

## Assignment-1

Define a problem statement and give a brief executive summary snapshot.

### A) Executive summary

Solar energy is rapidly growing industry with globally installations increasing Annually.

However, Dust, dirt, bird droppings & debris comes on solar panel. Because of that, the sunlight can't reach to panels, Due to that the efficiency of solar panel reduce up to 30%. The life of the panels are void.

The current cleaning methods are :-

- 1) Manually by brush.
- 2) Water pressure
- 3) Electricity for cleaning (for water pressures)

- Because of that, Time is highly-consumed.
- Wastage of water
- Cost of labour
- Labour intensive

## B) Project Description

The primary goal of this project is to design and develop an autonomous robot, capable of cleaning the solar panel safely, ensuring the maximum efficiency and production.

In order to save water and energy and thus reduce the uses of water and labour through our services, we need Design and mechanical components such as :-

- 1) Movement mechanism
- 2) Cleaning mechanism
- 3) Durability
- 4) Technical and sensor systems
- 5) User interface and control
- 6) Safety and maintenance
- 7) Eco-Friendly material

• Challenges which would be faced during project :-

- 1) Operational and technical issues.
- 2) Cost-related issues
- 3) Autonomous operation problem.
- 4) User interaction and integration challenges

By Undertaking this project, we will ensure that, we will increase the lifespan of solar panels with reduced maintenance cost, improved safety, consistent cleaning, enhanced energy efficiency, reduced labour cost, etc.

### c) Project Scope

Providing a cleaning robot to maintain the optimal performance and efficiency of the solar panels.

To reach customers for solar panel cleaning robot can be done by various marketing strategies:-

- |                       |                       |
|-----------------------|-----------------------|
| 1) Social media       | 6) Email marketing    |
| 2) Online advertising | 7) Referral program   |
| 3) Industry events    | 8) Direct outreach    |
| 4) Partnerships       | 9) Online directories |
| 5) Content marketing  | 10) Public relations  |

We will provide services on software application which helps customer to contact us through app, giving a quality services in time. The software will help the customer to schedule the cleaning panels as per their requirement. It will be budget friendly for customers. It provides 24x7 services.

Cost of cleaning 1 panel = ₹500

The Deadline of this project is 7 months.