Solar Powered Water Seer

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***Abstract*:** There is water around us all the time, which is present in air in the form of moisture we just cannot see it. The air in our atmosphere contains a varying amount of water vapor, depending on the weather. When it's hot and humid atmosphere, evaporated water can make up as much as 6 percent of the air we breathe. On cold, dry days it can be as low as .07 percent of the air's makeup. This air is part of water cycle, an Earth process. Crudely put, water evaporates out from the rivers, lakes and the ocean. It is carried up into the atmosphere at high level, where it can collect into clouds (which are actually just accumulations of water vapor). When the clouds reach to the saturation point, water droplets will form, which we know as rain. This rain runs off the land and collects into various bodies of water, where the whole process begins again.
Solar powered Water seer is a low-cost, low maintenance atmospheric water condenser that could help to collect the water in all over the world. A new device that depends on simple condensation to collect clean water from the atmosphere promises to provide up to 11 Liters of safe drinking water without Non-renewable energy sources, greenhouse gas emissions, or adverse environmental impacts.

***Index Terms*- Darrieus vertical axis wind turbine, water seer, condensation, Solar panel.**

I. INTRODUCTION

Water is fundamental source of Life. We cannot live without water. The air in our atmosphere contains varying amount of water vapor depending on weather. Only 2.5% fresh drinking water can be available on earth.

In India there are many regions where lack of availability of pure drinking water. And in some region in summer there are many problems faced by people due to drinking of hard water because we are not ensured about water is filtered or not. There may be a chance to create health problem many diseases are arises so to overcome this problems we invent new technology which is atmospheric condensation. Which is called as water seer? This is very simple to construct and design its installment cost is very low it works in all season and without any greenhouse gas emissions, or adverse environmental impacts. What's more, the innovative Solar powered Water Seer collection device could potentially run Day and night, gifting generations of people with access to 'Immortality' in areas of the world where a harsh climate or lack of infrastructure make access to clean and pure drinking water a major problem.

1.1 NEED OF STUDY

Previous solutions based on condensation use a great deal of energy, usually in the form of diesel-powered compressors (non renewable sources) and evaporators. They are basically big air conditioners. Some use powerful and dangerous chemicals that can damage the immediate environment. They are also difficult to move, require high technical skills to operate, and expensive to operate and maintain. Solar powered Water Seer uses solar power. It is completely non-polluting and its simple construction is inexpensive and maintenance free.

II. PROBLEM STATEMENTS

Our planet has an abundance of water but most of that water is undrinkable. 97.5% water available is undrinkable, 1.75% water is frozen and only 0.75% water is good for drinking.
1 in 3 people worldwide, more than 2.3 billion don't have clean & safe drinking water.
1 in 5 people around the world, more than 1.2 billion live in areas of water scarcity.
Every day more than 18k people die due to lack of safe drinking water.
Poor woman & children walk for hours together in order to collect safe drinking water in urban areas.

III. OBJECTIVES

Aim to find out the problems arrive in summer season when there is lack of availability of drinking water. If there may be a possibility of water but we are not ensuring the water is filtered. Due to drinking of average water there may be many chances to create health problems or many diseases are arrive. To overcome this overall effect we invent new technology which works similar to atmospheric condensation which is called as water seer.

IV. METHODOLOGIES

1. Literature Survey For:
   i) Machining Process
   ii) Cutting Oil
   iii) Coolants
   iv)
2. Designing of various components used in setup.
3. Fabrication of experimental setup.
4. Performance evaluation experimental setup.
5. Finally results will be summarized.

V. PRINCIPLE AND WORKING

5.1 Principle:-

In order to understand the working principle, it is very important to understand the below mentioned basic concepts.

Relative Humidity

Since the process involves the conversion of atmospheric air to water relative humidity of the air plays a major role. It is the measure of water vapor present in the air relative to the temperature of the surrounding.

Absolute Humidity

It is the measure of water content irrespective of the air temperature.

Dew Point Temperature

It is the temperature at which water vapor can no longer exist and gets converted into dew drops. So achieving the dew point temperature by natural means is the prime goal of our project. Now if the above- explained properties are clear, then it is time to take a look at the design and understand the working.

CONSTRUCTION (KEY PARTS OF THE PROJECT) the following are some of the major parts of the setup.

A. Solar fan

Fig.5.1.A:- Solar fan

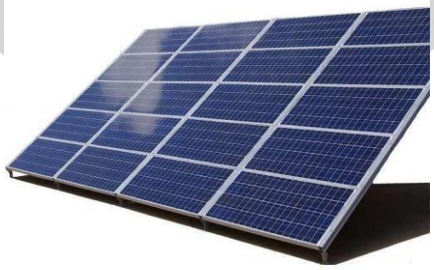

Fig.5.1.A:- Solar Panel or Plate

5.2 Working:-

Solar powered water seer works on principle of separation of moisture from atmospheric air. DC fan operated on solar energy by using solar panel. Required power is provided to fan taken from panel and remaining amount of energy is stored into battery with the help of charging controller. Fan is installed in Hopper which is made up of G.I. sheet. It has good strength and vibration sustaining properties. The entry of Debris is restricted by using lid on hopper. The number of small holes is created on it with the help of vertical axis drilling machine to take air from atmosphere by using fan. Fan takes the humidified air from atmosphere and compresses it above atmospheric pressure for increasing the heat dissipation rate. This air is passed through the pipe and falls into the tank through a small nozzle for sudden expansion in it. The pipe and tank is installed below ground level for condensing purpose. The tank wall exchanges the heat with soil surrounded to it. Hence moisture gets condensed and fall into that tank.

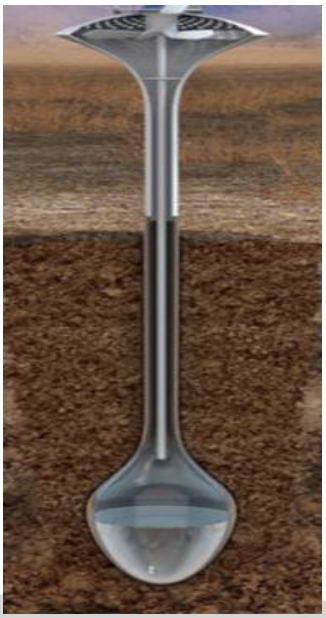

Fig.5.2:- General set up

The remaining dry air is expelled out with the help of exhaust pipe which is made up of polymer. Water in the tank will be drawn with the help of hand pump. The output can be increased by using battery when there is no availability of solar energy.

ADVANTAGES AND APPLICATION Advantages

- It is economical.
- No need any electrical device.
- Self-starting.
- Filtered water is collected.
- Chances of water borne diseases are reduced.
- Depend on solar energy which free to available at any corner of world.
- No pollution.

APPLICATIONS

1. Drinking water for water scarcity areas
2. Pure water is available
3. No or less electrical supply areas
4. Drought areas

CONCLUSION

We conclude that the region where Relative humidity in atmosphere is high with moderate temperature gives maximum output in terms of condensed and purified water for drinking purpose. The higher humidity areas such as sea shore like Mumbai, Cape Town can collect huge amount of water.

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BIOGRAPHIES

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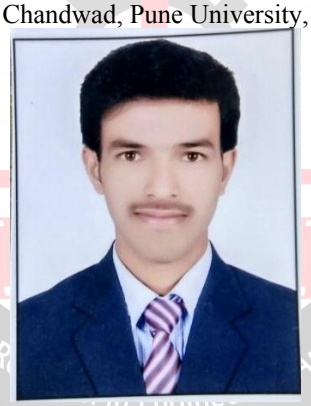

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