EE/CprE/SE 491 WEEKLY REPORT 2

Start Date 2/11/2019**– End Date** 2/17/2019

Group number: sddec19-07

Project title: Rapid detection of Fentanyl using a multifunction nanostructured

Client & Advisor: Meng Lu

Team Members/Role:

Yifu Zhang - Stationary phase fabrication group
Zheyuan Tang - Stationary phase fabrication group
Hao Wang - Testing group
Ugerah Abalu - Testing group
Kossi Egla - Instrumentation group
Olouwole Eteka - Instrumentation group

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o **Weekly Summary**

We held our weekly group meeting with our project advisor/client. Each subgroup got the keys for entering the lab. In addition, we did our first experiment. Our first experiment is about the “Paper chromatography test”. This test would help us get a better understanding how the chromatography process works. From our first trial, we weren’t able to completely separate the mixture dye on our paper. In future experiments, we will use a different chromatography paper and solvent to try improve on our initial results.

o **Past week accomplishments**

Yifu Zhang

1. Read the paper about the working principle for Biosensor, and its simple fabrication process.
2. Attended the weekly group meeting and ask the question about confusing part during the meeting with the advisor.
3. Work on the team reflection assignment 1, contribute the idea to setting the role to each team member.
4. Take the online safety training course for accessing to chemical lab

Hao Wang

1. Watched the introduction video about thin layer Chromatography.
2. Read through the paper " Ultrathin-layer chromatography on SiO2, Al2O3,TiO2,and ZrO2 nanostructured thin films.
3. Contact with team members and arrange time for meeting.
4. Take the safety training online course for accessing to the lab

Zheyuan Tang

1. Read the relative paper about chromatography experiment (Wannenmacher, Julia, et al. "Ultrathin-layer chromatography on SiO2, Al2O3, TiO2, and ZrO2 nanostructured thin films." Journal of Chromatography A 1318 (2013): 234-243.)
2. Read the review paper about glancing angle deposition fabrication process.(Taschuk, Michael T., Matthew M. Hawkeye, and Michael J. Brett. "Glancing angle deposition." *Handbook of Deposition Technologies for Films and Coatings (Third Edition)*. 2010. 621-678.)
3. Communicate with team members and talk about the detail of project plan.
4. Take the online safety training course for accessing to chemical lab

Ugerah Abalu

1. Read the review paper given by the advisor to get a good general overview of the project.
2. Took the online safety training courses(lab safety, emergency procedures and fire extinguisher) required for lab work
3. Obtained key request form to start the process of getting physical key access to the laboratory we will be working in

Kossi Egla

1. Meet with team to create group
2. Go get the access form for the lab we are going to work in
3. Meet with the professor Meng Lu to discuss about general idea about the project
4. Take the online safety training course for accessing to chemical lab

Olouwole Eteka

1. Take the safety training and request the access to the chemical lab.
2. Learn about the "Thin layer chromatography" process.
3. Get more information from the advisor/client by asking questions at the meeting

o **Pending issues**

Team - The chromatography experiment did not produce the most ideal results. From the test, three different dye samples moving in same speed. The component of mixture dye isn't totally separating. We would begin experimenting with a different chromatography paper next week and try to use a different solvent, other than ethanol, to see if we would get better results

Group 3 instrumentation: Kossi Egla, Olouwole Eteka
We are still deciding on what microcontroller to use for initializing the Thin Layer Chromatography paper

o **Individual contributions**

NAME	Individual Contributions	Hours this week	Hours cumulative
Hao Wang	1.Did the chromatography test and learned the principle of chromatography test 2.Start working on the project plan 3. Communicate with the group	5	11
Zheyuan Tang	1. Did the paper chromatography test 2. Learnt the basic principle of chromatography	6	12
Ugerah Abalu	1. Did the chromatography paper test 2. Started researching possible seal materials to cover the beaker and prevent solvent vaporization.	6	12

Yifu Zhang	1.Did the chromatography test and learnt the working principle for the chromatography, 2.Started work on the project plan	6	12
Kossi Egla	1.Went to the lab this week and tried try the chromatography kits. 2. Tried to the detect the speed of each solvent by putting it on the chromatography paper as a dot point and dip a part of the chromatography paper in the ethanol liquid(solvent).	6	12
Olouwole Eteka	1.Tried out the chromatography kits to understand how it functions . 2. went to the general service building to pick up the lab access key	6	12

o **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)?, Who will contribute to it? Be as concise as possible.)*

Group 1 Fabrication:Zheyuan Tang, Yifu Zhang:

We will try different type of chromatography paper, to see if different material of stationary phase can change the speed of each dye samples.

Group 2 Sample Test: Hao Wang,Ugerah Abalu:

We will get a seal to use to cover the solvent in the beaker. This will be done to try to avoid the vaporization and loss of solvent during the experiment.

Group 3 Instrumentation: Kossi Egla, Olouwole Eteka:
We will discuss the results of our chromatography experience with the professor. We will order a arduino kit with an arduino camera to setup and use in monitoring the chromatography experiments.