

SOLAR POWERED PESTICIDE SPRAYER

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ABSTRACT: This paper mainly focuses on the concept of SOLAR POWERED PESTICIDE SPRAYER and reduce the pollution. Generally, this type of sprayers has low self weight and low maintenance cost than the conventional engine pumps.

In this product we are using non convention energy is used to run the sprayer. Non conventional energy means the energy is renewable and available unlimited and pollution free energy. In this Solar Pesticide Sprayer a pump running by using electricity which is generated by solar panel or the photovoltaic cell are collect the solar radiation. In This pesticide sprayer we are replace the conventional engine by DC pump. Here the non conventional energy source is a solar energy. In this project. We are Using Level Sensor To monitor the level of pesticide inside the tank. When the level is below minimum required then automatically an Audible alert will be given to the farmer. So then he can refill the pesticide in tank.

Keywords: Solar Panel, Battery, DC pump, Pesticide Tank.

INTRODUCTION: The operation of solar powered pesticide pump has less impact on the environment than the internal combustion engine(ICE) and this pump is more economical at lower operations and has less maintenance cost .The solar pumps are very useful when grid electricity is unavailable places and alternative sources i.e. wind energy. Specially wind energy do not produce the sufficient energy due to fluctuations occurs than the solar energy . The size of the PHOTOVOLATIC-system is directly dependent on the size of the DC pump, the amount of water that is required (m³/d) and the availability solar irradiance.

The solar powered sprayer has many advantages. Solar sprayers reducing the cost of spraying due to no utilization of fuel. The solar sprayer maintenance is simple than petrol based pesticide sprayer. There is less vibration as compared to the petrol sprayer ,Because Dc pump only the

moving element . The farmer can do the spraying operation by himself without engaging labor, thus increasing spraying efficiency.

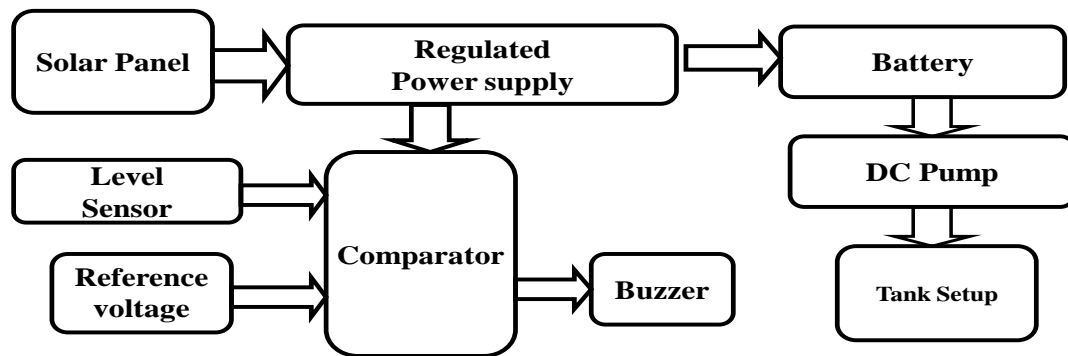
MAINPARTS:-

- Pesticide Tank
- Solar Panel
- Battery
- DC pump
- Level sensor
- Buzzer (for Low level of pesticide alert)

CONSTRUCTION AND WORKING:-



FABRICATION OF SOLAR POWERED PESTICIED SPRAYER



The solar panel when ever expose to the atmosphere the semi conductors collect the solar radiation and convert the electrical energy and this energy stored in the battery .The DC pump is mounted below the pesticide tank and use the battery to run the pump .The level sensor is used to measure the pesticide level and Buzzer is used to warn due to low of pesticide in the pesticide tank.

FEATURES:

1. To Reduce labour cost and also reduce maintenance cost
2. Machine cost is reduced
3. The various working conditions better work efficiency
4. To utilize Non conventional energy
5. It is more comfort than the conventional sprayer
6. It is chance to create the awareness about the Renewable
7. The pollution is eliminated by the Renewable energy resources

ADVANTAGES:

1. It is easy to operate and user friendly.
2. The very less pollution than the other models
3. It is portable device
4. The cost of pump is cheap compare to other one
5. The maintenance cost is also low

6. Easy to assemble and disassemble

DISADVANTAGES:

1. Here the we uses alcohol sensor and this interfacing with comparator is highly sensitive.
2. The Manual attention is required

APPLICATIONS:

1. This pump can be used in fields, horticulture.

CONCLUSION: Based on the project activity, this paper concludes the following

- In model of sprayer is very eco-friendly and lower cost.
- Solar pesticide pump is does not compromise the performance the petrol based pesticide sprayer
- Thus, cost for charging the battery is negligible due to solar energy and cost of 1litre petrol is Rs.80 . So no operating cost is required in solar based pesticide sprayer
- We are find that 8Ah battery can run the pump up to 3 - 5 hours; once the battery is full charged then can be used to spray 2Acres,But while 1litre of petrol can cover 1Acre .
- The small modifications done in this product ,then it can be brought out like commercial product.

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