

# Understanding Patterns of Technology Evolution: An Ecosystem Perspective

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**Abstract:** The smart home proposal uses many technologies like solar globe tree with reflectors, bio AC with low consumption and water heater both (ac and heater) are the device in the smart home concept. Hybrid energy is generated using the 3 sources like solar power (globe tree with reflectors), hydropower (vortex turbine), and algae power. The smart home will be **self-sufficient in cooling in the summer season and producing the heating effect in winter**. The cooling purpose is done with the help of an ice producing bacteria. And the heater runs due to the arrangement of a device with convex lens .other appliances of the home can run by the hybrid renewable source and rest energy is supply to the grid which creates an earning opportunity for normal people. It has an efficiency to solve all the problems and take a step to build an advanced and modified the eco-friendly home.

**Keywords:** Efficient and newly design solar panel, Low-cost bio AC and heater, Hybrid eco renewable energy, Reduce global warming and electricity bill, Eco-friendly house

## 1. Introduction

The eco-friendly house contains all the solutions regarding the problem. Here the most important features are bio AC and heater.

### Description of Product

The specification of all technology:

**1) Solar globe tree:** panels are in globe shape like that 5 to 8 globe panel with reflector are arranged in a tree shape. This project is more efficient and less space taking. Due to the globe shape panel tree, it is compact in lesser space. In the previous panels, sensors are used to move the panels in the direction of sunlight but here lower cost reflectors are used for that purpose.

**2)Bio AC:** all are acquainted with a bacterial made product like a battery which charges through bacteria which use in train and other purpose today researchers give more light toward bacteria efficiency eco-friendly products so bio AC, which operated due to a particular bacteria's specific ability. It can come to the market with low cost and low consumption of electricity.

**3) Water heater:** It present in the same device where AC is present mean both AC and heater are in the same device. Here heater runs because of a specific arrangement of the device with a convex lens.

**4) Hybrid energy:** A hybrid energy is generated using the 3 sources like solar power (globe tree with reflectors), hydropower (vortex turbine) and algae power. Here vortex turbine is low pressure and low height turbine which can give power supply to 60 homes for 24 hours.

Algae also help to produce electricity and at the same time, it reduces carbon dioxides (due to photosynthesis) from surrounding to keep the atmosphere fresh.

## 2. Literature Survey

The need for smart homes that will be eco-friendly consumes less electricity, clean natural sources are used for energy production. Heater and cooler at the same time that too at a cheaper price is what we are trying to address. For the cooling purpose, an ice nucleation bacteria is used. This hybrid cooler and heater at the same time are cheaper to the combined cost of existing cooler and heater. This device will not consume any extra space in the rooms of our homes as it is installed at the roof. Lesser electricity is required as natural sources are used.

### Problems:

Most of the issue is solved due to new upcoming technology but some problem is still there. Most of the problem occurs due to the AC which is the participant of causing global warming and also problem like electricity bills, waste of water, high cost of renewable energy producing a device which is not affordable for normal people who are suffering the most in their daily life. This eco-friendly house has a different approach that solves any problem and it has a different market like in construction one can be built the whole house with all its above-said benefit and otherwise individually Bio AC and heater, solar globe tree with reflector can available in the market for normal people use.

### Method / Approach:

A brief definition of some techniques used to solve the above problem;

1<sup>st</sup> to reduce heating effect which occurs due to refrigerant AC by introducing a Bio AC-here it runs because of ICE producing bacteria named as *Pseudomonas syringae* which have the ability to produce ice in normal temperature .P .bacteria cultivator use to store the bacteria and then sent it to the water pipe chamber which place at the roof then bacteria convert water into ice, after completion of ice formation cool air circulate throughout the home after

going through some process like compression, expansion and heat exchanger.

**Water heater:** It present in the same device where AC is present mean both AC and heater are in the same device. Here heater runs because of the specific arrangement of the device with a convex lens. Because the use of convex lens all heat is the focus in the water pipe chamber in the winter season where P.bacteria cultivator remains close to stop the bacteria flow.

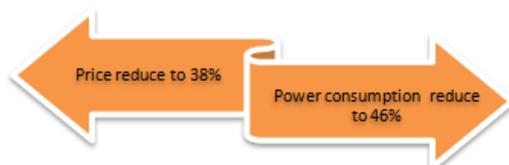
2<sup>nd</sup> reducing the high cost of renewable energy producing device by use of solar globe tree with reflector- in this project is more efficient and less space taking. Due to the global tree, it is compact in lesser space. In the previous panels used we sensors were used to move the panels in the direction of sunlight but here lower cost reflectors are used for that purpose.

3<sup>rd</sup> hybrid energy solves the many problems like to power cutoff due to energy insufficiency in rural areas and electricity bills also it starts an earning opportunity by selling the extra power to the grid.

#### Result / Output:

Before		
APPLIANCES	POWER CONSUMPTION (in watts)	PRICE (in Rs)
AIR CONDITIONER	871	29990
FAN	75	799
FREEZE	200	11990
TOTAL	1146	42779

#### After modification



As we saw above the value it can be understood that by the use of this technology some of the problems in daily life can be solved.

### 3. Conclusion

This technology helps in less investment more profits it set the future goal to build an eco-friendly home or eco-friendly device. Normal people always face many problems in their daily life they can't afford AC because of their price plus its cause heating effect in the environment. Bio AC and solar globe trees with reflector

individually can available in the market at low cost and eco-friendly to the environment and also the eco-friendly house itself has all benefit.

### 4. Future Scope

1. North America and Holland is the largest manufacturer of green/smart houses. In India, until now the concept of green and smart houses is not as common as in other countries, but now India also adopts new technologies.
2. This greenhouse concept is cheaper than the existing greenhouses. The existing greenhouse construction requires large spaces like for construction of earth tunnels but this idea doesn't need large spaces as no construction of earth tunnel is required. The existing greenhouses need to plant trees throughout the buildings.
3. We will test this method as a prototype and note the progress, changes, and drawbacks. Then we will apply this proposal for the GRIHA (Green Rating for Integrated Habitat Assessment) and which will help the product to be introduced in the market.

### References

P.syringae ice ability -from NAT GEO  
Except above this technology have all modification itself from its previous one.

### Authors Profile



**Arundhati Kar**, I am a student of GIET UNIVERSITY Gunupur, Odisha and currently, I am pursuing B Tech final year. I want to be an innovator to discover or built something new which will help the normal people and give the effort to make a better environment for the future. I participate in many competition and also selected for national level in Viswakarma award 2019 which was held at Delhi. I believe that today youngsters have the talent to participate and can develop new technologies and give their effort to bring a new evolution if they get a chance to show their talent.