AC SOLAR PHOTO-VOLTAIC MICROGRID IN INDIAN RESERVE FOREST AREAS

-Experiencing the Implementation Challenges-

FluxGen Engineering Technologies

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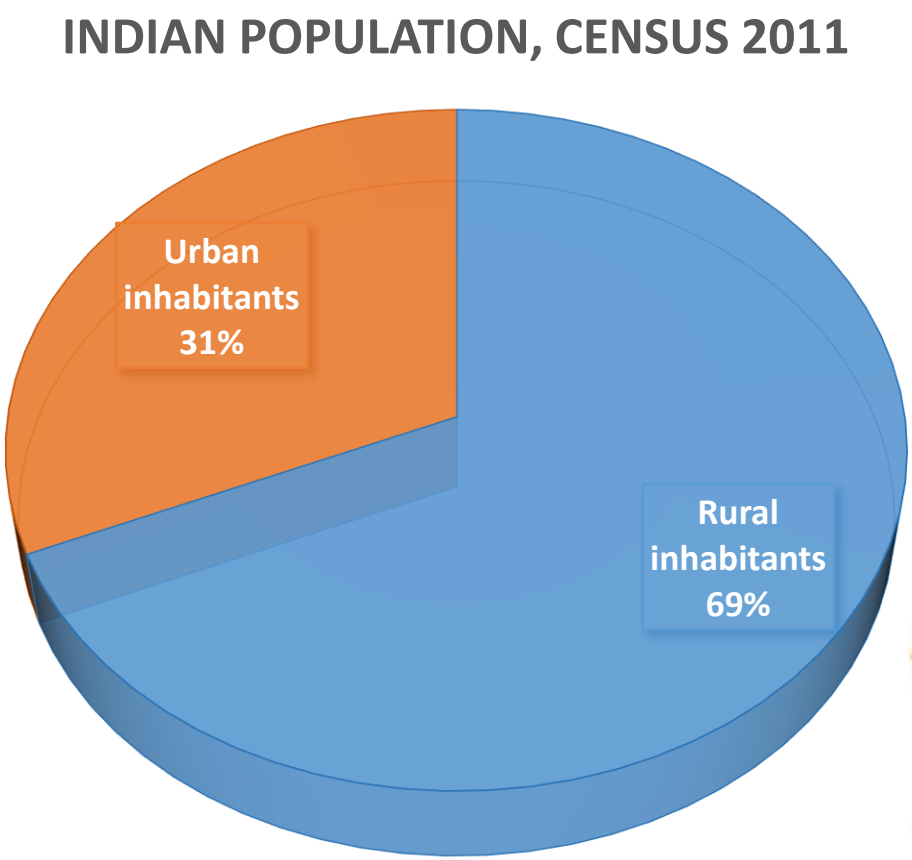
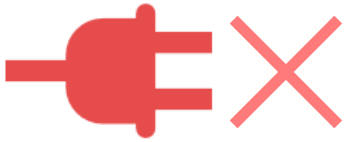
Facts



Rural inhabitants
Growth Rate : 12.2 %

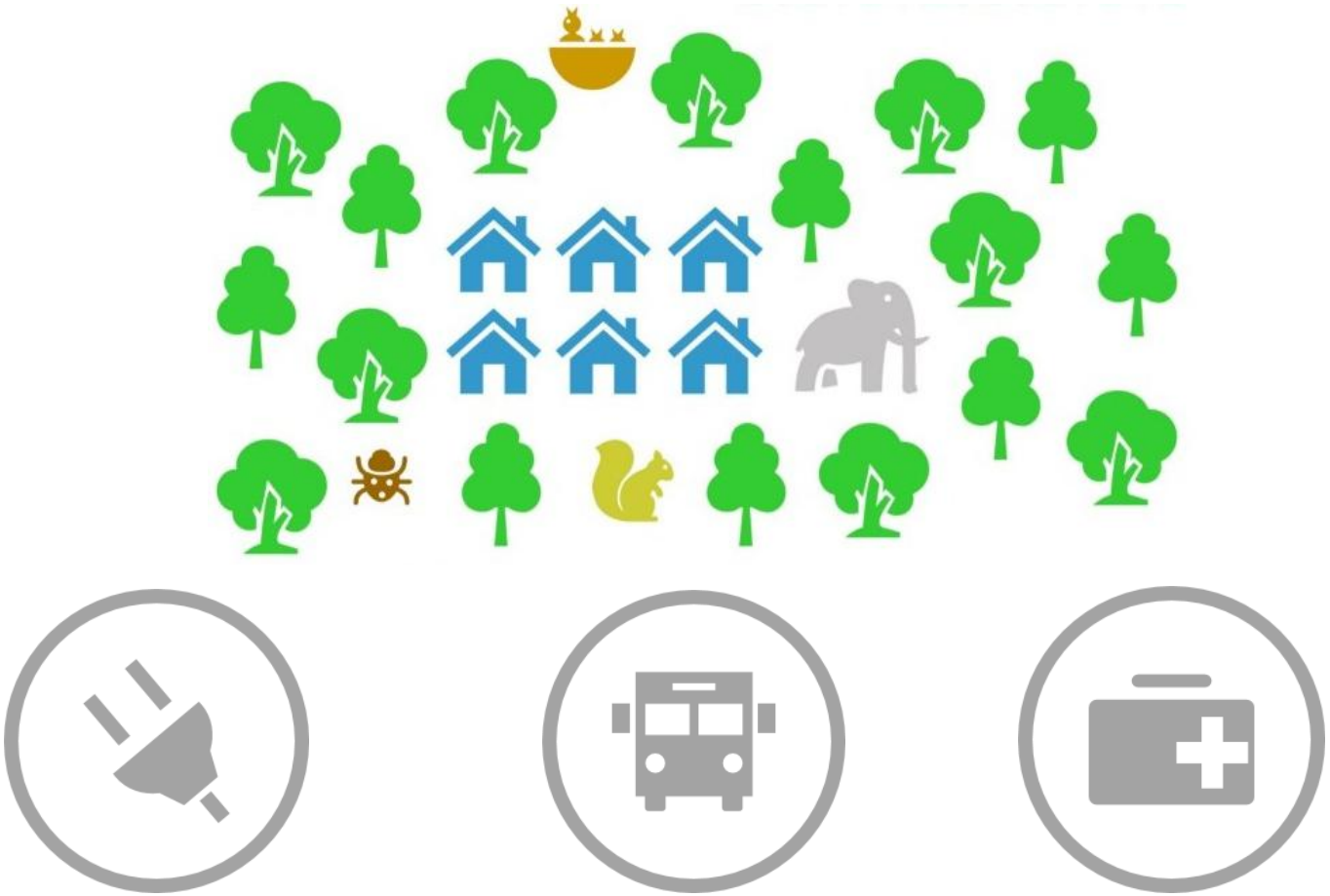


Non – Electrified villages: 25,722, CEA (August 2014)

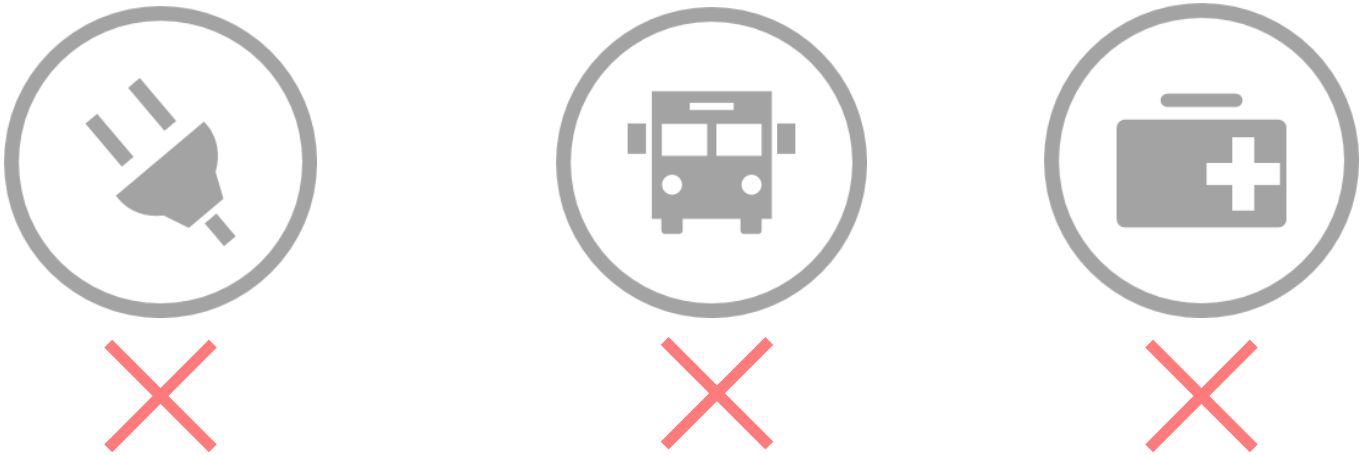
Forest fire hazard activities prohibited inside reserve forest areas (IFA, 1927)

Reserve Forest Area

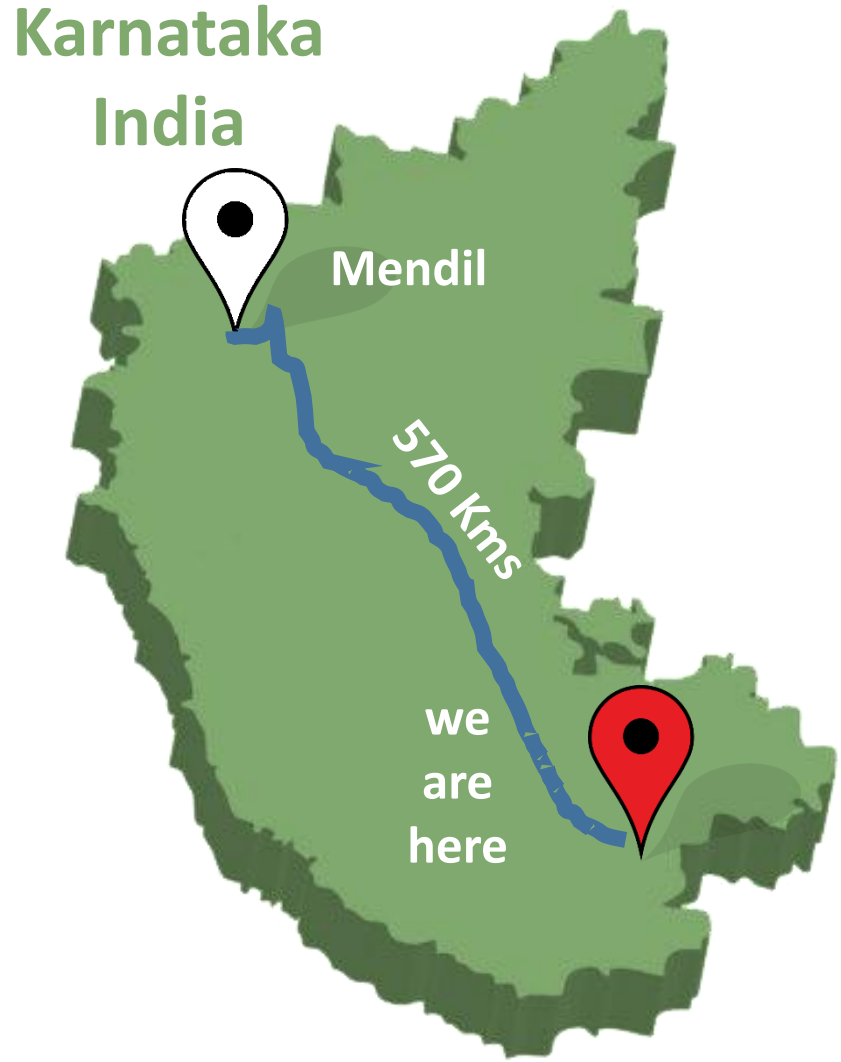
Expected Amenities



Problem?



North Karnataka Reserve Forest Area - Mendil



Mendil

- Located inside Bhimgad Reserve forest area, Karnataka (15°31'50.9"N 74°19'28.0"E)
- Nearest available electricity grid at 5kms
- 5km stretch of Non-motor-able terrain inside forest area.

Why Mendil? - Pre installation field Analysis

Why Mendil? - Pre installation field Analysis

Location : Reserve Forest Area (Prohibition of Electricity)

Light and Electricity : Primitive kerosene lamps and Standalone DC Solar Lighting Systems

Nearest Town Access : 30 Kms away for daily needs, 5 Kms of seasonal motor-able terrain

Literacy Status : On an average till 5th Grade of primary education

Planning and Designing

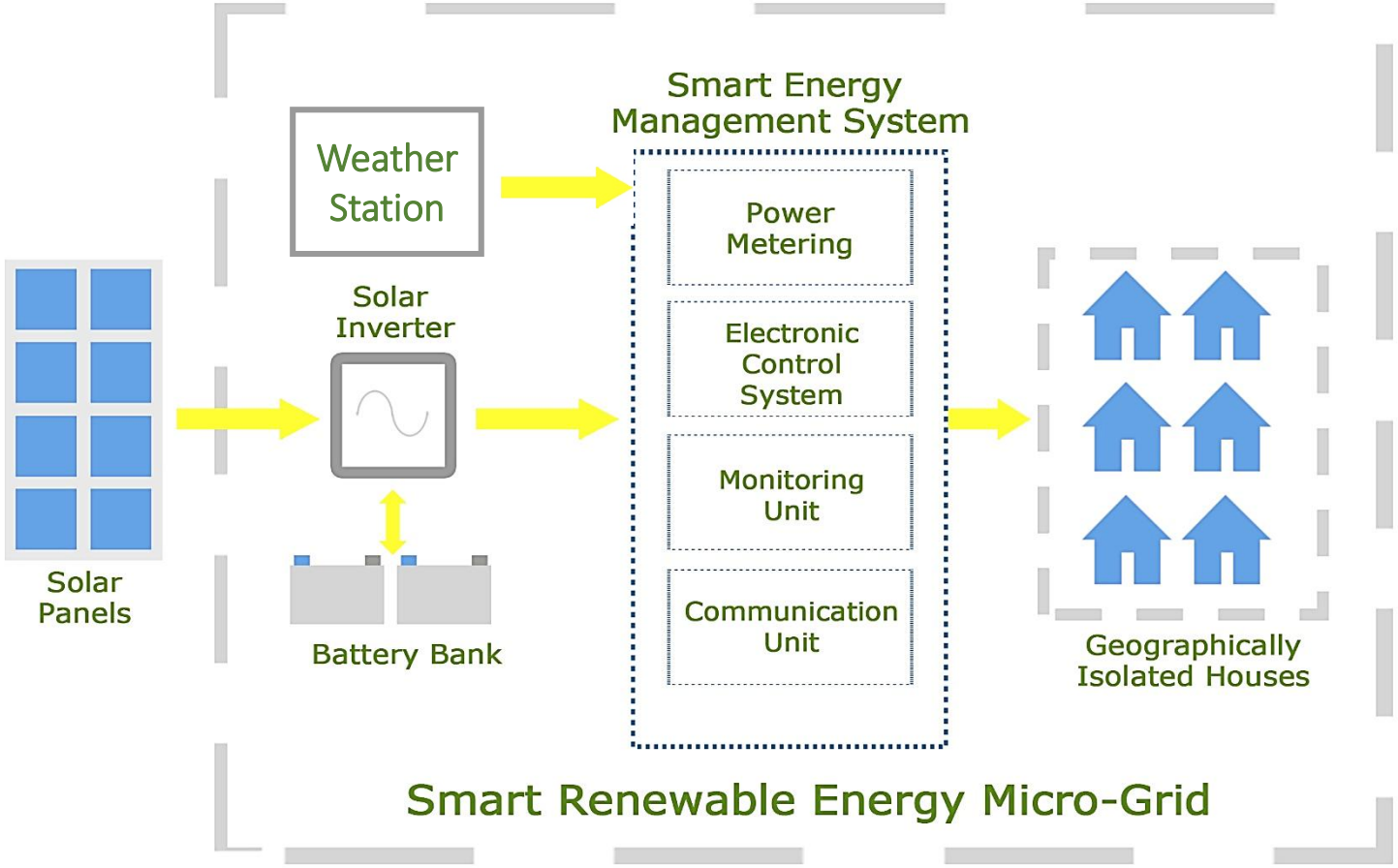
Planning and Designing

Favorable System Configuration : AC Solar PV Micro-Grid

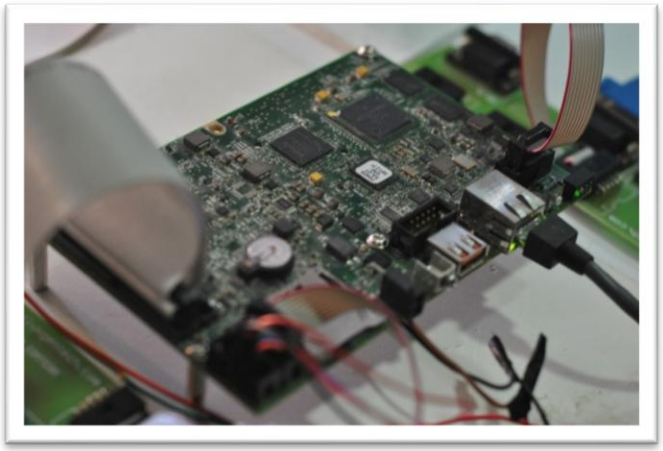
Pilot Target : 2 KW system AC system with Energy Data Logging, Monitoring and Controlling Feature

WHY?

System Design

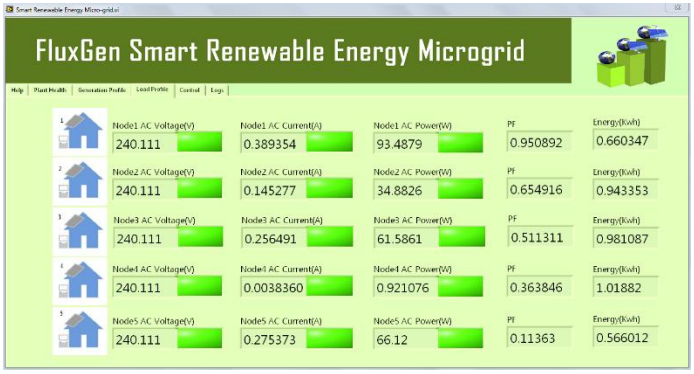


System Testing

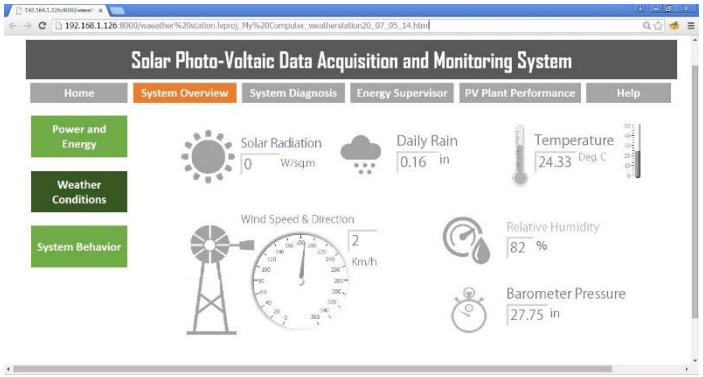


Embedded Controller Programming

Smart Meter Operation Test

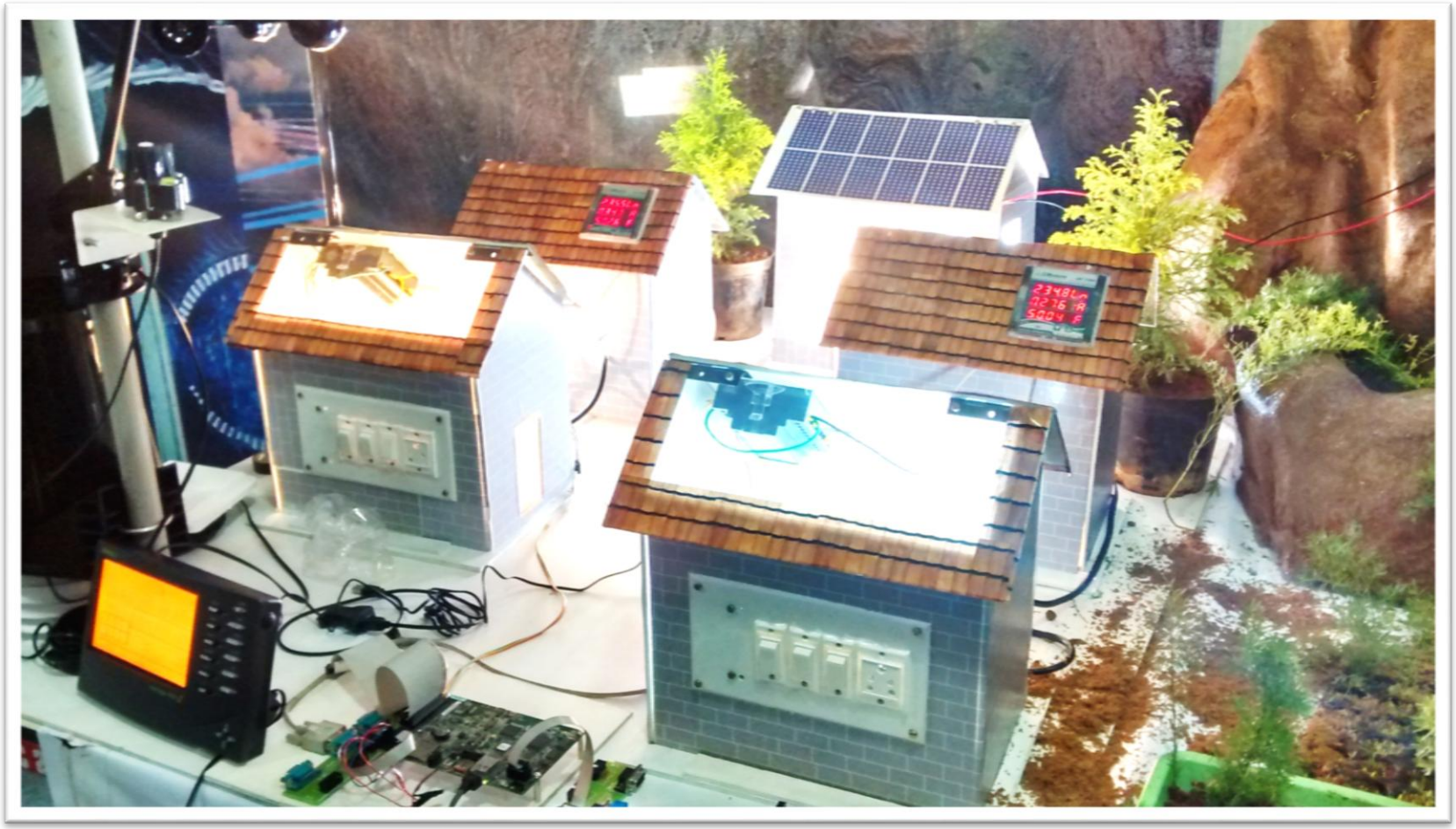


GUI based Application

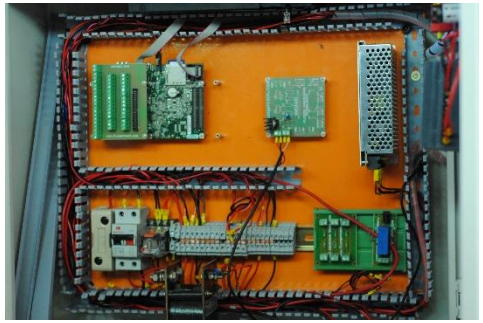


Capability of remote monitoring and controlling

Complete System Prototype



System Implementation



Challenges Faced and Lessons Learned

Geographical Location Dependency

Social Aspects to be considered

Forest Protectors transforming to Threats

Energy Data Analysis

Individual User Power Capping

Involvement of Local Solar Dealers

Present and Future

System Parameter	To-Do List
2 KW AC Solar PV Micro-Grid Installation	✓
System Design – Weather and Energy Monitoring, Data Logging, and Controlling Algorithm	✓
System Testing – Performance, Reliability and Long – run tests	✓
Weather and Energy Monitoring and Data logging in Field Implementation	✓
Field Data Analysis	In Process
Automated Control Remote monitoring	To be done after Data Analysis

Present Focus

Creating Effective Economic Activity

Billing and financial models

Wireless Network Connectivity

Training the villagers on basic system usage

Thank You
Questions Please?