Project 48 – Introduction to Microcontrollers

Meeting Minutes 1

Week of September 16th, 2024

Team 48: Gonzalo Allendes, Tyler Winder, Kaleb Lenfest, Felix Leong

Meeting Minutes

Meeting Sessions

The following table details meetings with our sponsor including the date, start and end time, duration of the meeting, and the goal of the meeting.

Meeting#	Date	Start Time	End TIme	Duration	Goal
1	9/17/24	7:28pm	7:58pm	30 mins	Introduction and Next Steps

Meeting Attendance

The following table details who was present at each sponsor meeting including if any other people were present besides the sponsor.

Meeting #	Leong, Felix	Lenfest, Kaleb	Winder, Tyler	Allendes, Gonzalo	Martin, Bob	Other Attendees
1	x	x	x	x	x	None

Meeting 1

Topics Covered

1. Overview of Project Expectations:
    - Creation of a Microcontroller Lab Course that can blend in with the full fledged Microcontroller Course.
        - Section 1: Arduino Based
        - Section 2: MCC Melody / MPLABX Based
    - Both sections will cover IDE installation and configuration, basic GPIO operation such as LED control and switch reads, serial, I2C, and SPI, and analog to digital conversion.
    - The goal is acquiring student perspective and input to improve the learning experience for course participants.
    - Hardware to be delivered to students during next week
        - Curiosity Nano Explorer Board
        - Curiosity Nano
    - Lab manual needs to document personal problems with performing tasks required for lab instruction

2. Meeting Expectations
    - Meet every other Tuesday at 7:30pm with sponsor on Microsoft Teams starting next week, Sep 24, 2024.
    - Expected to upload lab deliverables in shared OneDrive
    - Meetings to mostly be status updates on progress, struggle points, and other questions, short and sweet

Action Items

The following table details a list of action items resulting from the sponsor meeting.

Action Item	**Assignee**	**Deadline**
Email Sponsor with Shipment Address for Arduino	Tyler Winder	9/20/2024
Meet with Microchip Representative (Enrique) on Campus	Tyler Winder	9/27/2024

Action Item Details

Meet with Microchip Representative (Enrique): Larger boards will be delivered through the company emissary by hand, someone from the team will be needed to meet this representative in person.

Additional Notes

Two part project scope

- Section 1 - Arduino
- Section 2 - MCC melody / MPLAB X based

Not meant to extensive for microcontrollers

- Lab course, part of the full course.
- Goal: student's perspectives on how hard or easy some topics are to pick up
    - What can we do to make microcontrollers easier to learn
- Sponsor background: develop university courses, on academic board

Start with Arduino

- Popular, easy to learn basic concepts
- Transfer knowledge to MPLAB X IDE
- Arduino abstracts a lot of complexity from lower level

Depends of release, may include MCC melody plugin extensions for Visual Studio Code

- Decision around Christmas time

Required hardware: Curiosity Nano Explorer Board REV3

- Delivered by next week to all capstone members
- Lots of pluggable features (switches, RGB, volume control,...)
- Purpose: one stop education system
- Utilize a shorter version of AVR64DD32 Curiosity Nano
- Onboard programmable debugger, load code
- **For future meeting: how to use the debugger in future meeting**
- Self paced learning for course development, ramp up development speed as understanding deepens

Meeting Expectations

- Meet about every 2 weeks
- **Potentially meet next week: walkthrough Arduino IDE 2.0 version (2.32)**
    - **Needs to be documented into lab manual**
    - Walkthrough how to install microcontroller, GPIO
    - Needs installation of core library to support Curiosity
    - Additional features and more memory than regular Arduino
    - Capture in lab manual: detail what went wrong, how did you recover, how did you resolve the issue
- **Requires a single shipment address (action item)**
    - Document needs to be signed (export restriction rules) and returned (one time)
- Curiosity manuals hand delivered
    - Need to be connected with lead manager at main facility
- Expected invite: share documents and software, all open source
    - Deliverables uploaded to internal academic site
- No preference about software used to create documentation: **using Google Docs**
    - Need to update on OneDrive
    - Small project, may not need GitHub (it gits in the way)
    - Expectation: upload to OneDrive is easier, zip files
- **Meetings going forward: Tuesday 7:30pm PDT**
    - **All meetings recorded going forward**
    - **Meetings are 1 hour max**
    - Discuss problems in short manner
    - **Meetings uploaded to the OneDrive**
- **Deliverable next week due (setting up the IDE and microcontroller)**
- Focus on balance of text, diagrams, pictures, and code snippets and generate highest amount of understanding
    - Goal: minimize text content