SOLAR POWER OPERATED RIDDLE MECHINE

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ABSTRACT

A demonstration of design and fabrication of solar based sand sieving system is done. As sand is used in construction, manufacturing and many industrial purposes, it needs to be filtered and separated from unneeded particles, stones and other large particles before put to use. This system puts forward a fully automated sand filtering and separator that automatically filters the sand poured on it. For this a motorized shaft is mounted horizontally on the mounts. The shaft is connected to a filter frame with a mesh below and enclosed frame on sides which operates the motor when switched on

Keywords: *Production , reduce , power , peeling & Shelling ..*

Introduction.

Sieving machine serves is to remove large grams with a small grain through a sieve. Separation occurs when the sand is placed on top of a filter having holes size. The first sieving is done to get rid of the sand with a larger than standard withholding sand filter and the second sieving is done to get rid of the sand with a size too small means that the sand filter is ignored A steve is a device for separating wanted elements from unwanted material or for characterizing the particle size distribution of a sample, typically using a woven screen such as a mesh or net or metal. Sand substance is one of the most important thing in industrial world. Nowadays the industry need the sand sub stand that are already been process known as sand product. As we know the sand sub stand are mixture with variety other component such as dirt and metal. As we know the way sand is been collected still used the conversional way such as sieving using hand or machine. And human energy is needed to run the process. So to make the process more efficient new technology is needed to help increase the productivity so the human power can be reduce and also can cut the cost of the process.

Problem Statement

Clearly define the problem or challenge that the grain separator aims to address.

Identify the specific requirements and objectives of the project, such as improving grain quality, increasing efficiency, or reducing energy consumption.

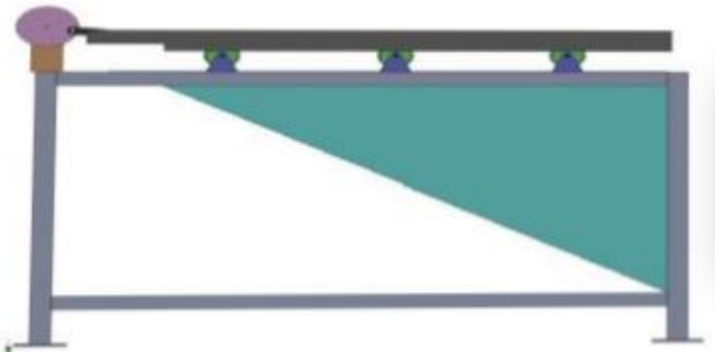

Fig – 1 CAD diagram

Components.

1.Frame structure
2. Solar panel
3. DC Battery
4. Wiper motor
5. Riddle

Literature Review:

1. Efficiency &
Precision Conduct a comprehensive literature review to gather information on existing grain separators, solar energy applications in agriculture, and relevant design and fabrication techniques. This step helps in understanding previous approaches, identifying gaps in knowledge, and gaining insights for designing an effective grain separator using solar energy.
2 .Safety Features: Incorporating safety measures like emergency stop buttons, protective guards, and automated monitoring systems is essential for operator safety.
3. Cost-Effectiveness: Optimizing energy consumption, reducing material waste, and streamlining production processes can lead to significant cost savings.
4. Adaptability: Modular designs and flexible interfaces enhance the versatility of machining systems for various tasks.
5. Sustainability: Using energy-efficient components, minimizing material waste, and adopting environmentally friendly practices reduce the environmental impact.6. Material Selection: Choosing robust and lightweight materials, such as aluminum alloy, improves performance and durability.

Manufacturing Process :

1. **Project Design & Planning :**
   may be defined as the iterative decision-making activity to create a plan or plans by which the available resources are converted, Preferably Optimally, into systems, Processes or devices to perform the desired functions and to meet human needs. In fact Project design has been defined in many ways but the simplest ways to define project design as "An iterative decision-making process to conceive and implement optimum systems to solve society's problems and needs. "project design is practical in nature and must be concerned with physical reliability, or economic and financial feasibility Design is essentially a decision- making process. If we have a problem, we need to design a solution. In other words, to design is to formulate a plan to satisfy a particular needs and to create a Something with physical reality .

2.Material selection & Acquisition :

Procure the necessary materials, including metal or plastic sheets, rods, fasteners, and Other components required for the Construction of the grain separator.

3.Mechanical Assembly:
Assemble the mechanical components of the grain separator, including the DC motor, filtering tray, and rotating mechanism. Ensure proper alignment and secure the components in place.

4. Electrical Integration:
Connect the DC motor, battery, solar panel, and charge controller according to the designed electrical system. Ensure proper wiring and connections to enable the flow of electricity from the solar panel to the DC motor and battery.

5. Mounting of Components:
Mount the solar panel and battery in suitable positions on the grain separator to maximize solar energy absorption and ensure convenient access for maintenance and charging.

6. Testing and Calibration:
Test the functionality of the grain separator by running it under various conditions. Check the rotation of the DC motor, the efficiency of the filtering tray, and the charging and discharging of the battery. Calibrate the system as needed to optimize its performance.

7. Finishing and Safety Measures:
Apply appropriate finishing touches to the grain separator, such as painting or coating, to enhance its aesthetics and protect it from environmental factors. Additionally, incorporate safety measures, such as protective covers or guards, to ensure the safety of users during operation.
Relevance to the Current
Project: Incorporating advanced control mechanisms, safety features, and Sustainable practices will further enhance The relevance and efficiency of your solar Power operating Riddle Machine project.
These steps will help you achieve high quality results while maintaining cost effectiveness and adaptability

Conclusion:-

The solar traveller is easily accessible, safe and practical with limited requirements because of few mechanical parts. It is ideal not only for the maintenance experienced cyclists but also for those non athletes, the elderly and individuals with health problems. This is the best source to replace the fuel which is exhausting day by day becoming more costly

Results :-

The design and fabrication of the grain separator using solar energy yielded positive results. The machine successfully separated materials other than grains (MOG) from the harvested grains, including stones, pods, stems, and dirt. The solar energy system effectively powered the grain separator, providing a sustainable and cost-effective solution for

grain separation in agricultural settings. The DC motor operated smoothly, driving the rotating mechanism of the filtering tray, resulting in efficient grain separation.

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