Vertically-Deployable Solar PV Systems with Distributed Power Maximization and Fiber-Optic Condition Monitoring

INTELLIGENT FIBER OPTIC SYSTEMS
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Intelligent Fiber Optic Systems (IFOS)
4425 Fortran Drive, San Jose, CA 95134

- Proposer: IFOS (lead company)
- Partner: Sigmagen, Inc.
- Collaborator 1: Sandia National Lab (SNL)
- Collaborator 2: D2 Solar
- PI: Dr. Mehrdad Moslehi

Key idea:

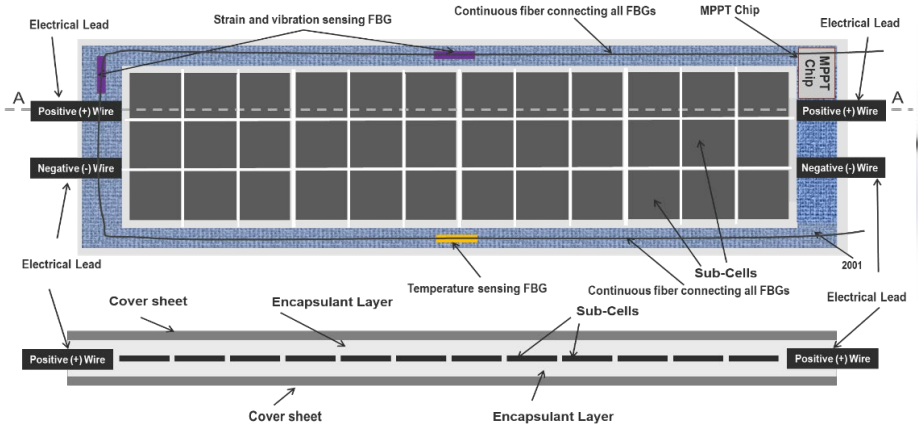
- Develop a vertically deployable bifacial, lightweight, slatted PV system for application on vertical structures like trellises, cell towers and various off-grid, low real estate areas.
- Equip the system with devices for maximizing power output and photonic sensing for health monitoring

Project Impact:

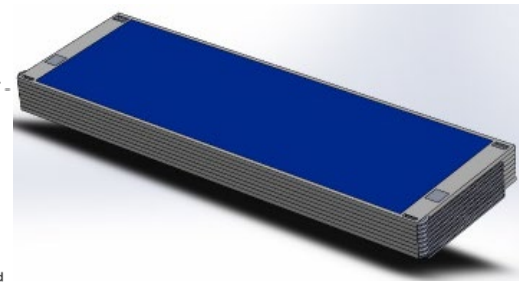
- Enable space saving and efficient deployments for off-grid applications that can be monitored remotely

Project Goals:

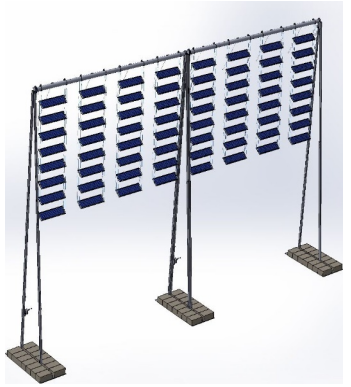
- Develop, demonstrate and characterize POC for vertically deployable prototype system
- Establish integrated sensing system for remote monitoring
- Carry out systematic system vetting using SNL module testing capabilities



PV slat equipped with sensors and MPPT chip



Stacked PV slats



Vertically deployed PV slats

Deployment examples