Professor Dang,

Our group has come up with two distinct ideas that build upon existing solar panel technology.

1. A rotating, dish-based solar panel built to power a drone or rover safely to its destination.
    a. The vehicle's purpose would be to transport a payload; a potential application would be to deliver necessities to areas humans wouldn't be able to travel themselves.
    b. Traditional drones and rovers are usually solely powered by batteries; this could be a way to complement battery power with solar power
    c. Tasks divided among team members
        i. Programming the sensor to detect the direction from which sunlight is most intense (Johnny Tran)
        ii. Designing DC motor control connection (Jeffrey Cho)
        iii. Building the rover/drone (Buonkuang Priestley, James Tsien)
        iv. App-control to monitor and direct rover/drone's progress (Tobe To)
            1. Such as programming the rover/drone to operate by itself or remote controlled.
    d. Number of panels includes 1 large panel (42"x21"x1.5" for 100 watts OR 65"x20"x1.5" for 300 watts)
    e. This research paper details a previous implementation of a parabolic dish
        i. https://ieeexplore.ieee.org/document/7566456
    f. 

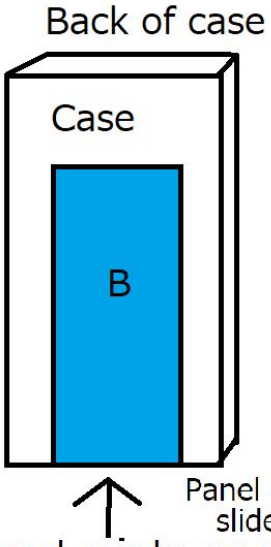
2. We also are interested in developing a folding solar panel that would be used as a portable charger.
    a. Our charger would be able to charge smartphones and other devices with sunlight, while its foldable design would make it able to be carried daily.
    b. Traditional portable chargers consist of a battery pack that must be charged before leaving the house. This would eliminate the need to keep a battery pack charged before travel.
    c. Tasks divided among team members

i. Designing and assembling the actual folding solar panels (Jeffrey Cho, James Tsien)
ii. Building a stand and motor that allows rotation of the panels towards optimum sunlight (Johnny Tran)
iii. Designing a sensor system that measures the amount of sunlight and power production (Buonkuang Priestley)
iv. Programming a microcontroller that calculates the optimum angle and controls rotation of the panels (Tobe To)

d. Number of panels includes multiple mini solar panels forming a combined size of 16”x11”x1.5”, in total the power produced would be around ~10-20 Watts
e. We were inspired by this research project’s “origami’ styled solar panels.
   i. https://ieeexplore.ieee.org/document/8614997
f.

Top View
(Battery)

- Port to connect to panel/battery on case
- Add connecting wire to charge while charging? (if enough power produced)
- 2nd panel folds out for max charge per area



- panel can be revealed to still charge while in case

We would appreciate any feedback on either of these ideas.