

Innovation Park Water- Progress Report III

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Objectives: Create a supply order form, determine the best plastic to use for structure, and
continue research on solar energy.

Materials and Methods

Progress:

Since the last progress report, a final proposal was written and an oral presentation was given. An off the grid system was decided to be the type of system that will be used to connect the water heater and the solar panel. The energy collected from the solar panel will be stored in an external battery source and when the heater is in use, electricity will be pulled from the battery and not directly from the solar panel. The solar panel will be used to charge the battery and a charge controller will be used to connect the solar panel and the battery, and control the voltage given from the battery to the heater. This system was chosen because it is the best option for beginners in electrical projects and deals with DC current instead of AC and DC current, which can be dangerous if a mistake is made. It also allows the water purification device to be used without direct energy from the solar panels, giving the technology more application as it is not limited to daylight hours. Small solar panels will be used in order to maintain mobility of the device and because most less expensive charge controllers work with 12-volts, which small solar panels generate.

After some research, water heaters have shown to be too expensive to maintain a low-cost budget, so further research and modifications must be taken to find one that will stay at a low budget. Most low-cost charge controllers, staying under \$30, have a 30-amp capacity, but until the solar panel type is decided on, the charge controller cannot be purchased. A simple 12-volt battery will be used in the system, which will not have to be purchased due to the materials available to students at the Governor's School.

Work planned over the next two weeks:

A supply order form will be completed, including supplies such as the charge converter and water heater, and submitted so construction can begin. Research for a condenser coil, water heater, and solar panels will occur to find the right products and technology that balance cost and quality. The heater, charge controller, and solar panels will all be connected in series so when ordering the charge controller and water heater, the solar panels need to be taken into account. Research will need to be done to find out the type of solar panels that will be incorporated in the water filter. Extensive research will also be done on the application of solar panels until the skills necessary to complete the circuit are gained.

Data and Results

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

References

No references at this time.