Date: 12/07/2019

In Attendance
Federica
Michael
Thomas
Sam
Arman
Kassandra (called in)
Brooks
Sophie (called in)

Announcements
Engineering
- Engineers talk about the plate reader from 2017, and had questions to answer
- Skype call with Caleb, access to 2017 drive, and the wiki. The wiki had little information for help
- Shopping list for engineers with mist items already arrived. Bought an expensive photodiode(sensors) to compare it with the cheap photodiode(sensors)
• Iforge access has been given, first meeting on Monday where the circuit boards will be printed. Alternatively
• PCB will be used to print the circuits and save time (manual assembling) as well as save loads of money of outsourcing the assembly
• Designs for the circuit board for a 48 well plate has already been made/simulated by Sam
• Software heavy if we employ the motor, so much coding. Also we would need to buy some of the chassis for the motor or make it from the iFORGE. This is a new idea from Caleb (Igem 2017 group member) so the engineers had not gotten too much thought into it. The transcript from the skype call with caleb is on the weekly progress folder on the google drive and is named “Agenda-meeting with Caleb”.
• Caleb thinks the IOT part is hard but is the most beneficial/coolest parts
• Email to Ryan Jones (Head of teaching in iFORGE) requesting supervision in the Iforge on Monday from 1pm, and the iFORGE in-person training will be done even though the engineers have already done the online training. On Monday the engineers will check if items can be printed
• 2 free plate readers were ordered, as suggested by Caleb, and would be delivered to early Perak next week
• Caleb suggested staff members rom CS and CICS should be contacted for help in IOT is needed
• Brooks has looked at a lot of hardware and software work
• Brooks knows of Denver Biolabs (a place that makes DIY projects eg optical density)
• The Engineering bit for the Algae project is very difficult as they are limited to the resources and skills available
• We will need lots of PI help

Admin

• Federica started working on collecting media for the Crowdfunding
• Rob Howell is sorting 2000 pounds from the Engineering Department (Monday)
• Tickets to USA is bought
• Federica talking to expenses team, so she can use finances to collect merch for crowdfunding
• Federica needs to see how much we spent on lab consumables
• Checking a new business plan to see if we can get a ticket for Sophie
• Insurance forms need to be filled in ASAP – Federica will send the link to this on the group
• Engineering Shopping list is done with and without VAT (A)
• iGEM inspiration and summary updated in the wiki
• Risk Assessment Forms for the Lab have been signed (except for Brooks)
• Safety forms have been updated
• Sophie made the OpenLux logo

Biology

• Met Mel and Sarah who gave everyone an introduction to the labs and our designated bench
• Dr Gilmore loved the idea
• Meeting with Dimitris that gave us the idea of focus on the plate reader with algae on side
• Looked at papers to understand how plate readers work
• Read papers on the Cambridge 2016 – Hard to transform Chlamy but optimized only
• July 7 – DNA will arrive
• Switzerland company – Using Different strains of Algae to transform them. The company stated that it is nearly impossible to complete this in the given time period (6 months)
• Sophie did research on the Cambridge wiki
• o Found info of using gene for a different organism
• Cambridge is a CRISPR CAS 9 system – for one gene, and another process for another part
• Maybe we should try the Cambridge system and input it into our Chlammy and see what happens
• We should probably work mainly for the Gold for the plate reader and then put the algae project for the long run

Answered Questions

Engineering

• How does the sensors work(fede)- Engineers explained that sensors detect the light passing through, and converts light intensity to voltage. The expensive sensors will be used for the initial test before being switched by cheap sensor. The circuit could also use a motor but this is more complicated
• Would it more expensive if we buy the expensive sensor(sophie)- yes (sam, arman and Thomas agree), but we are also getting the 96 shit sensors
• Would the data be transferred automatically via wifi (sophie)? Yes, unlike conventional plate readers, there will be no manual transfer of results. Also, the data comes live and you could go home and get data the next day
• What if the 96 shit sensors do not work like the 1 good sensor(Michael)? We may have to switch to the motor strategy. Nonetheless, the 96 sensors will be of lower quality
• What other parts are needed and when can we start work(fede)? Monday in the iFORGE, most needed parts have come already and only the wifi part has come.
• The CAD files (Michael)? The format if the files are read only and cannot be edited. Also the original files are with Emily Ingham. However, we may not need to communicate with her if the engineers can build their own CAD files

Delegated Tasks

• Get Brooks iGEM trained
• Engineers should test sensors, WIFI and other parts of the circuits
• Work on the LED matrix
• Ordering boards
• Connect IOT board and test it
• Print 3D moulds in iForge
• Have a map of how the gene in the algae/cyanobacteria
• Check purposes of the plate reader and how to apply the plate reader
• Look for strains of bacteria to test it on
• Make samples for engineers to test
• Look for a model the sensor data

Next Meeting
19/07/19