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## **7.2.2 Upgrade Buildings to Higher Energy Efficiency**

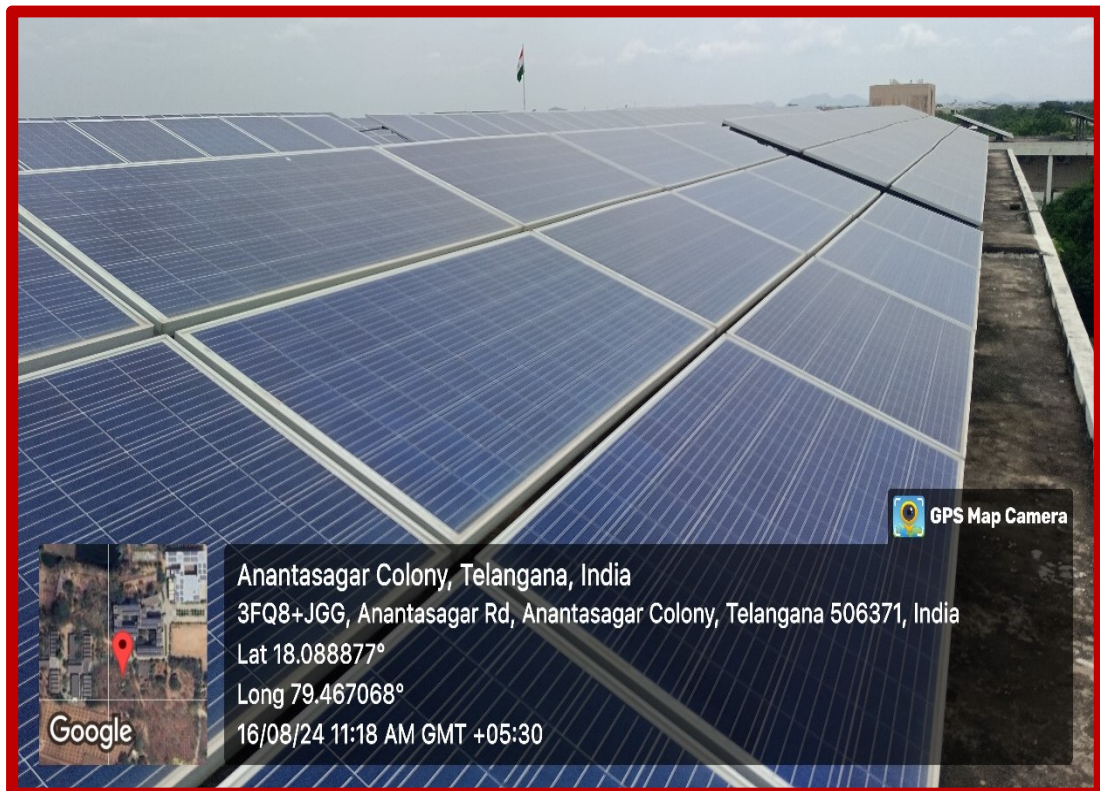


**The Institution has facilities for alternate sources of energy and energy conservation measures.**

### **1. Solar Energy**

- SRU established Grid-Connected Rooftop Solar Photovoltaic (SPV) systems on roofs of academic buildings.
- The DC power generated from the SPV panels is converted to AC power using Power Conditioning Unit (PCU) / Grid-tied Inverters, and it is fed to the 33 kV three-phase grid lines with a capacity of 1858.08 kWp of the system installed at the institution.
- Solar Energy generated for the academic year 2022 – 23 is 216980 kwh

### **Geo-tagged Photos**



**Grid-Connected Rooftop Solar Photovoltaic (SPV) Systems at Block 1**



**Grid-Connected Rooftop Solar Photovoltaic (SPV) Systems at Block 1**



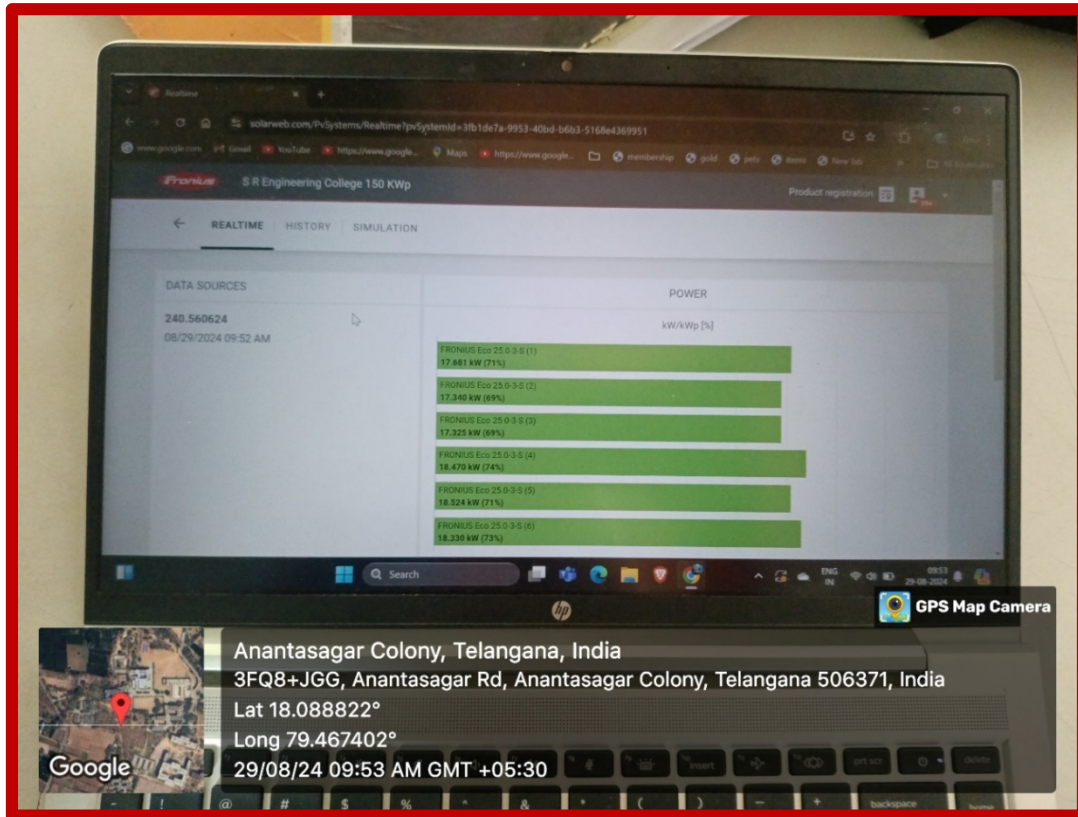
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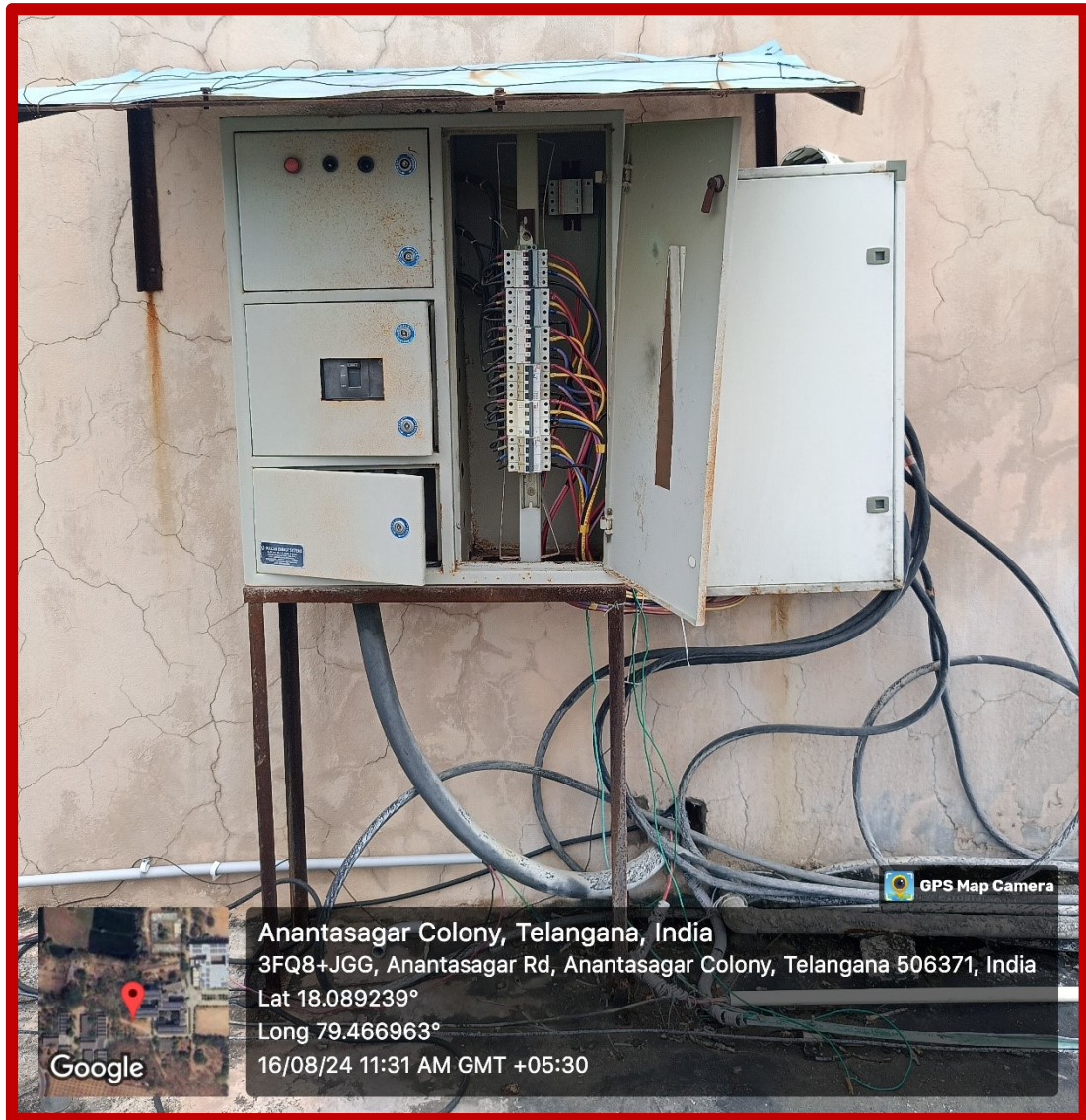
**Grid-Connected Rooftop Solar Photovoltaic (SPV) Systems at SRIX**



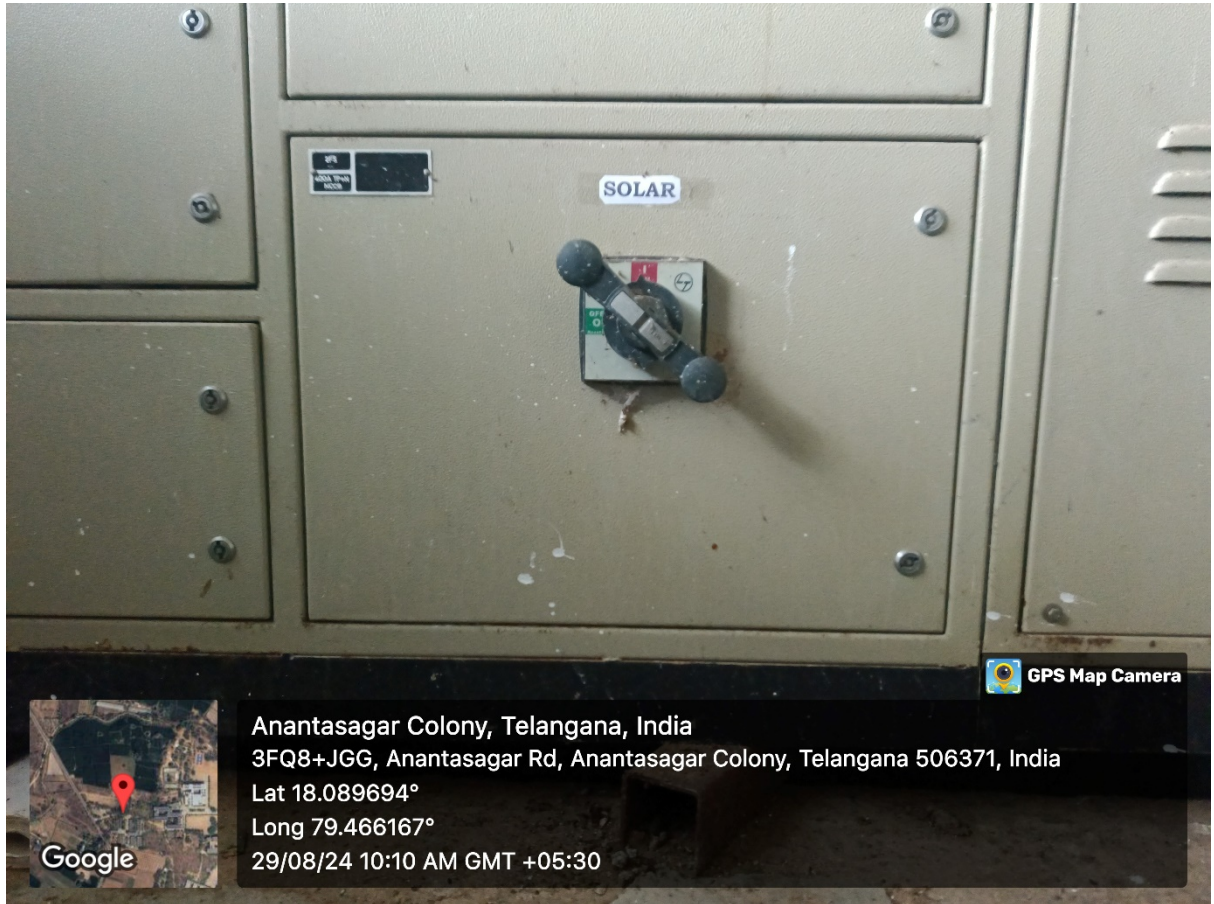
**Grid-Connected Rooftop Solar Photovoltaic (SPV) Systems at SRIX**



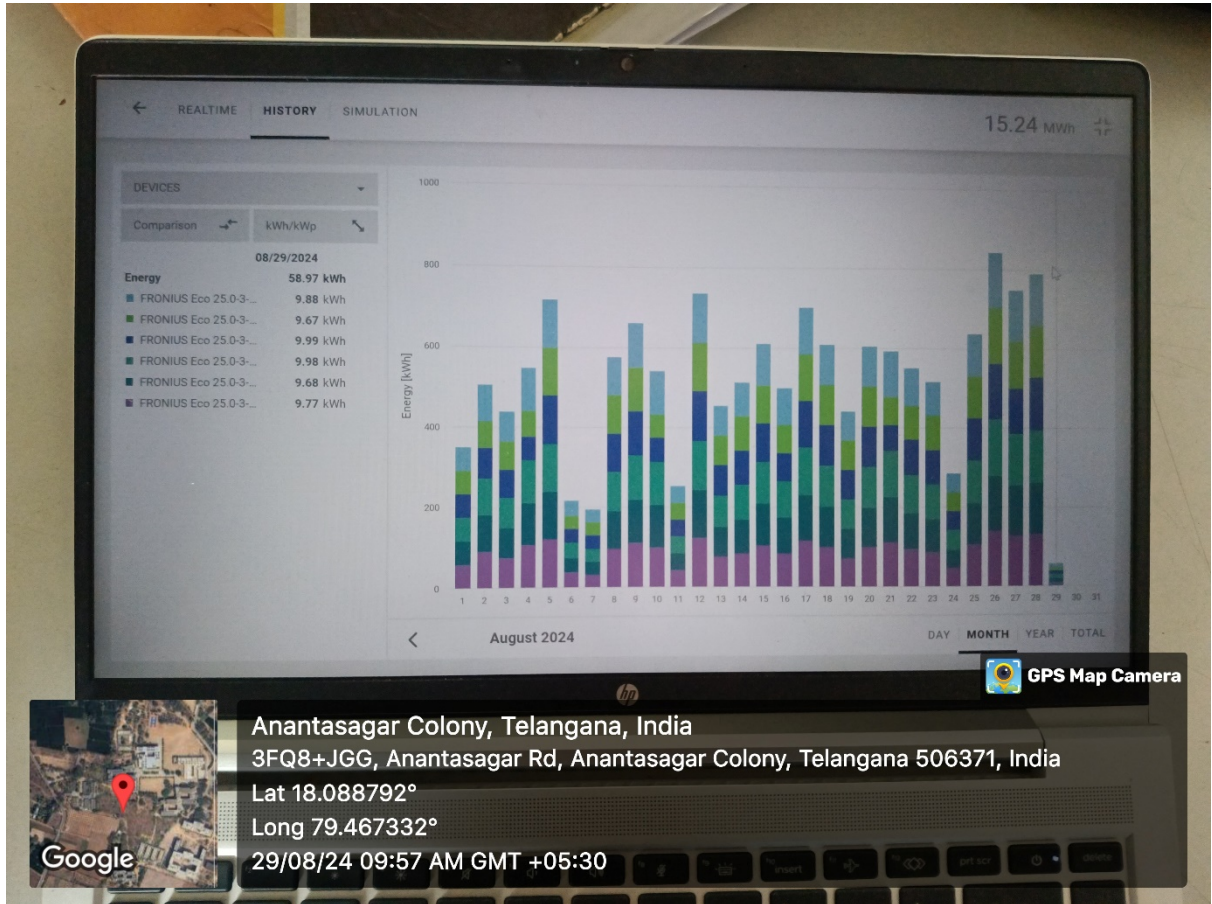
**Measurements of Real time Production of Solar power**



### Connecting On-Grid to Inverter



**Control Panel of Solar Power**



Solar-Log for renewable energy readings





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## 2. Biogas Plant

### About Biogas Plant:

- Our campus biogas plant is a proactive initiative for waste management and energy sustainability.
- Installed capacity: 350 kgs.
- Generates sufficient amount of biogas every day which is equivalent to energy from one commercial LPG cylinder.
- Utilizes sewage water, food, and vegetable waste, showcasing our commitment to resource optimization and eco-friendly practices.

### Bio gas Production Process:

Stage	Description
<b>Biogas Production</b>	Floating Drum Plant
<b>Gas Conveyance</b>	Gas conveyed via pipeline to Hostels and the remains will be sent to compost.

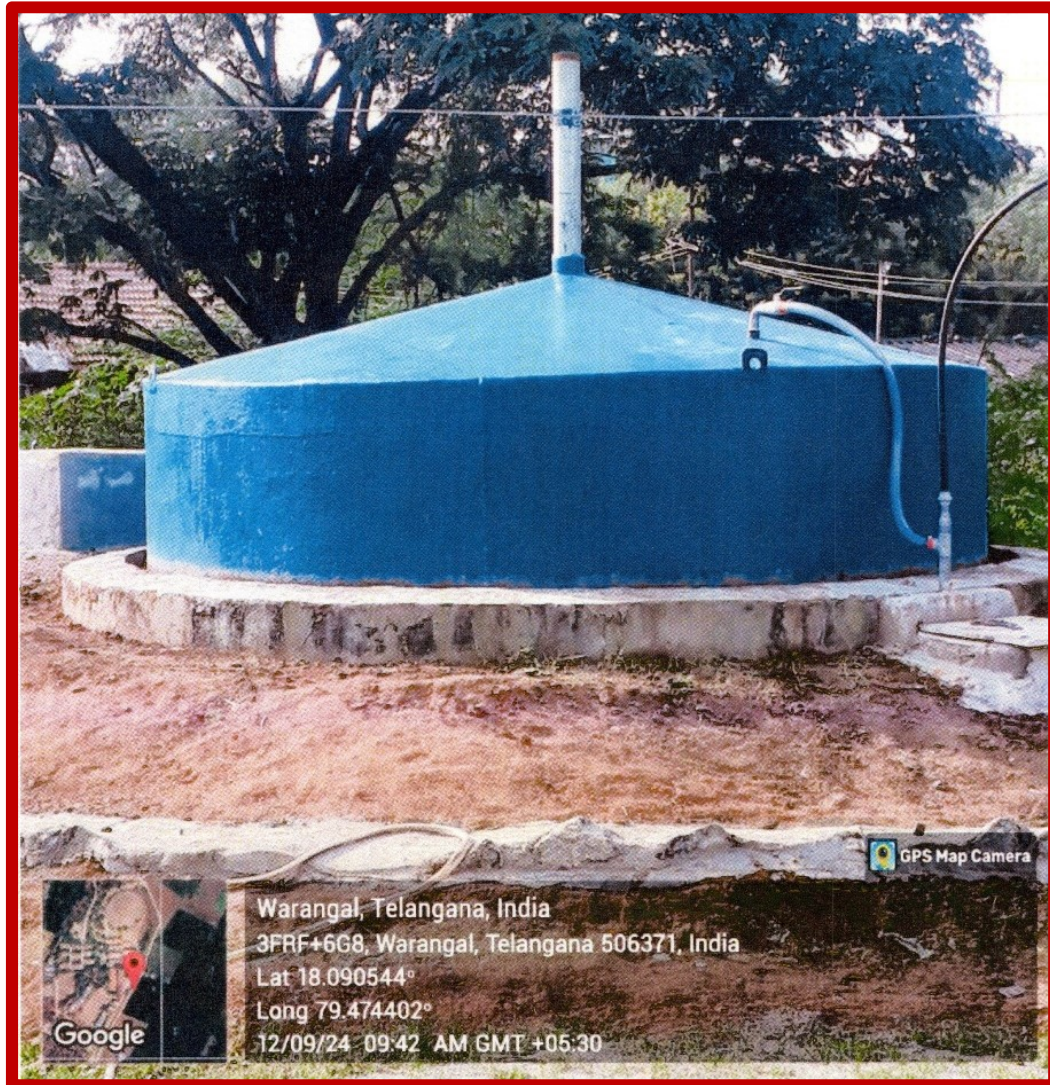
### Biogas Output:

Source	Generated Biogas (kg/day)	Equivalent to
Food and Vegetable Waste	5	Energy of 1 LPG cylinders
Sewage Treatment Plant (STP)	2	
<b>Total– 350 kgs capacity per day</b>	<b>15 kgs</b>	

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**Geo-tagged Images of Biogas Facilities**



**Biogas Production Unit**



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### 3. Wheeling to the Grid

- These SPV systems generate power during the daytime, which is fully utilized to power campus internal loads and feed excess power (wheeling to the grid) as long as the grid is available.
- In cases where solar power is not sufficient due to cloud cover, etc., the campus loads are served by drawing power from the grid.
- SRU exported 23754 kwh (Units) to TSNPDCL Grid during the academic year 2022- 23.

#### Renewable Energy Exporting to Grid Report:

Academic Year: 2022- 23		
S. No	Month	Solar Generation (kwh)
1	May-23	3029
2	Apr-23	33
3	Mar-23	1449
4	Feb-23	2506
5	Jan-23	3092
6	Dec-22	1616
7	Nov-22	2669
8	Oct-22	3593
9	Sep-22	1616
10	Aug-22	1852
11	Jul-22	1029
12	Jun-22	1270
<b>Total Export</b>		<b>23754</b>

  
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### Geo-tagged Photos



### Connecting On-Grid to Inverter



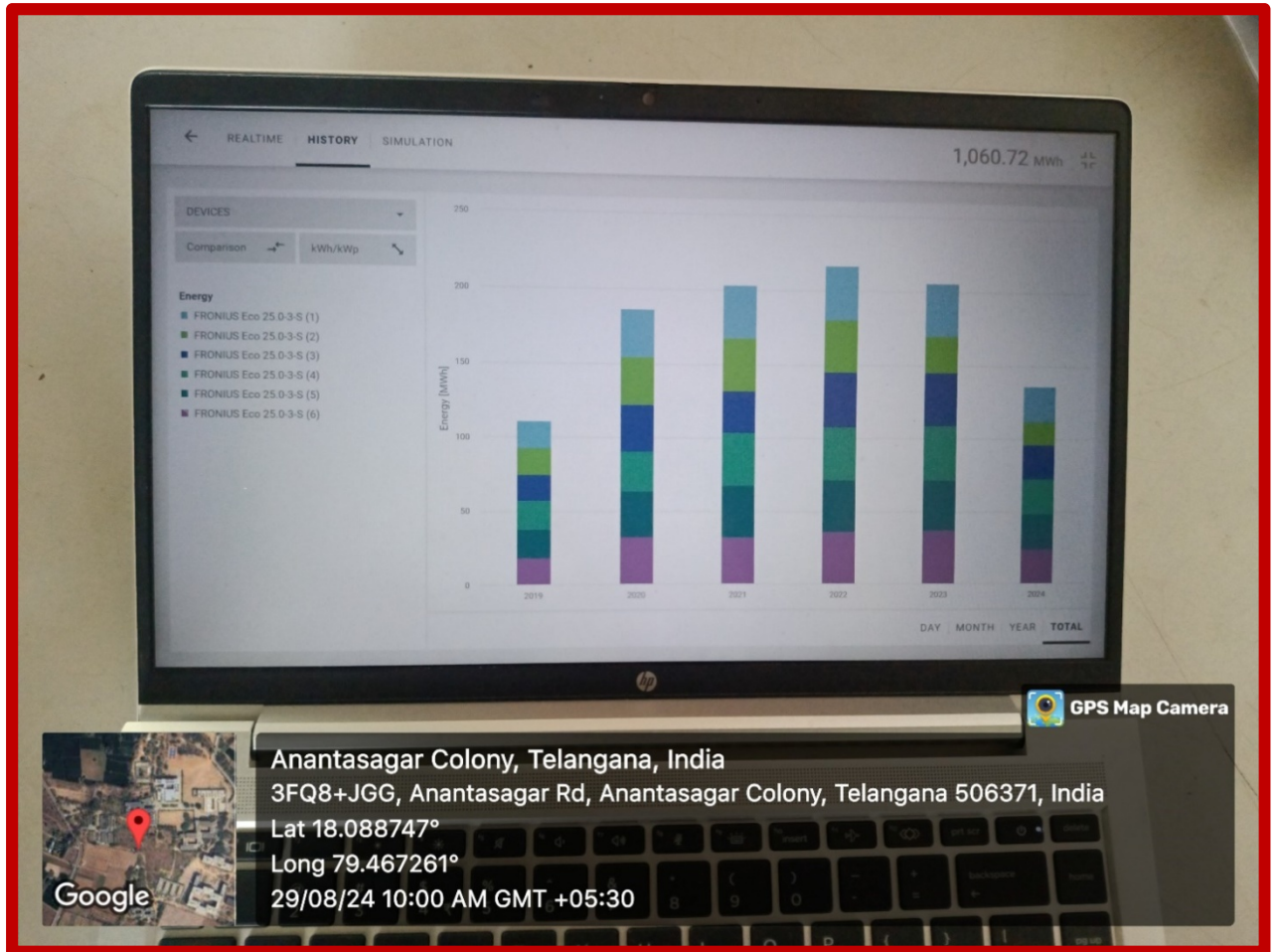
### Connecting the Solar power to the Grid



### On-Grid to Inverter



### On-Grid to Inverter



Solar-Log for renewable energy readings



**The Institution has facilities for alternate sources of energy and energy conservation measures.**

#### **4. Sensor-based energy conservation:**

The institution implements the following energy-saving measures through sensor-based technology for conservation.

- 1. Sensor based Water tank Overflow Alarm:**
- 2. Sensor Based Solar Streetlight System:**
- 3. Sensor Based Water Taps:**

#### **Geo tagged Photos**



**Sensor based Water tank Overflow Alarm**



**Sensor Based Solar Street Light**



**Sensor Based Solar Street Light**



**Sensor Based Solar Street Light**



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### Sensor Based Water Tap



**The Institution has facilities for alternate sources of energy and energy conservation measures.**

**5. Use of LED bulbs/power-efficient equipment:**

The classrooms and office rooms in the academic blocks of SRU are furnished with BLDC (Brushless Direct Current Motor) fans and LED (Light Emitting Diode) lights

**Geo Tagged Photos**



**Design Thinking room with Natural Lighting**



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### **LED Bulbs and Energy Saving BLDC fans in University Library**

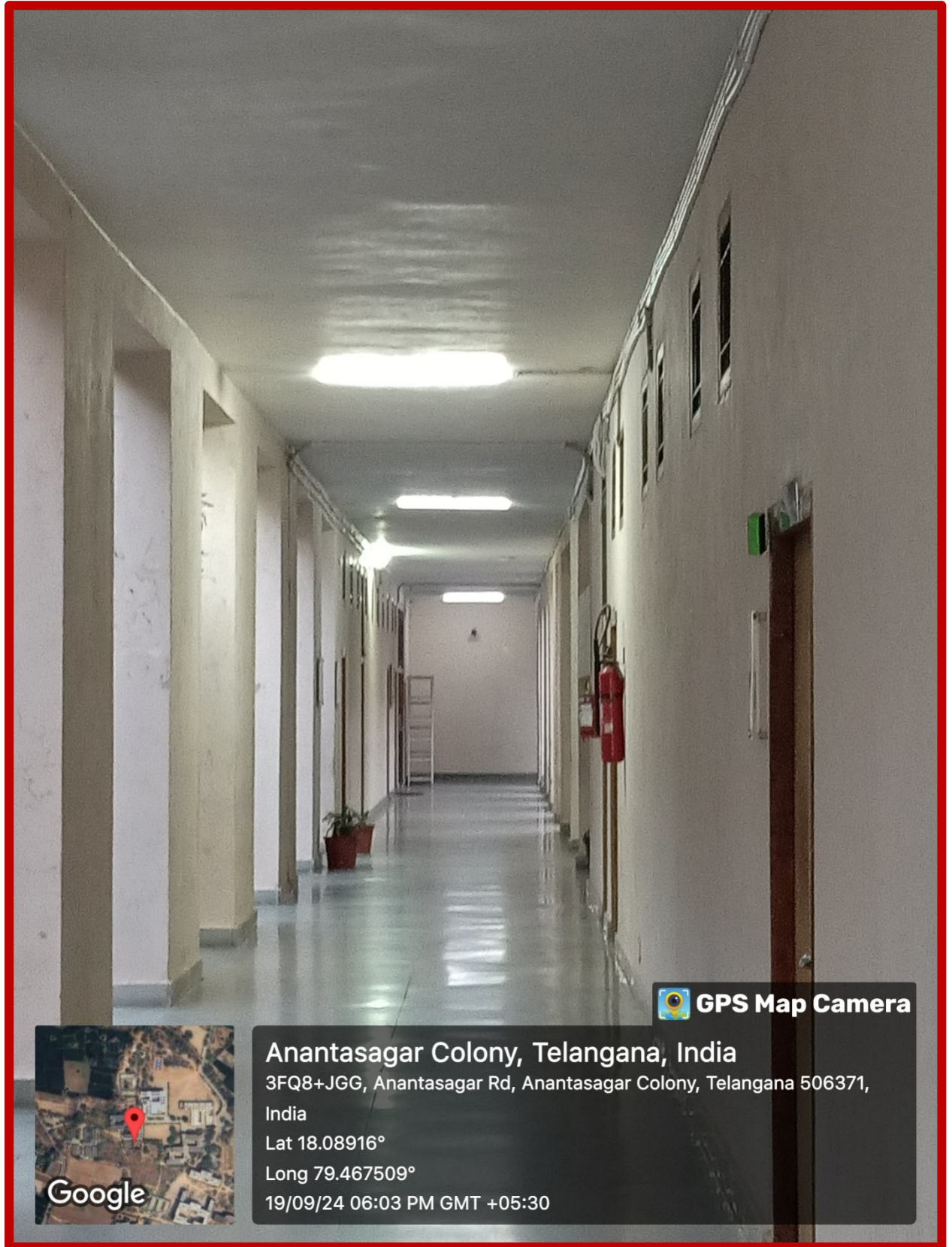



**LED Bulbs and Energy Saving BLDC fans in Staff Room**





**LED Bulbs in all Common areas**



 **GPS Map Camera**



**Anantasagar Colony, Telangana, India**

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Lat 18.08916°

Long 79.467509°

19/09/24 06:03 PM GMT +05:30

### LED Bulbs in Corridors