

Sunshine Community Garden Project

UT Austin IEEE PES

What is IEEE PES?

- IEEE - Institute of Electrical and Electronics Engineers
 - National Electrical Engineering Organization
- PES - Power and Energy Society
 - Branch of IEEE focusing on power
- We are the UT Chapter of IEEE PES
 - We focus on mainly renewable energy, but all forms of energy and power generation projects
 - Officer team of 12
- We've done past and current projects like
 - Solar Powered Smoothie Cart
 - Aquaponics
 - Solar Project in Puerto Rico



Our Project Here

- Agrivoltaics Research Project
 - Agrivoltaics is putting solar panels on top of plants to give shade and generate power
 - Dual land use
- Power generated -> Electronics in new greenhouse conversion
 - Fans and other electronics, or charging for tools
- Research Specifics
 - Likely will have some sort of grid with randomized locations for either no panels, flat panels, or some sort of controlled panels with motors or whatever other design we create
 - Grow the same crop (some sort of food) and keep conditions as similar as possible across the entire plot



Project Goals

- To make a simple, cheap, scalable panel solution, one that uses some form of control (single or dual axis motor) that both generates power and allows for better crop yields from shading, especially in harsher hotter climates like Texas
 - Open sourced solution on a website
 - Simple instructions a non technical person can follow
 - No soldering or complex assembly, only screws and plugs
 - Made for any farmer, gardner, or researcher to use themselves
 - Designed to be cheaper than hiring a contractor/ installer or buying off the shelf parts where the company needs to profit
 - Power from the panels generated is designed for either local power needs, and ideally to be sold back to the grid to make more renewable energy available in general
- Research paper published on the design and if it is economically more viable than flat panels and worth the costs over no panels at all
 - This could be potentially one growing cycle or multiple (unsure yet)

Timeline for project

- Fall semester starts - **Aug 24th**
 - Planning & recruitment finished - **Mid October**
 - Initial design finished - **December - January**
 - Ordering parts, finalizing design, testing on campus finished - **March likely**
 - Implementation and planting - **March/ April**
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- Exact timeline will be synced to the growing season of the plant we choose, but this is roughly what it will be

Benefits to the garden

- Power for greenhouse electronics and batteries for tools
- Help with greenhouse conversion when the time comes
- Lots of members who we want to organize for volunteer workdays
- Food grown on our plot will be donated to the garden/ Micah 6
- Panels, batteries, and supporting electronics can be donated and installed in the garden/ on the greenhouse at the end of the project's life

