

Home (<https://ipindia.gov.in/>) About Us (<https://ipindia.gov.in/Home/AboutUs>) Policy & Programs (<https://ipindia.gov.in/Home/policypages>) Achievements (<https://ipindia.gov.in/Home/achievementspage>) RTI (<https://ipindia.gov.in/Home/righttoinformation>) Sitemap (<https://ipindia.gov.in/Home/Sitemap>) Contact Us (<https://ipindia.gov.in/Home/contactus>)

[Skip to Main Content](#)



(<http://ipindia.nic.in/index.htm>)



(<http://ipindia.nic>)

Patent Search

Invention Title	A SELF-SUSTAINING HYBRID SOLAR WATER HEATER WITH PANEL PROTECTION AND AN OPERATION METHOD THEREOF
Publication Number	12/2023
Publication Date	24/03/2023
Publication Type	INA
Application Number	202111059714
Application Filing Date	21/12/2021
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRICAL
Classification (IPC)	H02S0040440000, G01S0003786000, F24S0060300000, F24S0050200000, F24D0017000000

Inventor

Name	Address	Country
Dr. Ankit Gupta	C219A, Department of Mechanical Engineering, Shiv Nadar University, Gautam Buddha Nagar, India, 201314	India
Keval Sushruth	Plot no 141/A, Road no 10, Mangapuram colony phase 3, Old Alwal, Secundrabad, Telangana 500010	India
Rakesh Rayapureddi	S/o Rayapureddi Shekhar, Door no: 5-3-14, House no: 168, Mutta street, Parvathipuram, Vizianagaram district, Andhra Pradesh, 535502	India
Vaibhav Sehgal	339, Street 1, Dashmesh Nagar, Baghpat Road, Meerut, Uttar Pradesh 250002	India

Applicant

Name	Address	Country
Shiv Nadar (Institution of Eminence Deemed to be University)	NH91, Tehsil Dadri, Gautam Buddha Nagar, Uttar Pradesh 201314, India.	India

Abstract:

The present invention relates to a self-sustaining hybrid solar water heater (100) with panel protection and an operation method thereof ". The water heater comprises panel(101), a panel aligning unit (101a); a panel cooling unit (114) with functionally graded material (FGM)(115) and metal conduits(116), and a control unit (107) oper connected to a peak power controller (108) and a temperature controller(109), a sun sensor(113), the panel cooling unit (114) an anemometer(118). Water is circulate the metal conduits (116), extracts the maximum heat from the panel and heated water is stored in the hot water tank, in cloudy condition the electricity stored in the used to heat the water, making the system self-sustained, in all weather conditions and with improved solar efficiency. It also comprises anemometer for aerodynam positioning of panel in storm condition.

Complete Specification

FIELD OF INVENTION

The present invention relates to self-sustaining solar water heating systems. In particular the instant invention relates to a self-sustaining hybrid solar water heater integrated with graded material and panel protection system.

BACKGROUND OF INVENTION

Solar energy is well known as a renewable source of energy. Solar panels are widely used, which capture sunlight to create photovoltaic power (PV) that are made of cells or photovoltaic cells. A solar panel is expected to produce more when the sun is high in the sky and will produce less in cloudy conditions or when the sun is low sky especially when sun is lower in the sky in the winter. Commercially available solar panels has the deficit of effectively trapping the heat radiated by the sun. Gen solar panels are designed to exhibit maximum rated efficiency at room temperature (25°C). However, due to constant exposure to the sun rays, short circuiting of the and many more reasons, the temperature of the panel rises considerably to a higher value. This elevated temperature is detrimental to the panel efficiency and performance. Further, the harvested energy is lost as heat. Thus, delivering higher solar panel efficiency has become a very demanding and challenging domain for engineers and hence craves for constant research.

As the sun revolves around the earth, the angle of incidence of sun rays over the panel keeps varying. Theoretically, a lower angle is associated with a better energy generation and thus greater efficiency. Functionally graded materials (FGMs) have been developed for use in solar panels that can tolerate high temperature.. The usual aluminum based graded materials such as aluminum-HDPE FGM is being used in conventional solar systems. These kind of systems has the drawback that has less

[View Application Status](#)



Terms & conditions (<https://ipindia.gov.in/Home/Termsconditions>) Privacy Policy (<https://ipindia.gov.in/Home/Privacypolicy>)
Copyright (<https://ipindia.gov.in/Home/copyright>) Hyperlinking Policy (<https://ipindia.gov.in/Home/hyperlinkingpolicy>)
Accessibility (<https://ipindia.gov.in/Home/accessibility>) Contact Us (<https://ipindia.gov.in/Home/contactus>) Help (<https://ipindia.gov.in/Home/help>)
Content Owned, updated and maintained by Intellectual Property India, All Rights Reserved.

Page last updated on: 26/06/2019