

SMT S.R PATEL ENGINEERING COLLEGE, DABHI



HARVESTING OF WATER AND CLEANING OF THE SOLAR PLATE BY VIPER SYSTEM

INTERNAL GUIDE

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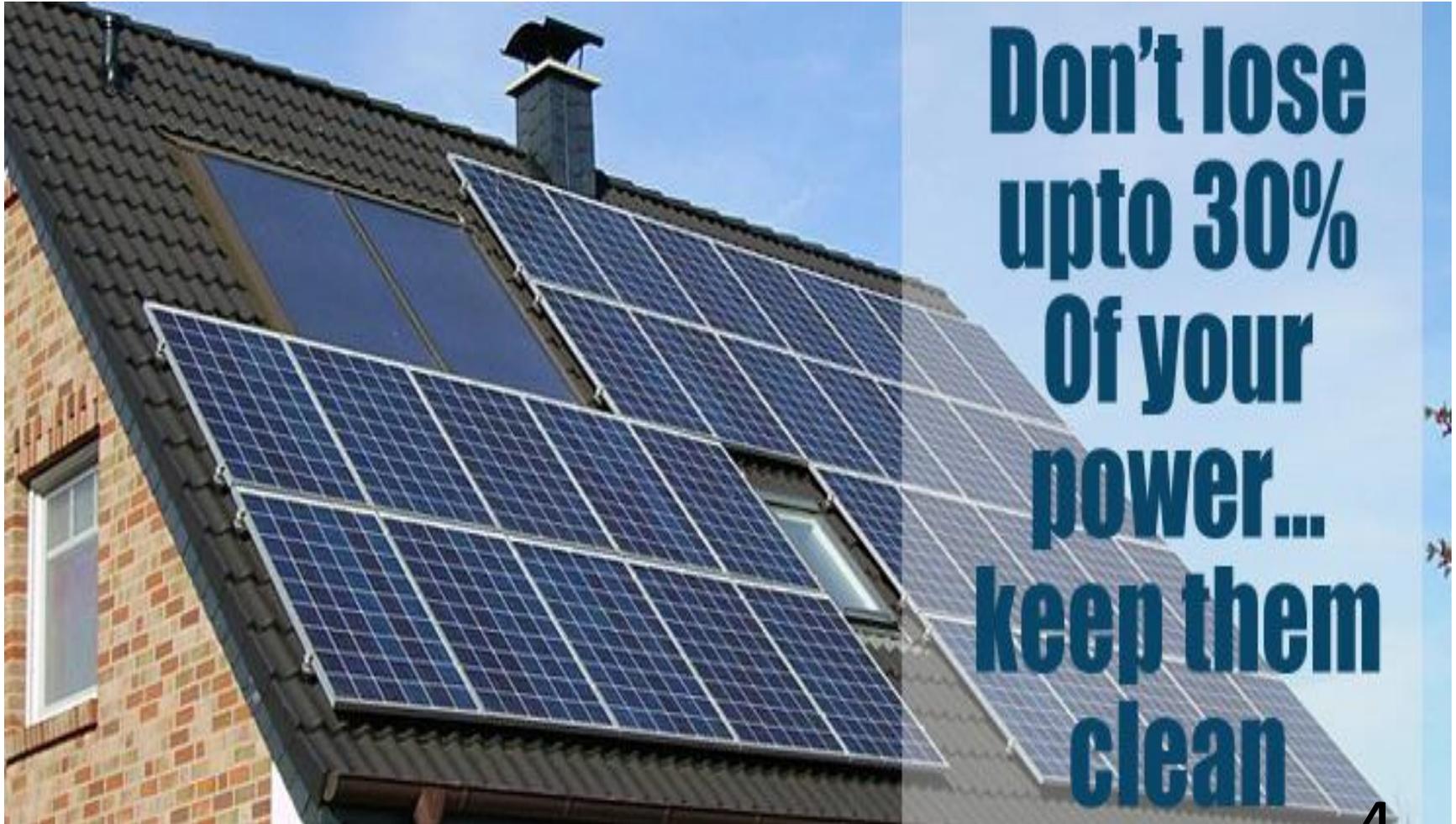
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Defination of The project

❖ CLEANNIG OF THE SOLAR PLATE BY THE VIPER SYSTEM

- Solar Energy Used Now Days Every Where. It is most economical now days.
- The solar energy directly available in the atmosphere without any cost.
- There are 300 sunny days every year in the india.
- It's generation is 10 times higher than a thermal power plant.
- **So project definition is to be cleaning the solar plate by the viper system.**
- We tell about why this project select and how and what type benefits available. these are mantioned below.

CLEANING SYSTEM



**Don't lose
upto 30%
Of your
power...
keep them
clean**

WHY SELECT THIS PROJECT?

- Now days we saw that if the solar plate is not clean properly time to time, so its efficiency is decrease.
- To increase the efficiency and the life of the plate the cleaning of the solar plate is necessary.
- The dust and other pollutants which is on the surface of the plate.
- Now days there are no proper technology to clean the solar plate.
- Any system to clean the solar plate but it is costly and the time consuming.
- The latest technology to clean the solar plate.
- Aim of project is to clean the solar plate automatically without man work.
- To achieve goal, The viper system which clean solar plate automatically time to time.

CONTINUE

➤ This technology is not popular now days .viper system for solar plate cleaning is new technology develop for improve performance of solar plate.

Different cleaning system



Project background

- Project background is viper system used which operate based on the PLC system.
- Viper clean the whole surface of the solar plate automatically.
- So the man work and the other device used in the cleanning is reduced.
- During the time when sun light not available or night the cleaning is carried out automatically.
- So aim of project to give best system to the least time consume and low cost and least man power requirement.

OBJECTIVES

- To increase the efficiency of the plate.
- To increase life of the plate.
- To reduce cleaning cost of the cleaning process.
- To reduce the labour cost.
- To reduce the time of the cleaning.
- Automatic cleaning system.
- Controlling by it self.
- To remove dust particles.
- To reduce the waste of the water.

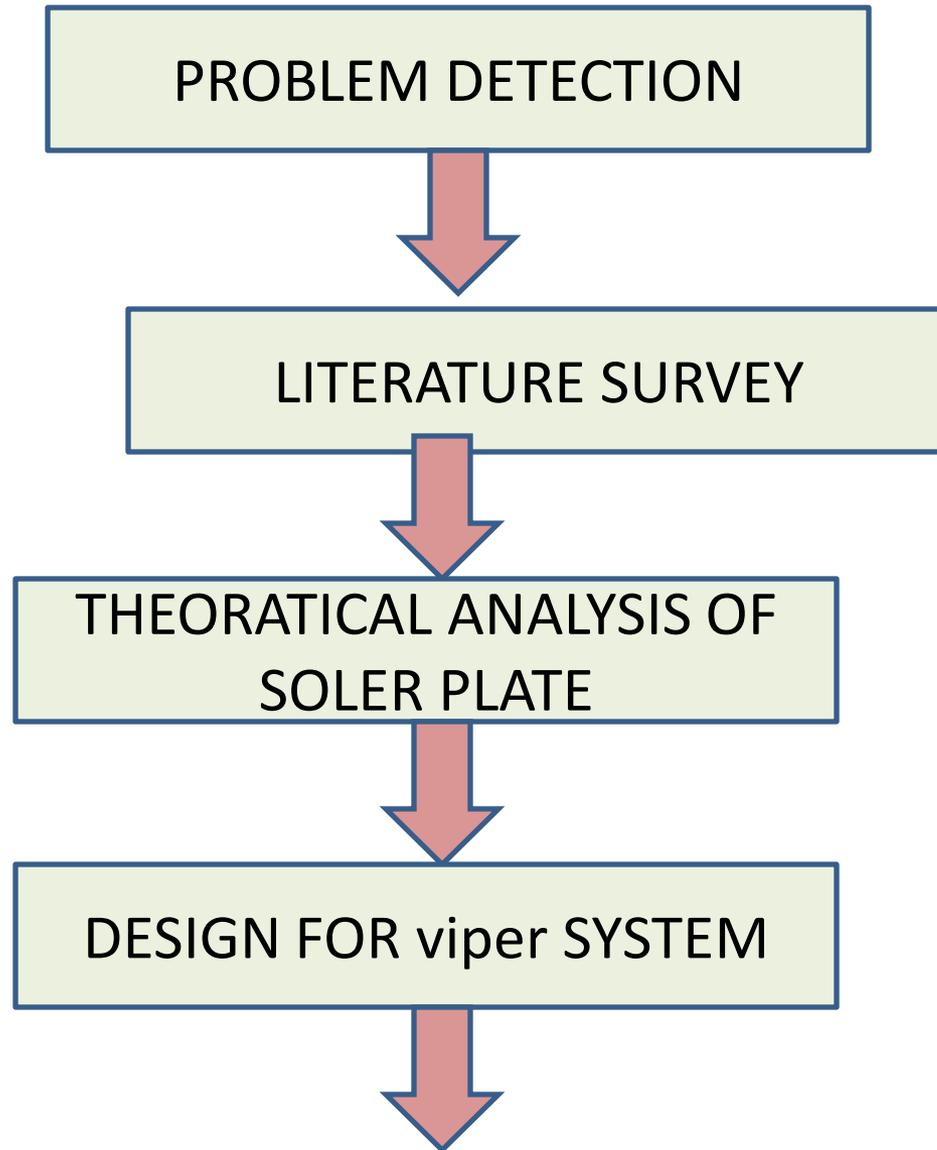
SCOPE OF THE PROJECT

- The scope of this project is every where where the solar plate is used.
- The solar power plant is used for cleaning old technology.
- So these project is best where the electricity is produced by the solar based system.
- There are number of the solar plates in the solar power plant so the cleaning is the difficulties. So this project is used in the solar plant they give high efficiency at the lowest cost.
- So project aim is to give this system to the solar power plant.

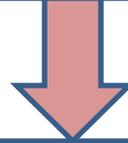
CLEANING OF THE SOLAR PLATE



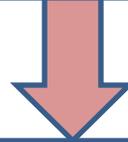
METHODOLOGY



CONSTURCT MODEL
ACCORDING TO DESIGN



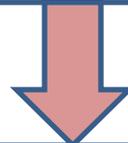
AUTOMATION APPLIED ON
VIPER SYSTEM



ANALYSIS ON PERFORMANCE
OF SOLER PLATE AFTER
SYSTEM ESTABLISHED



RESULT



CONCLUSION

Research on the cleaning system of solar plate

- Dust has also bedeviled solar installations on Earth. For example, dust storms have cut power production by 40 percent at a large, 10-megawatt solar power plant in the. Washing the panels can be time-consuming or require costly automation—and it takes a lot of water, resource in the desert. “With this new technology, solar panels can be automatically cleaned without water or labor,”
- The efficiency of solar panels depends on how clean they are, and dirt and dust can dramatically degrade their capabilities.
- Still, each one doesn't need to be cleaned individually, said Professor **Malay Mazumder**. Self-cleaning technology he designed for Mars and lunar missions can be used to keep solar panels clean via thin transparent conducting wires embedded on panel surfaces through which a pulsed phased voltage is applied

RESEARCH 2

- Other technology which is used to the plate is manual.
- The manual work is done by the mop cleaning.
- The mop is attached on one end of the stick and the cleaning is carried by the hand.
- This system developed about few years ago.
- The figure shows the cleaning by the mop the solar system.

RESEARCH 2



THE SPRAY SYSTEM

- The other system is used to clean the system is spray system.
- The water spray directly on the plate by the nozzle or the pipe to clean the system.
- This system is used for small purpose where small number are plates are available.
- This method are used for now days.
- The figure shows the cleaning system.

SPRAYING SYSTEM TO CLEAN THE SOLAR PLATE



EXAMINE

- The glass substrate of a solar panel allows light to shine upon the silicon surface and produce electricity from the movement of electrons on the atomic level.
- Solar panels work in both a direct and a diffuse light manner.
- Silicon is a very good conductor but doesn't have the ability to produce electrons when light strikes it. In order to generate electricity, a flow of electrons and impurities are introduced into the silicon used.
- The electrical current generated by the light flows from the solar panel into batteries for storage in the form of DC electricity.
- In order for the electricity produced by the solar panels to be used in place of fossil fuel electricity, it has to be turned into AC electricity. This is accomplished by running the stored electricity through an inverter that makes the DC into AC.

➤ Solar panels were originally only used in space. Solar panels now provide energy for places that are remote and that cannot use electrical lines.

The price of solar panels has dropped in the recent years due to the greater ability of manufacturers to create pure silicon wafers that are the starting material of a solar panel, making the use of solar panels more widespread.

What's wrong with a little dirt on the panels?

Dirty panels will not allow energy from the sun to charge the solar cells. In NJ this contamination can come from many different sources such as bird droppings, salt and sand blown in from the beach, pollen, dust, dirt and grime stirred up when vehicles drive by, hard water stains from rinsing with a garden hose, just to name a few.

This can reduce output and efficiency of the system completely if left untreated for years. A typical cleaning will result in a 10%-60% increase in readings.

How much electricity do dirty solar panels lose?

- While many factors impact solar power production in solar panels, experts agree that you will lose power. That loss may range as high as 25% in some areas according to the National Renewable Energy laboratory.
- Individual dealers have reported losses as high as 30% for some customers who failed to ever clean their panels.

LABOUR COST

- There are 300 rows in the solar power plant.
- On each row the solar modules are 160 solar modules.
- To clean the solar plate the labour cost is more effective.
- The solar power plant solar plate now clean by fire tractor.
- They are clean the solar plate by spraying the water on the solar plate .
- They are clean 7 to 8 rows per day. And give 300 RS. per day to labour. and required 3 or 4 labour on the each day.
- This cost monthly 36,000 RS. on the month. means total cost per annual 4,32,000 RS. means this system is costly more than our system.
- Once our system is established and analysis the cleaning cost is reduced economically.











Thank you