

## **EE/CprE/SE 492 BIWEEKLY REPORT 4**

**Start Date 09/26/2019 – End Date 10/24/2019**

**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

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### **o Weekly Summary**

This week we made a lot of advancements with the ESP 32 CAM. We are now able to take pictures using this camera. We will now work on being able to modify the code to be able to take pictures continuously within a certain time frame and store them

**o Past week accomplishments**

**Yifu Zhang**

Get the new sample, and familiarize with with how to use the setup.

**Zheyuan Tang**

Test the peak value of photonic crystal sample through transmission set up.

**Ugerah Abalu**

Ran light reflection tests on the photonic crystal sample

**Kossi Eglá , Olouwole Eteka:**

Worked with the ESP32 camera to get it setup to take pictures

**Hao Wang**

Did the light reflection experiment with the non-deposited sample

o **Pending issues**

**Instrumentation (kossi Eglu, Olouwole Eteka):**

We need to create a user interface button in the software for the ESP32 camera to be able to take pictures of our setup within a certain timeframe i.e every 5 seconds

**Fabrication (yifu zhang, zheyuan tang):**

Next week, we will move on to light reflection testing with a liquid sample such as dye is dropped on the photonic crystal

o **Individual contributions**

NAME	Individual Contributions	Hours this week	Hours cumulative
Hao Wang	1. Performed the light reflection experiment with the deposited sample	4	76
Zheyuan Tang	1. Test the peak value of deposited photonic crystal sample through transmission set up.	2	74
Ugerah Abalu	1. Continued running light reflection experiments 2. Carried out measurements to determine reasonable distance from light source to	6	72

	polarizer and the light source to the photonic crystal		
Yifu Zhang	1.Worked with PhD students to get more training on how to use the light reflection setup when performing experiments 2.Performed the light detection experiment on the photonic crystal sample	8	80
Kossi Eglá	1. Successfully make the camera works and try to figure out the distance at which the camera can focus better on an image. 2. Working on the final prototype in solidwork	8	48
Olouwole Eteka	1. Figure out the distance of focus of the camera 2. Working on the 3D view of the prototype	6	48

o **Plans for the upcoming week**

**Instrumentation (kossi Eglá, Olouwole Eteka):**

We will be working on the code to create a user interface that will automatically take pictures and also the 3D design of the prototype

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

Get further test about the sample on light reflection, and determine which material and size will be the best choice for our prototype.