

Innovation Park Water- Progress Report IV

Paulina Hall and Shannon Woolfolk

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Dr. Psaker

The Governor's School at Innovation Park

Objectives: Create first supply order form and continue research on condenser coils, solar panels,
and water heater.

Materials and Methods

Progress:

Over the past two weeks, the first supply order form was completed and research was completed on the the condenser coils and solar panels. While researching the condenser coils, it was discovered that they are very expensive. Other types of condensers were researched that were cheaper, but they were not ideal to have to use. This is because they require an external flow of water around the coils to keep them cool for the water vapor. The water filter is targeted to be for third world countries, so it is not possible to have a steady flow of water around the coils. Instead, there will be a chamber that will be cooled with a fan, which was purchased and can be seen in Figure 1. The condenser coil will be inside this chamber also. Research was also done to determine the type of solar panel that would be best to use: monocrystalline, polycrystalline, or thin film.

The benefits of thin film solar panels were that they were cheap and they worked well in higher temperatures. The problem was that they needed a lot of space because so many needed to be used to generate a certain voltage. The lack of space caused the thin film solar panels to be eliminated as an option for the solar panel needed. Polycrystalline and monocrystalline were similar in output but the monocrystalline generally had a higher peak efficiency than the polycrystalline. Monocrystalline has a longer life span and a higher tolerance in warm weather, but they were more expensive and multiple sources said the output between polycrystalline and monocrystalline was not a major problem (Maehlum, 2015). A monocrystalline solar panel was bought because the benefits were thought to outweigh the ten dollar difference.

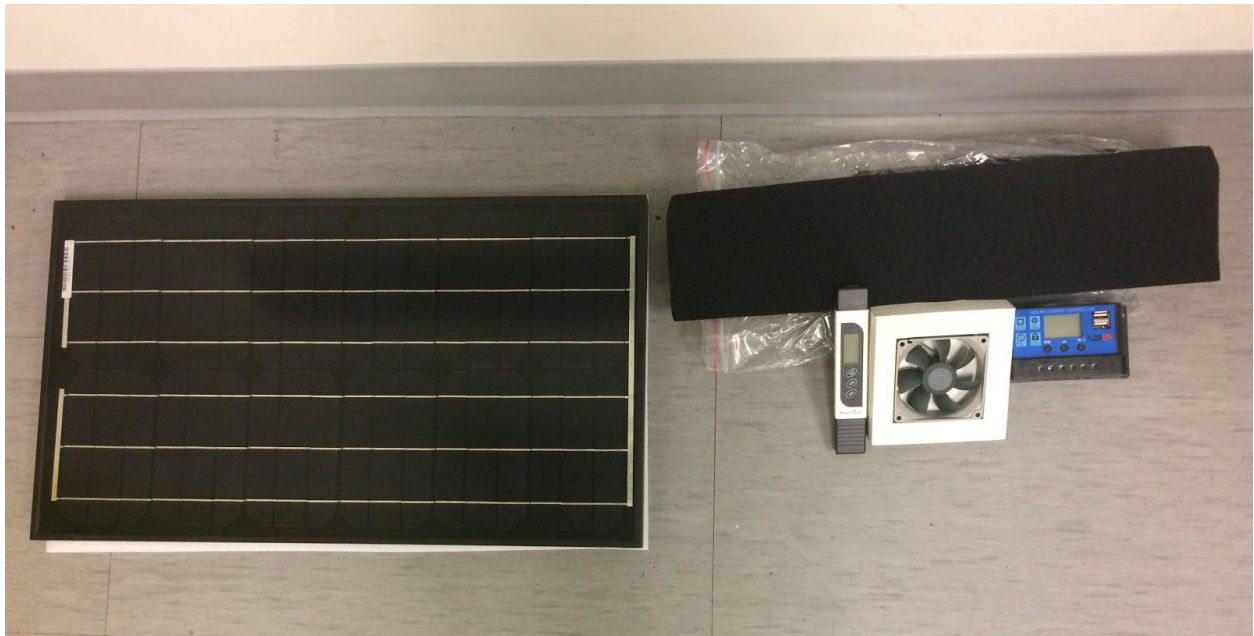


Figure 1: Supplies include: a monocrystalline solar panel to power the power for the heat source, a TDS water purity tester, a fan to cool the second chamber, a charge controller for the solar panel to manage the voltage that goes into and out of the battery, and carbon filters.

Work Planned Over the Next Two Weeks:

For the next two weeks, a second order form will be constructed, the water heater from an old coffee pot will be considered to use as the heat source for the water filter, and more research on noryl plastic will occur. The heater from the coffee pot is going to be looked at because heaters are expensive, so the idea is reuse an old one. This hopefully will not affect the system too much. Also, the right kind of plastic needs to be chosen that can withstand high temperatures without melting. Noryl plastic is the only one found so far that might be able to do just that.

Data and Results

No data or results at this time. No experimentation has occurred.

References

Maehlum, Matthias Aerre. "Which Solar Panel Type Is Best?" *Energy Informative*, Energy Informative, 5 Aug. 2015, energyinformative.org/best-solar-panel-monocrystalline-polycrystalline-thin-film/.