

EE / CprE / SE 492

**Project title: Small-Form-Factor Solar-Powered Self-Sustainable IoT Sensors with
Long-Range Wireless Communication**

Feb 13 - Feb 27

Group number: 7

Client &/Advisor: Dr. Cheng Huang and Dr. Meng Lu

Team Members and roles:

Calvin Condo - Solar Power

Qin Xia - Sensors

Chuxin Chen - Arduino / Sensors

Lun Zhang - Testing/Sensors

Yuchen Zhao - LoRa Wireless module/Arduino

Luke Healy- Testing/Sensors

Where we left off:

Our previous weekly report covered the planning involved for this semester and the main components of our project. We left off by compiling an order for our new components and ordering them. We also prepared for our lab test, where we will determine the right light sensor to use for our project.

Bi-Weekly Summary:

This week was all about execution. For our lab test, we needed to create a small prototype array of just the light sensors. We did this by soldering 4 of our light sensors to a perfboard, so when it came time to test in the lab, we just needed to wire it up to an Arduino. The lab test has been delayed due to expired chemicals (they would not emit the reaction we desired), but the test will happen on February 27th and will be covered in the next report.

The power aspect of our project has been difficult to figure out, as we do not have much experience with the power of a device and solar power alone. However, after much research and some help from ETG we were able to come up with a circuit and parts. We will put in another order by tomorrow to begin testing those parts individually. As we finish up testing on all the

components, we are getting further on putting them all together. We have finished a preliminary PCB design that we will present to our advisors on February 28th. Once we have reviewed it, we will put in an order for it and test its functionality.

Pending Issues:

As we finish up the core of our project, we still need to worry about its housing. The case has to be suited for outdoor weather while also enabling the sensors to make readings. We are currently researching what type of materials will be best suited for the case and materials for the sensor “openings” (e.g. a type of membrane).

Team Contributions

Team Member	Contribution	Hours this Period	Cumulative Hours
Calvin Condo	Perfboard build and PCB design	20	54
Chuxin Chen	Light Sensor Testing, Meeting with Mingdian	14	42
Qin Xia	Light Sensor Testing, Meeting with Mingdian	14	42
Yuchen Zhao	Light Sensor Testing, Meeting with Mingdian	14	42
Lun Zhang	Light Sensor Testing, Meeting with Mingdian	14	42
Luke Healy	Light Sensor Testing, Meeting with Mingdian	14	42