KG COLLEGE OF ARTS AND SCIENCE
Autonomous Institution | Affiliated to Bharathiar University
Accredited with A++ Grade by NAAC | ISO 9001:2015 Certified Institution
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ENERGY CONSERVATION

Alternative sources of energy, such as solar, wind, and hydroelectric power, are renewable and do not produce greenhouse gas or air pollution. By switching to these alternative sources of energy, we can reduce our dependence on fossil fuels, help to mitigate climate change, and improve our air quality. Energy conservation is another important way to reduce our reliance on fossil fuels and improve our environment. There are many simple things that we can do to conserve energy, such as turning off lights when we leave a room, unplugging appliances when they are not in use, and driving less. By making small changes to our energy habits, we can make a big difference. The college has initiated below mentioned alternate sources of energy and energy conservation measures.

1. Solar Panel

2. Wheeling the Grid

3. Sensor Flushing System

4. LED Bulbs

5. Sensor Based Lights

Solar Panel

Solar panel is a device that converts sunlight into electricity. It does this by using photovoltaic cells, which are made of materials that generate electrons when exposed to light. The electrons flow through a circuit and produce direct current (DC) electricity, which can be used to power various devices or be stored in batteries. Solar panels are a clean and renewable source of energy. They do not produce any emissions, and they can help to reduce our reliance on fossil fuels. Solar panels are also becoming increasingly affordable, making them a viable option for homeowners and businesses.

Solar panels can be a great way to save money on your energy bills and reduce your carbon footprint. If you are considering installing solar panels, I encourage you to do your research and find the right solution for your needs.

Type: 10KVAin campus

Location: Power House

Month and Year of Installation: 2017

Wheeling the Grid

Electricity is initially generated at Solar farms belong to KGISL Trust at Virudunagar with 2.5 MVA Panels are supplied to TNEB that impacts in the reduction of EB bill to the college. These power plants produce electricity in bulk and typically have high-capacity generators.

The generated electricity is then transmitted through high-voltage transmission lines. These lines are designed to carry large amounts of power over long distances. Transmission lines are interconnected to form a network known as an electrical grid. Along the transmission lines, there are various substations strategically placed to regulate and control the flow of electricity. These substations can adjust the voltage levels and redirect power to different transmission lines. Before the actual wheeling process occurs, agreements between different parties involved in the grid are established. These agreements determine the terms and conditions for the transfer of electricity, including the charges, responsibilities, and legal aspects. When a party, such as an electricity generator or consumer, wants to transfer electricity to or from a different location within the grid, they submit a request for wheeling to the respective grid operator or system operator. The request specifies the amount of power to be wheeled, the source, and the destination. The grid operator reviews the wheeling request and coordinates with other grid operators or system operators involved in the process. This ensures the availability of transmission capacity and verifies technical feasibility. The actual transfer of electricity takes place through the transmission lines. The power is transmitted at high voltages to minimize losses during the long-distance transfer.

At the destination location, the transferred electricity is measured using metering devices. These devices record the amount of electricity received, which is then used for billing and accounting purposes. Finally, the parties involved in the wheeling process settle the financial aspects based on the agreed-upon terms and conditions. This includes payment for the transmission services and any other charges associated with the wheeling process.

Sensor Flushing System

The main function of a sensor flushing system is to provide touchless operation of plumbing fixtures. Instead of manually pressing a flush button or handle, the system uses sensors to detect the presence of a user in the vicinity of the fixture. This eliminates the need for physical contact, promoting hygiene and reducing the risk of germ transmission.

Sensor flushing systems are designed to optimize water usage. They typically include sensors that detect the duration of user presence or motion. The system can adjust the flush volume based on the detected user activity, ensuring that an appropriate amount of water is used for each flush.

This helps conserve water compared to traditional manual flushing. When a person approaches or leaves the vicinity of the fixture, the sensor flushing system automatically activates the flushing process. The system may have a pre-set delay to ensure that the user has finished using the fixture before initiating the flush. This automated activation eliminates the need for users to remember to flush and ensures consistent flushing after each use.

The adjustable flush volume feature of sensor flushing systems helps conserve water. The system can be programmed to deliver the appropriate amount of water for different usage scenarios, such as a shorter flush for liquid waste and a longer flush for solid waste. This water- saving function contributes to sustainability and reduces water consumption. Sensor flushing systems can enhance accessibility in restrooms. For individuals with mobility or dexterity challenges, the touch less operation provided by these systems eliminates the need for physical effort to flush the fixture, making it more convenient and user-friendly.

LED Bulbs

LED bulbs, or light-emitting diode bulbs, are highly energy-efficient lighting options that offer several benefits for energy conservation. LED bulbs are known for their high energy efficiency compared to traditional incandescent bulbs. They consume significantly less electricity while producing the same or greater amount of light. LED bulbs can use up to 75% less energy than incandescent bulbs, resulting in significant energy savings. LED bulbs have a much longer lifespan than traditional bulbs. They can last up to 25 times longer, reducing the frequency of bulb replacements. This not only saves money but also reduces the energy and resources needed for manufacturing and disposing of bulbs. LED bulbs generate less heat compared to incandescent or fluorescent bulbs. LED bulbs provide instant full brightness as soon as they are switched on, without any warm-up time.

LED bulbs are compatible with renewable energy sources such as solar power. They can operate efficiently at low-voltage systems, making them ideal for off-grid or solar-powered applications. This compatibility promotes the use of sustainable energy sources and further reduces the carbon footprint. LED bulbs are environmentally friendly as they do not contain hazardous substances such as mercury, which is found in fluorescent bulbs. Moreover, their long lifespan and energy efficiency contribute to lower carbon dioxide emissions and reduce the demand for energy production from fossil fuels. Hence, the institution used LED Bulbs in all prominent places.

Sensor based Lights

Light sensors are a type of photo detector that detects light. Different types of light sensors can be used to measure illuminance, respond to changes in the amount of light received, or convert light to electricity. The sensor fitted in our campus detects the presence of Humans and on and off lights automatically.

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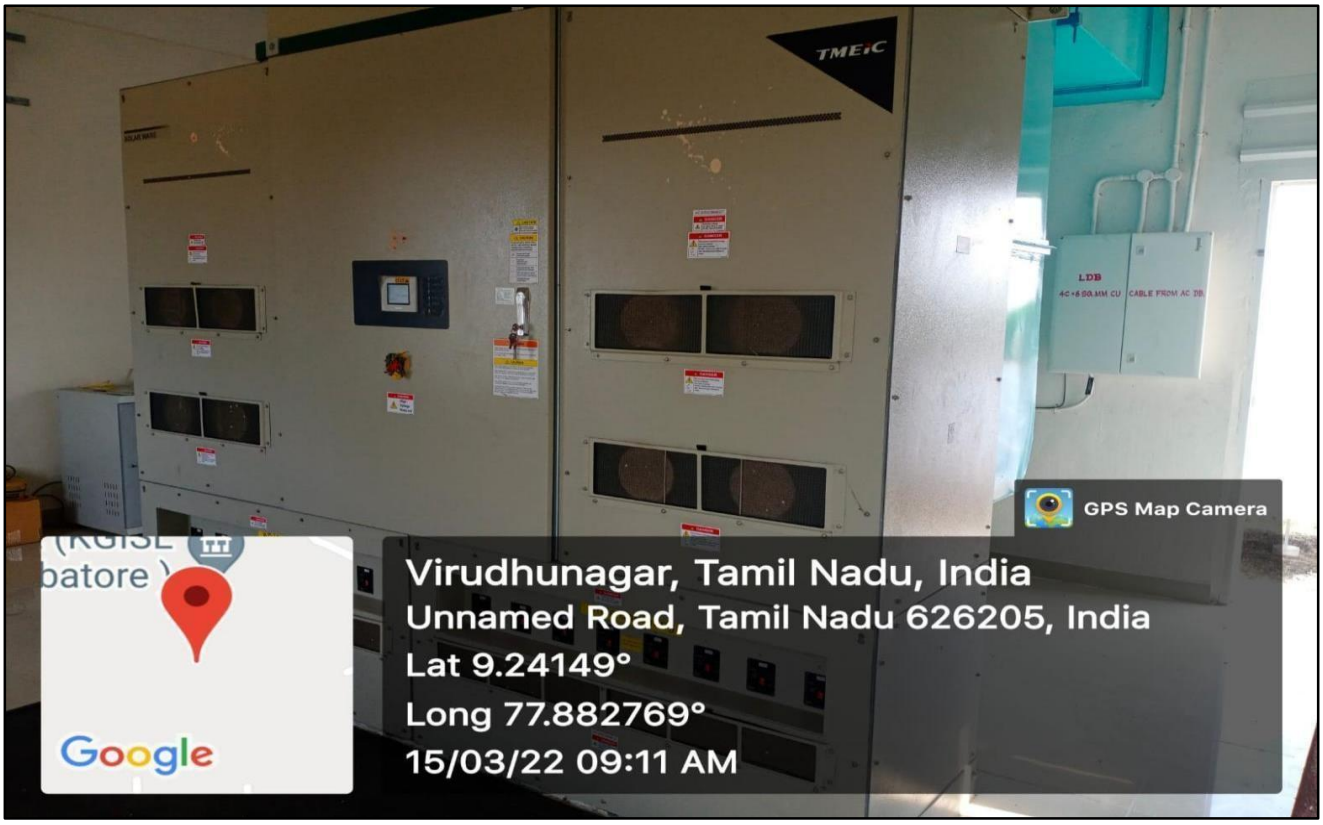
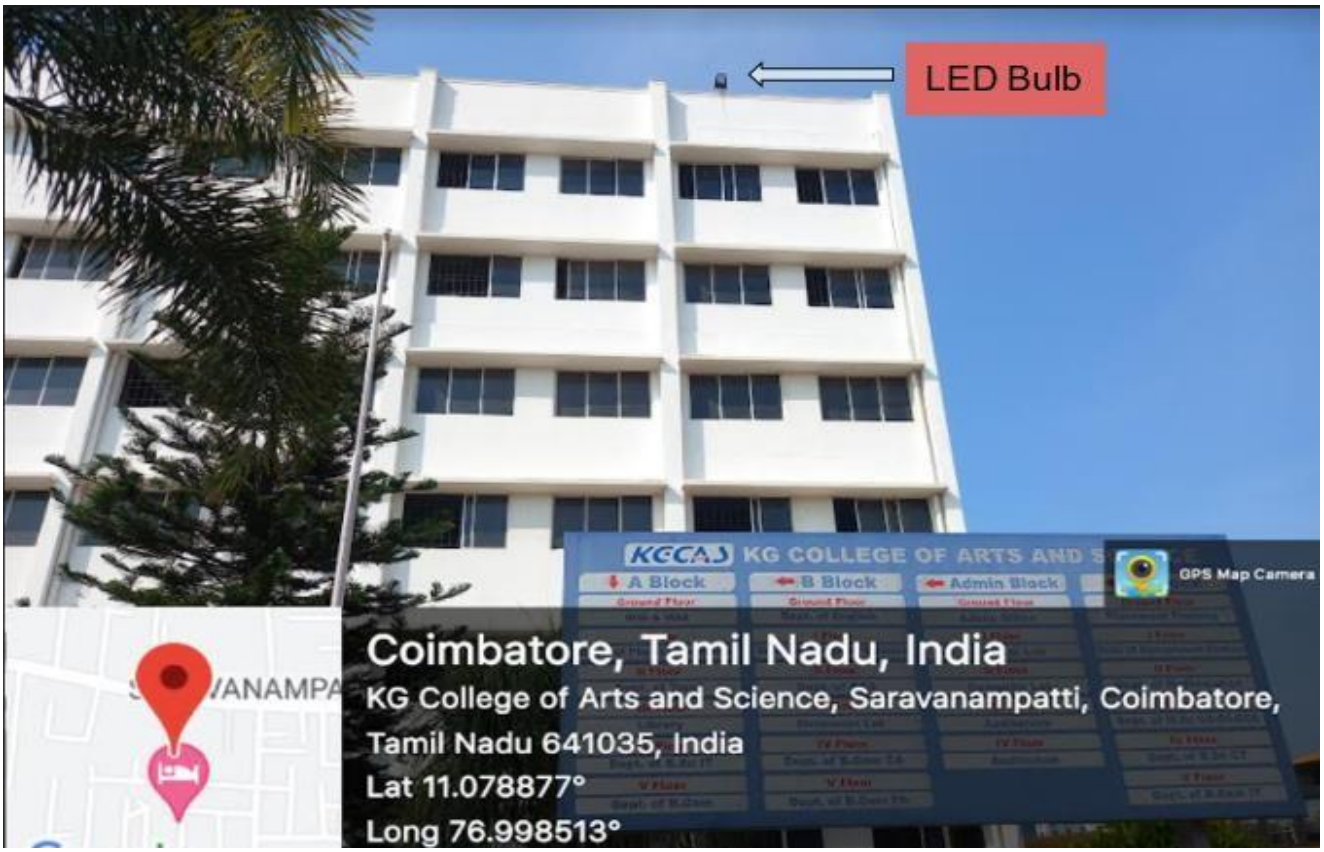
Solar Panel

Solar Power Plant

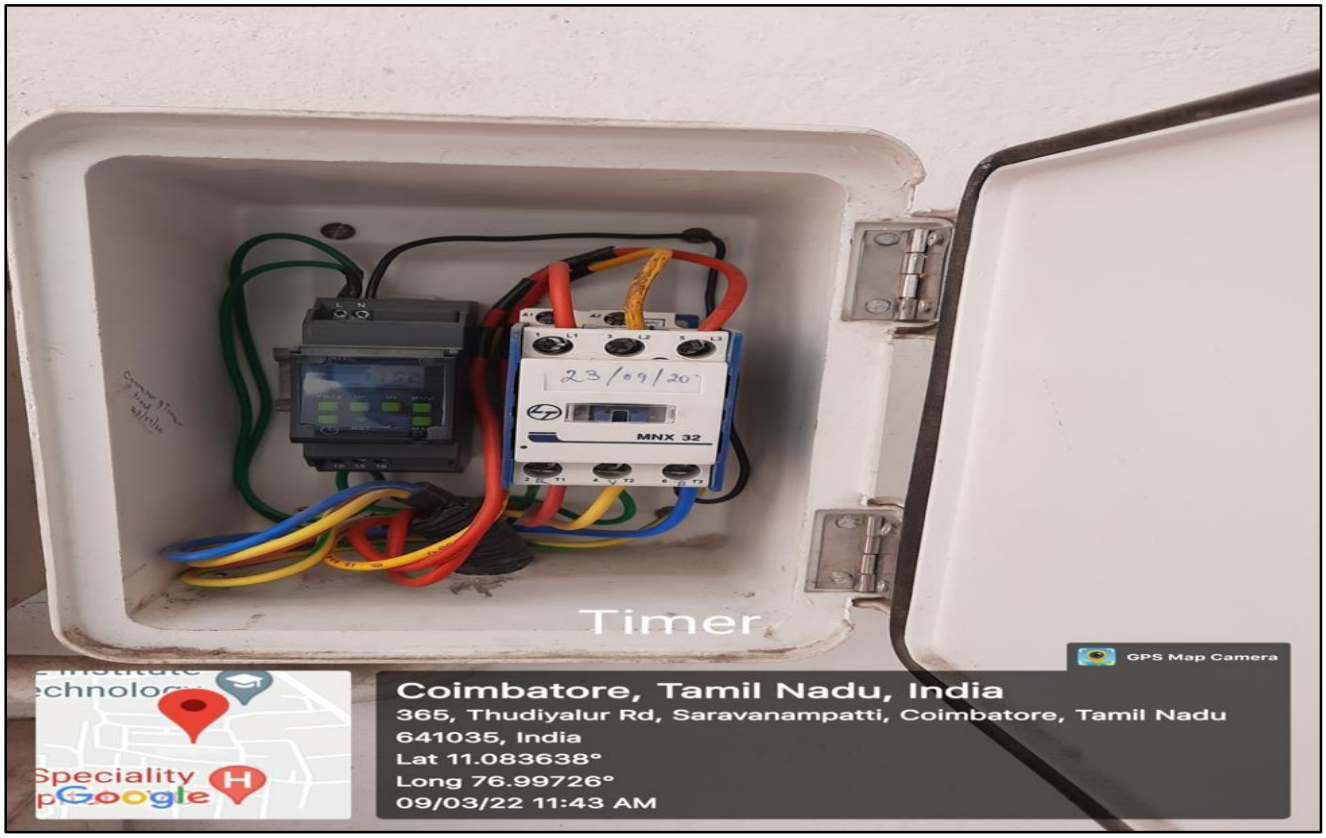
Wheeling to the Grid

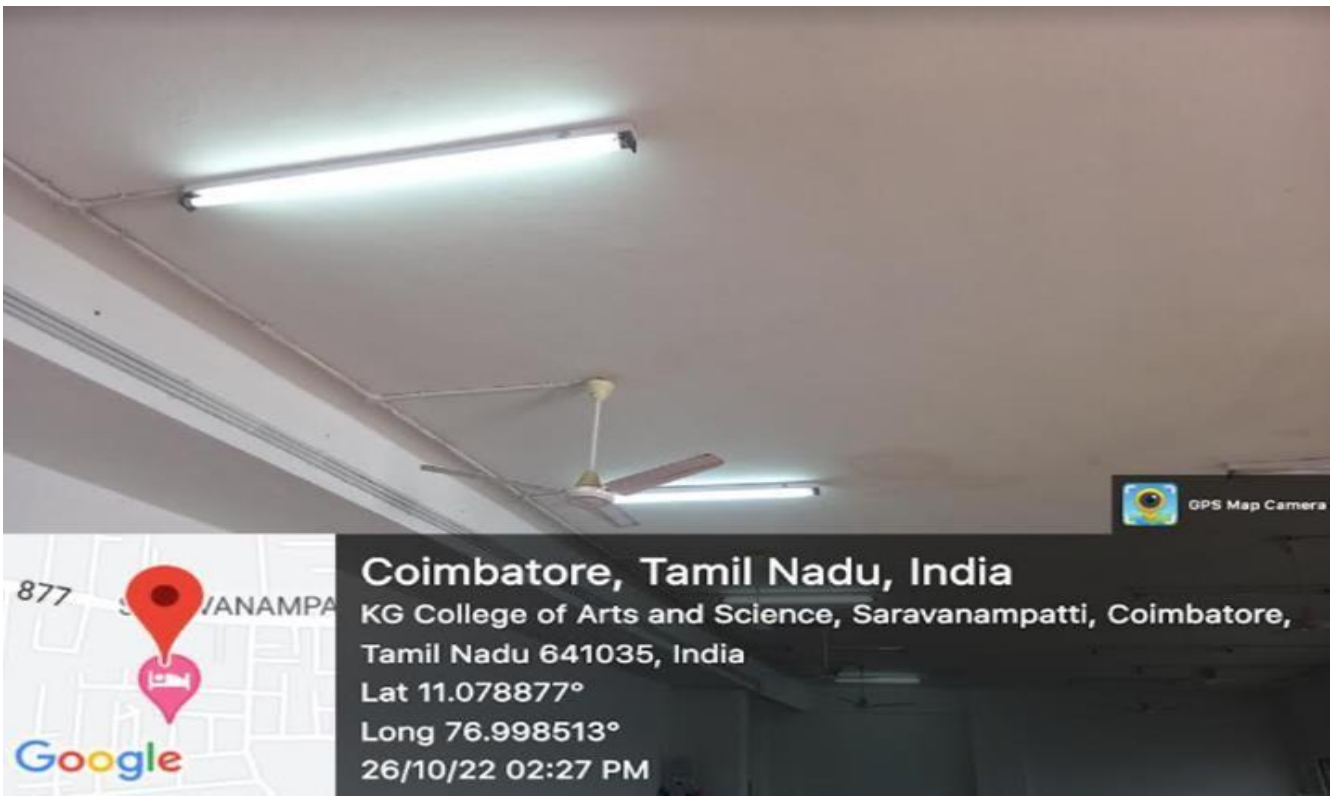


LED Bulbs / Power Efficient Equipment



Timer





Sensor-Based LED Bulbs