Department of Engineering Technology and Industrial Distribution

ESET 349 Microcontroller Architecture

Final Project Guidelines

Instructions

- The goal of this final project is to use critical thinking skills, ingenuity, and creativity to create a physical prototype design using assembly language and the STM32F401RE microcontroller.
- The schedule for the final project can be found on the course syllabus.
- Final project demos will take place during your designated lab sessions. It is expected that your project is finished and completed in its entirely by the demo date.
- Given that this is an assembly language course, this is the only acceptable language to be used for the final project, as well as the use of an STM32F401RE.
- Teams of **two** can be created for the final project. The final demo/report must be submitted by each individual.
- Given that everyone has had practice and experience using physical components in lab this semester, equipment failure in terms of shorted/damaged components is not a valid excuse.

Options for the Project

For your project, you may choose from one of two categories. This project is designed to be open-ended to encourage creativity, so it is up to the students' discretion how elaborate their final project will be. Note: given the time constraint for the final project, do not be overly ambitious in what you want to achieve. Start out small, and then improve upon your working design.

- Option 1: Interactive Game
- Option 2: Automation

Note: An additional 10% in Extra Credit is available for incorporating any IoT feature into the project.

Grading Structure

Below is a guideline for how the final project will be graded. The grades for Critical Thinking will be based on the innovativeness of your project idea, primarily in terms of technical concepts.

Project Introduction and Report (on Canvas)					Demo (at THOM)	
Introdu-ction	Procedure			Results and Discussion	Critical Thinking	Final Demonstration
	Flowchart	Assembly Program	Circuit / Block Diagram			
5%	10%	5%	5%	25%	10%	40%

Expectations

- Regardless of the project category, all projects should incorporate elements from this course. A physical system (not simulation) is expected for the final demo.
- The project is expected to go beyond just combining different lab programs. You are encouraged to run your project ideas by the TAs for comments on its suitability.
- You are expected to rely on your experience and concepts from the labs to complete the project. The TAs may be able to help but are not required to troubleshoot or fix the problems you face.

Schedule

- The projects are due in the week of Nov 18 - Nov 22.
- Your demonstrations will be evaluated during the regular lab time that week at the same venue.
- Please ensure that your project is working before your demonstration session.
- The lab sessions during the week of Nov 11 – Nov 15 are scheduled for you to work on the project and verify your hardware is functional.