EE/CprE/SE 491 WEEKLY REPORT 3

Start Date 2/18/2019 – End Date 03/01/2019

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**

The team was focused on the chromatography resolution improvement, researched the principle of the chromatography, also tried to figure out the fittable paper materials and appropriate concentration of solvent to make the separated resolution more obvious. In addition, the team worked on the project plan which is due on Thursday this week.

o **Past week accomplishments**

Yifu Zhang

1. Did the chromatography test and learnt the working principle for the chromatography.

2. Started work on the project plan.

Hao Wang

1.Did the chromatography paper test
2. Working on the project
3. Try to find out what's the reason influenced the chromatography test.
4.did the chromatography using Hexane solvent

Zheyuan Tang

1. Did the chromatography paper test
2. Started researching possible seal materials to cover the beaker and prevent solvent vaporization.
3. Think about how to improve the chromatography resolution.

Ugerah Abalu

Kossi Egla

1. Did the chromatography experiment
2. Find solution for better result with the chromatography result
3. Meet with Dr Meng and discussed about next step

Olouwole Eteka

1. Worked on the graph to summarize the procedure in the instrumentation part of our project.

2. Worked on the section 2 of our project plan.

3. Helped with the chromatography experiment.

o **Pending issues**

Team - Though the dye sample was separated through paper chromatography, the final separated components were not shown as dot. We expect the dye components can be separated to dot so that they will cover each other.

Group 3 instrumentation: Kossi Egla, Olouwole Eteka
We are deciding on the what microcontroller to use and what camera will be compatible with it.

o **Individual contributions**

NAME	Individual Contributions	Hours this week	Hours cumulative
Hao Wang	1. Working on the project plan. 2. Think about how to improve the chromatography test according to paper and online information. 3. Working on the chromatography using the hexane	6	18
Zheyuan Tang	1. Researched the principle of chromatography resolution improvement. 2. Improved the chromatography resolution 3. Working on project plan	6	18
Ugerah Abalu	1. Worked on project timeline and resources section of project plan 2.	6	18
Yifu Zhang	1.Ran new experiments with different chromatography paper to try and get better results 2. Get familiar with the principle of the chromatography, include which type of material and solvent are fit to our project 3. Working on the project	6	18

Kossi Egla	1. Did the chromatography experiment 2. Tried to get the best result from the chromatography by using new techniques 3. Met with Dr Meng to talk about the next step of the project	6	18
Olouwole Eteka	1. Worked on the sample chromatography paper 2. Making decision on the microcontroller to buy 3. Worked on the project plan	6	18

o **Plans for the upcoming week**

Group 1 Fabrication:Zheyuan Tang, Yifu Zhang:
We will continue to improve the resolution of chromatography by modulate the concentration of solvent and the volume control on dye sample. In addition, we will focus on the glancing angle deposition in MRC if solve the problem earlier.

Group 2 Sample Test: Hao Wang,Ugerah Abalu:
We will continue to do the chromatography test until we can get a better separation. Next week we will try changing the concentration of the solvent and changing the stationary phase.

Group 3 Instrumentation: Kossi Egla, Olouwole Eteka:
We will hopefully have our microcontroller and camera ready so we can start working on the coding part. We might also need to do some documentation to find the code-library of our camera module.