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Smart Home With Solar Tracking

Abstract

Maximize energy efficiency and control in your smart home with solar tracking technology and a Flutter-based mobile app. Charge your home using solar energy and control various features with Bluetooth connectivity to Arduino.

Background

Driven by the demand for sustainable energy solutions, our project utilizes solar power to create an efficient smart home system. Solar tracking overcomes limitations of static panels, optimizing energy generation.

Objectives

Design a smart home system with solar tracking and efficient control. Enhance energy efficiency, user convenience, and reduce electricity costs.

System Architecture

Seamlessly integrate solar panels, solar tracking mechanism, Flutter-based mobile app, and Arduino. Solar panels capture sunlight, while the tracking mechanism optimizes panel orientation. Mobile app controls the system, and Arduino facilitates Bluetooth connectivity.

Methods

Utilize algorithms and techniques for solar tracking and energy optimization. Develop the mobile app using Flutter. Program Arduino for Bluetooth communication and seamless control.

Technologies

Solar panels, solar tracking mechanism, Flutter framework, Arduino, Bluetooth.

Results

Experience improved energy efficiency and user satisfaction. Solar tracking enhances energy generation, reducing dependence on the grid. The mobile app provides convenient control options.

User Benefits

Control lights through buttons or voice assistant. Sensors for fire, gas, and water provide safety alerts. Smart garage for added convenience. Receive alarm notifications through the app and manage alarms.

Business Model/System Cost

Offer the smart home system as a product or service. Costs include hardware, app development, installation, maintenance, and support. System cost varies based on scale and hardware choices.