
EE 492 WEEKLY REPORT 4

Date: 1/30/17-2/3/17

Group number: 1721

Project title: Glucose detection using a disposable nanosensor

Client &/Advisor: Prof. Que

Team Members/Role: Shir Linn Tan (Team Leader)

Wai Han Kong (Team Communication Leader)

Dalton Strauser (Team Key concept holder)

XiongSheng Yi (Team Webmaster)

(All the above information should be there in each weekly report. The format/color scheme etc need not be the same.)

○ **Weekly Summary (Short summary about what you did this week)**

For this week, we met with the PhD student again, he introduced us the process of fabrication of AAO (Anodic Aluminum Oxide).

Past week accomplishments (please describe as what was done, by whom, when)

Meet with professor's PhD student. Learn the system setup and how it works.

○ **Pending issues (if applicable)**

- Shi Linn Tan: Learn and understand each step of the fabrication process of AAO.
- Wai Han Kong: Learn and understand each step of the fabrication process of AAO
- Dalton Strauser: Learn and understand each step of the fabrication process of AAO.
- XiongSheng Yi: Learn and understand each step of the fabrication process of AAO.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Tan Shir Linn	Meeting with PhD student, learn and understand each step of the fabrication process of AAO.	2	7
Wai Han Kong	Meeting with PhD student, learn and understand each step of the fabrication process of AAO.	2	7
Dalton Strauser	Meeting with PhD student, learn and understand each step of the fabrication process of AAO.	2	7
XiongSheng Yi	Meeting with PhD student, learn and understand each step of the fabrication process of AAO.	2	7

○ **Comments and extended discussion**

The fabrication process of AAO:

- a. Start with a bare fisherfinest premium clipped corner microscope slides. The area is 75mm x 25mm.
- b. Wipes with clean paper towel, blow it with Nitrogen gas. The purpose for this step is that dried by Nitrogen gas to remove any dust particles and smoothen the fabrication process. This step takes approximately 30 min.
- c. Deposit Titanium (20um) by using E-beam for 6 hours approximately.
- d. Then, deposit Aluminium (2um) by using E-beam for 2 hours approximately. The reason why deposit Ti before Al is that Al can stick better on the fabricate surface.
- e. Submerge in acidic solution for 30 min, which is by anodization in sulfuric acid solution with glycol. Then the layer of AAO formed.
- f. Using sputtering process to deposit gold (Au) for 2 hours. The reason why use gold is that glucose molecules can attach on surface.

○ **Plan for coming week (please describe as what, who, when)**

- Shir Linn Tan: Glucose solutions testing for different concentrations in the lab.
- Wai Han Kong: Glucose solutions testing for different concentrations in the lab.
- Dalton Strauser: Glucose solutions testing for different concentrations in the lab.
- XiongSheng Yi: Glucose solutions testing for different concentrations in the lab.

- **Summary of weekly advisor meeting (if applicable/optional)**

No advisor meeting but his PhD student meeting. He introduced and explained each step of AAO fabrication. It took us a while to understand what each step does and why these steps setup. We also had several meetings with our group members only to discuss about the AAO fabrication process.