

Multi-Threading II

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Administrivia

- Attendance <http://tinyurl.com/uwigem/attendance/>
- Pacman Project grades will be released eventually
- Project survey out soon, fill it out once you get your grade
- Opportunity to tell me if you feel like you didn't get the grade you deserved

Agenda

- Software projects
- Software subteams
- Thread review
 - No new content, hopefully new content on Thursday

Software Team Projects

- Chromastat Overhaul
- DAWGMA Arduino Project
- Outreach Video Game

Chromastat Overhaul

- A machine to autonomously regulate a cell culture based on the production of colored pigment
 - Giving the culture media (food), removing waste, and heating it
 - Mixing the culture and aerating it
 - Measure the color of the culture
 - Make decisions about how to change the culture based on that input

Chromastat (cont.)

- Where it's at now
 - William already got a head start
 - <https://www.youtube.com/watch?v=dCFdJ-A9cic&feature=youtu.be>
 - Pumps can be manually controlled
 - Multithreading partially implemented
- What we need to do
 - Implement the control loop
 - Test it to make sure it actually works well

DAWGMA Arduino Project

- Replicating the “Mantis” iGEM 2017 project
 - http://2017.igem.org/Team:Wageningen_UR/Hardware
- Sensing fluorescence in a yeast cell culture
 - Shoot UV light in, measure change in visible spectrum light
 - Two control samples for 0% and 100%, and one test sample



DAWGMA (cont.)

- Where it's at now
 - Arduino has some code to read from a light sensor
 - 3D printed box with a light sensor and source of illumination
- Results so far
 - Not very accurate, trying to diagnose why

Outreach Video Game

- Create a video game that teaches the player about biology or synthetic biology through gameplay
- Goals
 - Make it fun to play
 - Game mechanics highlight the science
 - i.e. No walls of text in between unrelated gameplay
 - Accessible for the target demographic

Video Game (cont.)

- Nobody has started development on this
- But, tons of freedom and very little time constraint
- I have some ideas, and we can start brainstorming

Software Subteam Leadership

- I'll have less time to spend on iGEM over the summer
- We have three teams that each will need their own leads or co-leads

Subteam Leadership

- What a (co)lead's job *is*
 - Figure out where the project needs to go
 - Do research about the viability of these directions
 - Organize what tasks need to be done so they can be easily taken on
 - Talking to each of the team members about what tasks they plan on doing
- What a (co)lead's job *is not*
 - Doing most of the work
 - Not doing any of the “normal” work

Thread Review

- True or False?
 - Multi-threading depends on having multiple cores
 - A core is a physical component
 - With multiple cores, multiple threads can be executed at the same time
 - Java programs can be multi-threaded without changing the code

Handling Multiple Tasks

- Credit to the CSE333 staff for the inspiration here

Test

- Test

Hello, there!

```
int main() {  
    // Code goes here  
}
```