Project 6: Semester Project – Final submission

Final Report – PDF

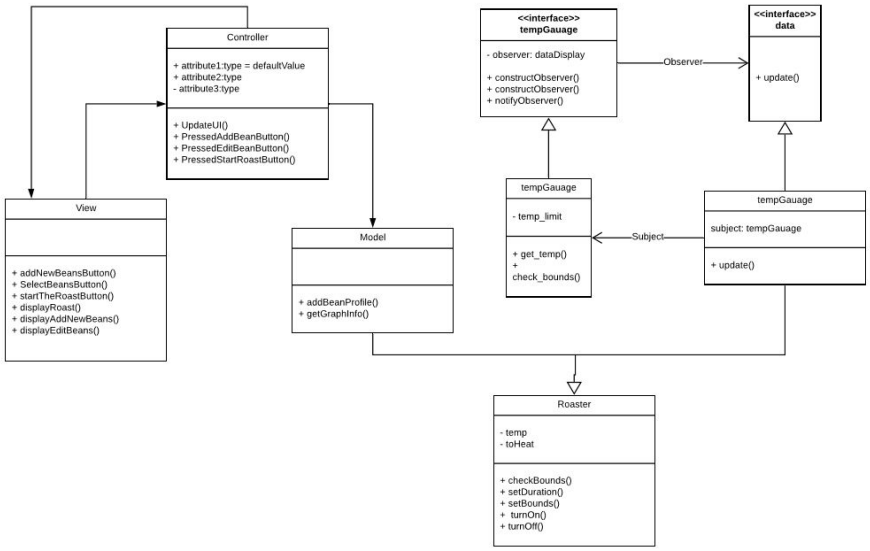
Joshua Achorn

Brian Satchel

Dennis Lim

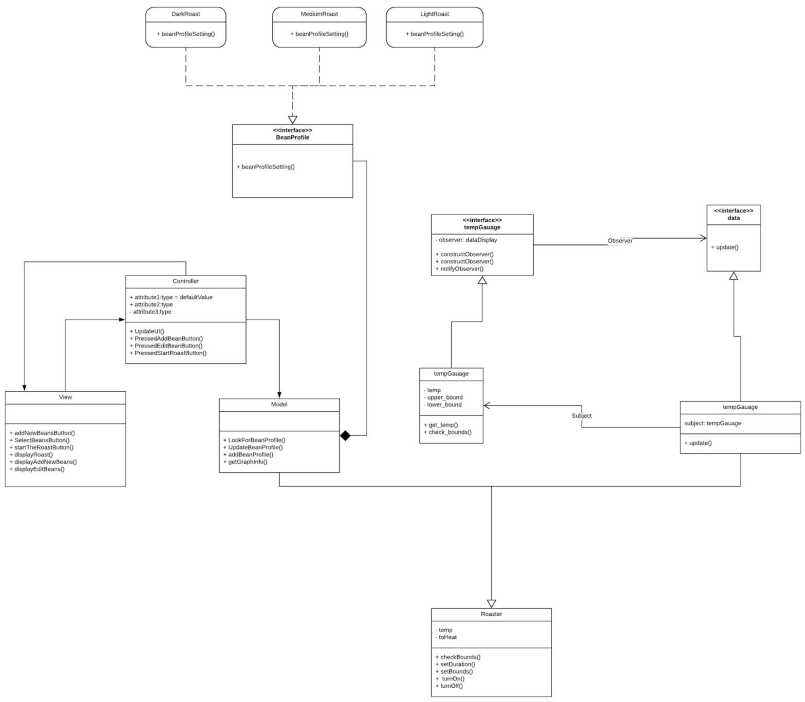
Coffee roaster (simulation)

- Final State of System Statement
    - Document the final state of your system, what features were implemented, what features were not and why
        - Our project became a two part System: hardware and software that doesn't connect with each other.
        - Hardware
            - Two arduino controlled Thermocouples that read the temperature inside the chamber where the beans are roasted, and outside the chamber that is able to read the environmental temp.
            - Heating element that is controlled by a solid state relay which is controlled by the arduino.
            - We were able to get the temperature sensors, and heat control working (with third party software such as Artisan). However, near the end, without in person help or in person group work, it was becoming increasingly difficult to figure out the arduino code that controlled heat and fan temp for us to connect to the coffee roaster, so we made a coffee roasting simulation instead. Our software includes PyQt, a windows application software that uses python.
        - Software
            - Pyqt
- Final Class Diagram and Comparison Statement
    - **A thorough UML class diagram with your final set of classes and key relationships of the system**
        - Project 6 UML Diagram



- Highlight and document in that diagram any patterns that were included (in whole or part) in your design

- **Include the class diagram submitted in Project 4, and use it (and optionally the class diagram from Project 5), to show what changed in your system up to the final submission**
  - Project 4 UML



- **Support these diagrams with a written statement identifying key changes in your system since your design was submitted in Projects 4 and 5**
    - The main changes to the UML diagram were the loss of the factory diagram because of the interface problems we ran into connecting the code to the coffee roaster. Due to the time constraints from troubleshooting the factory pattern was replaced with a manual controller option in the UI Third-Party code vs. Original code Statement
    - A clear statement of what code in the project is original vs. what code you used from other sources – whether tools, frameworks, tutorials, or examples – this must be present even if you used NO third-party code - include the sources (URLs) for your third-party elements
        - documentation of pyqtgraph: https://www.learnpyqt.com/courses/graphics-plotting/plotting-pyqtgraph/ used to help understand graph functionality and make the graph
        - used these tutorial to help create so of the UI and understand the functionality: https://doc.qt.io/qtforpython/tutorials/index.html

- Statement on the OOAD process for your overall Semester Project
    - List three key design process elements or issues (positive or negative) that your team experienced in analysis and design of the OO semester project
        - It was really hard to get the UI and hardware connect because COVID-19 made it hard because not everyone had the hardware

- We weren't able to create a prototype to connect to the hardware so we created a simulation instead
- Because there was no prototype there was no testing and we couldn't refine the code past the alpha stage.

Code Submission – GitHub Repository URL with Complete Semester Project System

- Code should be well structured and documented with appropriate comments.
- Uses of OO Patterns or other design principles should be noted in the code.
- No work should be done on the project repo after it is submitted.
- Include a README Markdown file with the names of team members and any special instructions to run the code (graders may request assistance from you during code review)

Demonstration – In person demonstration of the final system to Manjunath or Dr. Montgomery – approx. 15 minutes

- In your demonstration, you should list and demonstrate your system's primary functions
- You will be asked (at a minimum)
  - Which team members were responsible for which project elements
  - What technologies, languages, or tools are in use
  - To reflect on anything that was particularly difficult or anything you would have done differently
- Demonstration plans/signup slots will be finalized and published online. All demonstrations will be done remotely over Zoom. Ideally, all team members should participate in demonstrations.
- You do have the option of presenting a video demonstration of your project. If you do, please provide the demonstration and answer the questions listed above.
- You will be assessed during the demo on the quality of the project delivery and on your demonstrated understanding of your project

Grading Rubric

Your team's project will be **due on Monday 4/27 at noon**. **THERE WILL BE NO EXTENSIONS GIVEN** due to the demonstration and grading schedules. Late submissions for this project have no late penalty, however the project **will not be accepted** after the hard deadline of Wednesday 4/29 at noon.

The point breakdown of this assignment is as follows:

Section	**Points**	**Comments**
Final Report PDF	50	Title, Names, Four Statements with UML Class Diagrams
Code Submission	50	Repo with Code and README
Demonstration	25	With Manjunath or Bruce at scheduled time, possible extra credit awards (5, 10, 20 points)
Total	125	