

EE/CprE/SE 492 BIWEEKLY REPORT 6

Start Date 11/18/2019 – End Date 11/24/2019

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

o Weekly Summary

In this week, Two of the sub-groups(instrument & Fabrication) are trying to make out the first version of our project. We have done the first version of protopype as well as the photonic sensor. After testing on each part, we found that the flow rate of the sample and the size of the protopype still needs to be improved so that can be perfectly combined together.

o Past week accomplishments

Yifu Zhang

Try to help with chromatography experiment with new chromatography plate.

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Zheyuan Tang

Doing the BOE process of the sample

Ugerah Abalu

Helped with the BOE etching of the silicon dioxide sample to increase porosity

Kossi Eglá

Worked on the 3D prototype of the project

Olouwole Eteka:

Worked on the sizing and dthe 3D implementation of the prototype

Hao Wang

Test the sample with the prototype and try to adjust the sample size to be perfectly fitted into the prototype.

o **Pending issues**

Instrumentation (kossi Eglu, Oluwole Eteka):

The size of the prototype need to be changed. It needs to be reduced to fit the photonic sensor.

Fabrication & testing (yifu zhang, zheyuan tang, Ugerah Abalu, Hao Wang):

The flow rate of the solvent still needs to be improved.

o **Individual contributions**

NAME	Individual Contributions	Hours this week	Hours cumulative
Hao Wang	1. Test the sample with the prototype and try to adjust the sample size to be perfectly fitted into the prototype.	5	86
Zheyuan Tang	1. Doing the BOE process for the sample	6	87
Ugerah Abalu	1. Helped with 3D prototype. 2. Worked in lab with BOE process	5	81

Yifu Zhang	1. Bought new chemical and make the solvent for the future chemical experiment.	8	96
Kossi Eglá	1. Work on how to send data from the ESP 32 to a cloud system 2. Work on getting the first 3D prototype for the project	8	81
Olouwole Eteka	1. Worked on the solidworks of the design 2. Got our first body prototype from the 3D machine shop	8	81

o Plans for the upcoming week

Instrumentation (kossi Eglá, Olouwole Eteka):

There are some modifications to be done on the size of the 3D model. The height needs to be adjusted to fit the photonic sensor and also our advisor wants the cut for the solvent container needs to be inside the box.

Fabrication & Testing(Hao Wang, Zheyuan Tang, Yifu Zhang, Ugerah Abalu):

The Phd student will help us to make a more porous sample so that would improve the flow rate of the sample, and we will combine it with the prototype to see if it works well.

