ADVANCED FABRICATED SETUP FOR DAY LONG PRODUCTION OF HOT WATER BY FRESNEL LENS

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ABSTRACT

This work has been aimed to collect the solar energy source from Fresnel lens and utilize it to produce hot water or steam. The setup consists of a large spot Fresnel lens which concentrates the sun’s rays into a one-centimeter square spot onto a copper tube with the temperature reaching around 200 °C. This concentrated heat is focussed on copper tube absorber to heat the water, the hot water then can be used for a variety of purposes, like sterilize utensils or different equipment in hospitals, restaurants etc and for cooking purposes. The setup also consists of a solar tracking system consisting of light resistive sensors and a microcontroller with a relay setup that controls the movement of the frame. The experiment has been conducted from morning 9 am to 5 pm, with ever-changing hours the sun was automatically tracked with the help of a solar tracking system. From the experimental results, it has been observed that the maximum temperature of water obtained was 81 °C at 13:00 hours.

KEYWORDS: Fresnel Lens, Conventional Lens, Renewable Sources, Microcontroller & Light Resistive Sensors

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