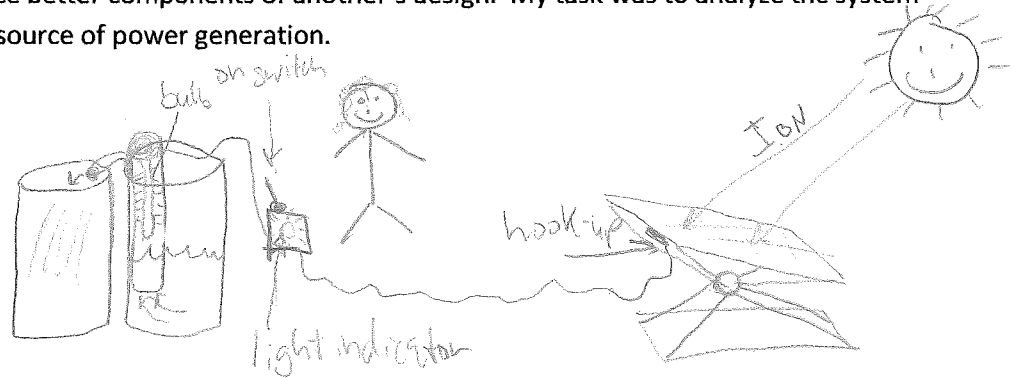


Summary of Solar Power Source Concept

The purpose of this exercise is to write up a preferred concept solution to the power generation problem we are faced with. By doing our own research on different concepts, we are able to identify pros and cons along with appropriate risk assessment. Also, we may discover that some components of one design may enhance better components of another's design. My task was to analyze the system using solar power as a source of power generation.

Schematic:



Design

This design has a small 20W PV panel attached to a mount with a pivot point. It would not be required to have 2-axis rotation, but it is desired. The panel will have a 12V wire attachment that can be hooked up to a 12V battery or directly to the better water maker. The user would face the solar panel towards the sun and hook it up to the BWM as long as a light which communicates the proper power is on. When the user isn't in need of water, they hook it up to a battery to charge for when it is dark or cloudy outside. This design can become versatile and used to power other electronic devices.

PROS	CONS
Requires no effort of the user to produce power	Not a reliable source (cloudy, dark, cold)
Solar panel can last 15 years	Solar panel can be stolen
Batteries thrive in warmer climates	Single component price is high
Lead acid batteries are inexpensive.	Need to purchase battery as well, may have high maintenance costs
Frees user to perform other daily chores/activities	Can break if misused by children
Can purify water for entire village while sun is available	

Risks Associated with Design

- Having a solar panel transfers reliability in the sun and not the user. The sun is unpredictable. As long as you are mobile, a user can operate a crank or the like.
- This may not be suitable for certain colder regions. More extensive research would need to be done.
- Solar panel theft is high in developing nations. This option will leave the user without anything should this happen.
- Specific circuit may have to be designed to reduce voltage to required 12V so it does not damage bulb; could increase cost.