports

**Submission**

* Submit all documents via Blackboard
* Sign up for in-person project demonstration

Required naming convention (replace # with the current assignment number)

* **Project Name** 
  + itp348\_project\_lastname\_firstname
* **Zip File** (include entire project folder)
  + itp348\_project\_lastname\_firstname.zip

## Grading

|  |  |
| --- | --- |
| Item | Points |
| App proposal |  |
| Motivation / Need | **4** |
| Design / wireframes | **4** |
| App description | **4** |
|  |  |
| Project Milestone | **4** |
|  |  |
| Final App |  |
| Minimum four activities | **12** |
| Data persistence | **10** |
| Technology item | **12** |
| Third-party API / web service / REST | **12** |
| App icon and images | **4** |
| Custom adapter with ViewGroup | **5** |
| Design patterns (MVC required; singleton as needed\*) | **5** |
| Design aesthetics | **10** |
| Coding style and organization | **5** |
|  |  |
|  |  |
| UX testing document | **4** |
|  |  |
| Total | 95 |

Acknowledgements

* Thanks to Bill Siever for project format ideas (<https://classes.engineering.wustl.edu/cse222s/schedule/>)