

Project Name – “Sunny”- A translucent solar panel

Problem Statement- To make a handmade solar panel which allows a certain percentage of light to pass through also.

Project Budget- INR 10000

Description-

As a part of an ongoing research project by a PhD student, a crop drying experiment using a green solar dryer. I was tasked with fabricating a solar panel capable of producing enough current to keep the system running and to allow light to pass through to fulfil the experiment criteria.

I went online and started researching, there were very few good tutorials available as this is something people usually source from the market pre bought and the only thing resembling this was tesla roof tiles.

To build a panel I firstly required cells, I knew I can make the frame out of aluminium channels, base with an acrylic sheet and the back cover with a translucent fibre plastic sheet. I needed solar cells tabbing wires and a power regulation circuit. To source the cells I scoured the internet, the only dealers who were selling were wholesale dealers and were not interested in my order of 20 cells.

I finally found a dealer who sold these cells. I realized to obtain the required voltage I would need to cut these cells. I tried by hand and failed miserably. I then looked for a laser cutting service nearby. After finding one I got my cells cut according to my specifications. As they were so brittle, I broke a lot of them in the process.

Finally after a weeks' worth of tedious soldering and tabbing the panel was ready. I took it out into the sun for testing and there it was, voltage of 48V. A success, I took the panel to college and mounted it on the experimental setup. Now I'm currently aiding the faculty in taking readings of the experiment and writing of the research paper to be published.

Materials Consumed-

1. 20watt solar cells
2. Aluminium channels
3. L joints
4. Screws
5. Plexiglass
6. Translucent fibre sheet
7. Tabbing wires
8. Wires
9. Glue Gun