# Senior Design 492 Biweekly Report 3

Date : 2/22/2018

Project title : Patch-clamp microchip testing circuit interface

Client & advisor : Que Long

Team member & Roles :

- ---- Chenhang Xu team communication leader
- ---- Daiyuan Ding team webmaster
- ---- Li Qian team leader & time keeper
- ---- Ningyuan Zhang team programmer
- ---- Yigao Li team test leader

#### Weekly summary :

Have the biweekly meeting meeting with advisor and graduate students. Discuss the process of our project. The electric noise has been reduced by using the electrode cap. Working on the design of microchip and the experiments under the microscope. And find out some improvements of the new microchip.

Member name	Accomplishments	
Chenhang Xu	Meeting with the graduate student. Using the right electrode cap to avoid the electric noise. For we are using the old microchip, we need to plug the electrode and input the air in the same place. Hard to catch the cell without using the air to push the cell to the electrode.	
Daiyuan Ding	Regular meet with graduate student. Using the old microchip to test the electrode cap. Try to catch the cell with the air pushing. Discussed about the new microchip.	
Li Qian	Have the biweekly meeting with graduate student, and use the old microchip to add the air into cell flow channel and catch the cell use the electrode.Get some suggestions about the new microchip.	
Ningyuan Zhang	Met with assistant graduate student and discussed the new designed microchip model. Tested the	

#### Past Week Accomplishments

	electrode cap to avoid electric room noise. Was finding the new way to catch the neuron in new microchip model.	
Yigao Li	Meet with graduate student and discussed about the new designed microchip. Because we use the old microchips, we need to insert the electrodes and bring the air into the same place. It is difficul to capture cells without using air to push the cells into the electrodes.	

# Pending issues

Member name	Accomplishments	
Chenhang Xu	Apply the voltage to the electrode, which can attract the living cell. In order to make sure the cell is still living in the solution. We need to use different voltage and test serval time to get the right voltage.	
Daiyuan Ding	Working on the new design of the microchip and the ways to catch the cells and keep them alive when in the solutions.	
Li Qian	Still working on the design of how to improve the microchip and trying to catch the cell, in order to get some Find other ways to reduce the noise in the room.	
Ningyuan Zhang	Needed to try new voltage circuit that will apply custom voltage to neuron. Needed to set up the electrode cap correctly.	
Yigao Li	Thinking about how to layout a new circuit which is used to chat the cells and keep them living at the same time.	

## Individual contribute

Name	Individual Contributions	Hours these 2 weeks	Hours Cumulative
Chenhang Xu	Do the test on our whole equipment. We did not get the result for the first few times. For we are not familiar with the steps and the volume of the electrode is larger than the volume of the cell. The cell is soon replaced by the electrode. In this case, we cannot get the right plot.	8	22
Daiyuan Ding	Regular meet with graduate student. Using the old microchip to test the electrode cap. During the test, we find that it's impossible to catch the cell with the old microchip. Discussed about the design of the new microchip.	8	22
Li Qian	Have the biweekly meeting with graduate student, and use the old microchip to add the air into cell flow channel and catch the cell use the electrode.Get some suggestions about the new microchip. Start to work on the design of new microchip.	9	28
Ningyuan Zhang	Tested the 1st designed circuit of custom voltage applier. Tested	8	22

	the electrode cap. Had regular group meeting with teammates and assistant graduate students.		
Yigao Li	Meeting with graduate students and use the old microchip to add the air into cell flow channel and using electrode to catch cell.	8	22

# Comments and Extended Discussion

N/A

### **Plan for Coming Week**

For the next week, we will use microchip to add the air into cell flow channel and catch the cell use the electrode In order to catch the cell, we still need to read some document relate to it. We need to finish the design of our new microchip as soon as possible. Also need to find out the most efficient way of reducing noise.

### Summary of Weekly Advisor Meeting

Discuss the process we have got and ask some questions in the fields of bioengineering according to catch the cell and use the microscope. Get some suggestions of improvements of the microschip.