Technical Assistance Request

Our goal is to progress two typologies of flat PV panels and PV-oculus through the competition. For both of the typologies we need technical assistance in manufacturing and performance measurements.

Manufacturing

For the flat panels we will be seeking help in the following:

- Making the panels with the dimension of 18.1in x 8.2in which the PV cells are connected in series circuit (figure 1 a).
- Making the panels with the dimension of 18.1in x 8.2in which the circuit connection between PV cells in each string is series and each string is connected in parallel circuit (figure 1 b).

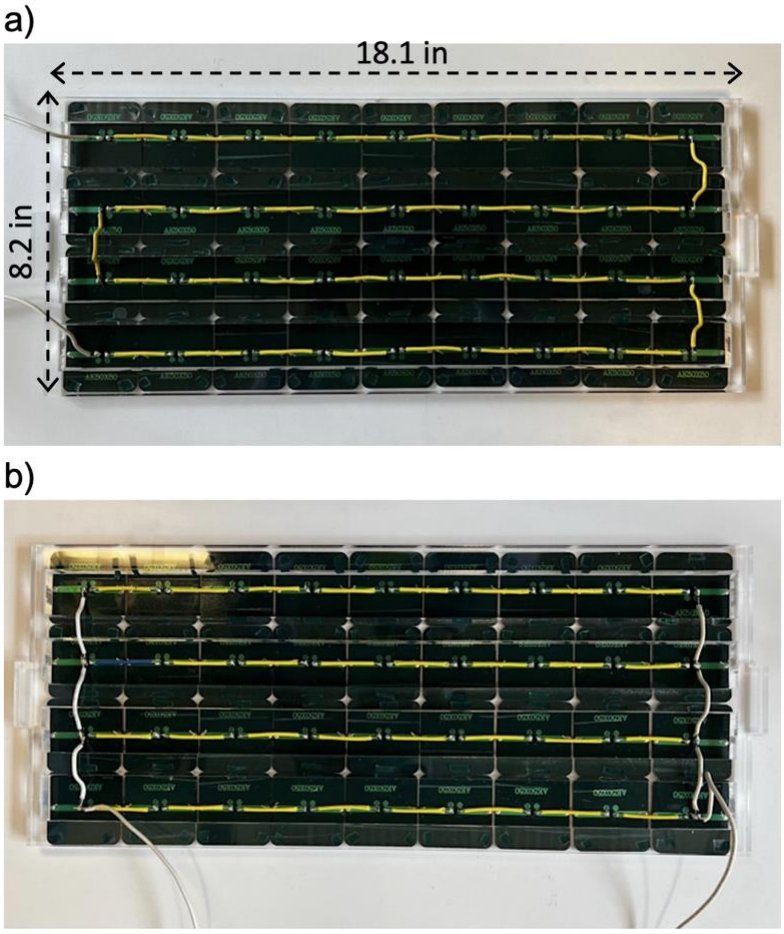

Figure 1, dimensions and circuit connections of the flat PV panels: : a) series-series connection, b) series-parallel circuit connection

The width of the PV panels can be also smaller as long as it accolades at least two strings of PV cells along with the length of the panel.

For the Oculus typology we will be looking for manufacturers who are capable of:

- making curvature models with high temperature (60 °C) resistance material.
- connecting PV cells on the oculus form in series.

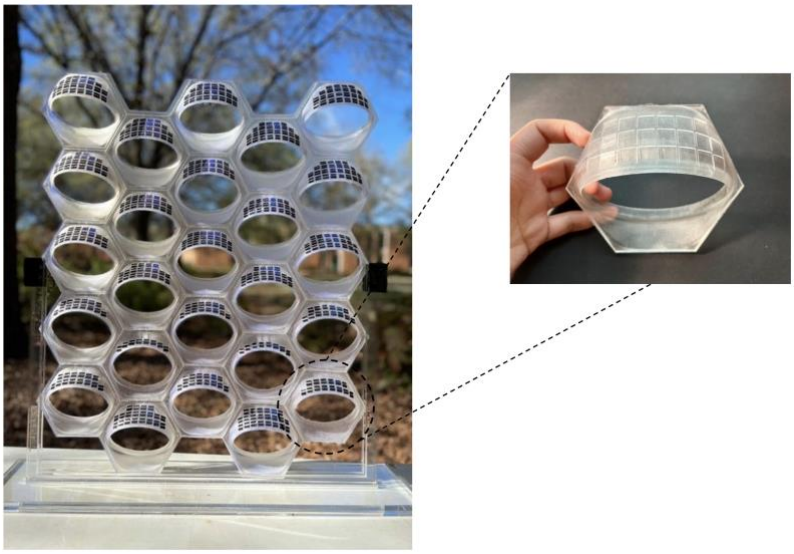

Figure 2, PV-Oculus

Note that the size of each oculus (curvature form inside of the hexagon) can be adjusted based on the manufacturers 3D making/printing facility size as long as PV materials/cells provided by PV manufacturer can bfit on the top part of the oculus.

Performance measurements

For both typologies, flat PV panels and PV-oculus, we need current, voltage and power measurement sensors that is capable of:

- Measuring and recording current and voltage under lab condition (25 °C, 1000 W/m2 solar irradiance), while prototypes are under partial shadow condition from panels/oculus self-shading.
- Measuring and recording (3-4 weeks) current and voltage in outdoor conditions.
- Both of those systems/sensors should allow us to integrate other sensors too.