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Fabrication of Solar Sand Screening Machine

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Abstract: ***Sand is widely used in construction, production of bricks and many ceramic industries. Sand requires to be filtered and separated from unneeded elements like stones and other large objects before it is put into the working. Here we are demonstrating the fabrication Screening machine. Our proposed model is a semi-automated sand filtering and it separates the unwanted elements in 3 different sized meshes and stored at the bottom through the specified path. Here we use a motorized shaft that is attached horizontally using mounts. The shafts are assembled to each filter structure with mesh below and coved wihh frame on the sides. We are connected cylindrical rod from the shaft to the filter frame in a way such as to achieve the best horizontal motion. Also we have a frame to hold the filters frame in place while ensuring required horizontal motion at the common time. Solar plates are used for charging the batteries & that stored energy is used to run the motors. Switching on the motors, allows us to operate the three different sized sand filters at same time for appropriate sand filtering needs and filtered sand is collected at output.***

Keywords: Solar plate, Sand filter, Motors, Battery, Meshes.

I. INTRODUCTION

For minimising the required time content and human work needed in this sand screening work, we prepared solar sand screening model. In construction places sand requirement is very important role. All the construction industries are need a huge effort in minimum time. Because of this intension we are constructed 3 layer solar sand screening model it increases the fileting sand more with in short duration of time. Depending up on the size of objects to be segregated the size of hole and mesh is a change for each and every layer mesh is different. In normal time, for sand screening work more wages are paying to the workers instead of that they can buy our solar sand screening model. This machine working with the use of solar energy and solar plates. Solar energy is stored in batteries with the help of solar plates that stored energy in batteries are helped to run the model. Instead of providing manual power we recommend to use solar sand screening machine which segregates the different size objects in different layer is designed.

II. LITERATURE REVIEW

As per Mr. Pranit S. Patil, the experimental effort invovled in the modification of a concept element of a apparatus this is suitable of conducting more than one process in sequence, in the common time span the apparatus is showing in excel in production but maintaining the minimum cost .The authers used a inversion of double slider mechanism (scotch yoke technique) with 2 intersecting gears of bevel pair for motion of power at 2 places. This apparatus in sequence working 2 shafts from a 1 media with the output to cosnerve power transmission, minimise the amount, increase the output, decrese space of floor required by the equipment.

As per Mr. Nachimuthu A.K , for characterizing the size of particle transformation of a common a sieve is a device for filtering required parts from unwanted things this uses a woven screen they are a mesh or net. Authors are concentrated in their modification on, assembly of the mechanical elements of equipment and the instrument of the sieve equipment. Criteria such as strength, safety and mechanical system needs to concern some other ergonomic design were used to obtain fully working sieve equipment body shape.

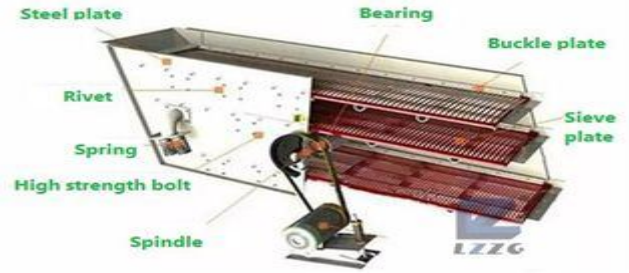

Fig 1: Multilayer Sand Screening Machine

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III. PRODUCT DESIGN

The main components of the project:

A. Solar panel (12V-5W)
B. Battery (12V-7Amps)
C. Mesh (1200mm × 1000mm)
D. Bearings (V Type ¾ inch)
E. DC Motor (12V 30rpm)
F. Hollow Frame (1800mm × 25mm × 25mm)

Power Transmission Process Layout.

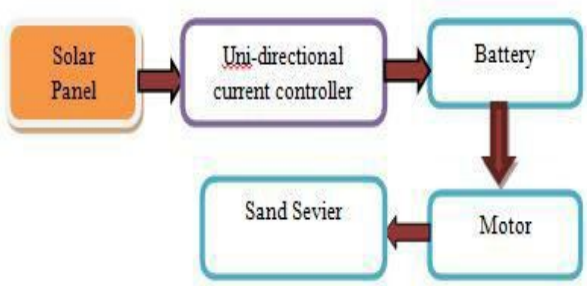

Fig 2: Power Transmission Process Layout

Fig 3: Solar Panel

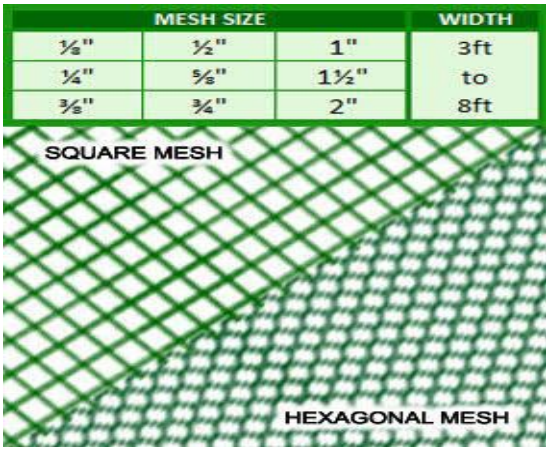

Fig 4: Mesh Sizes

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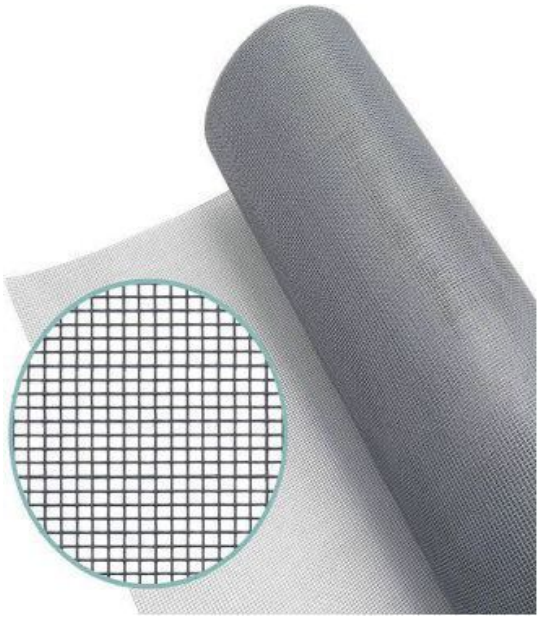

Fig 5: Mesh

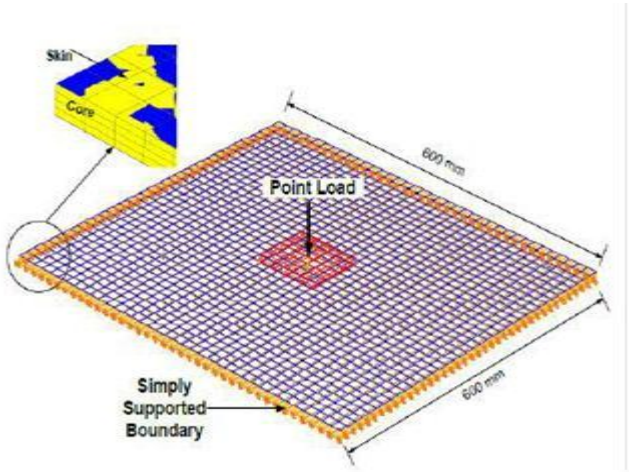

Fig 6: Mesh Skin Grafts

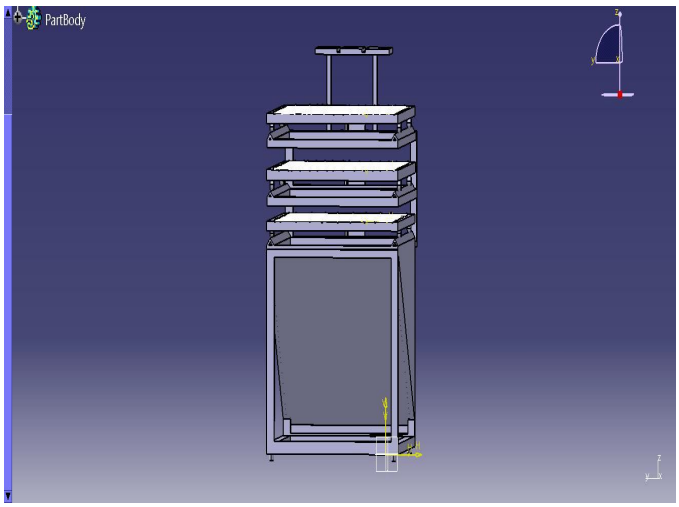

Fig 7: Design Front view

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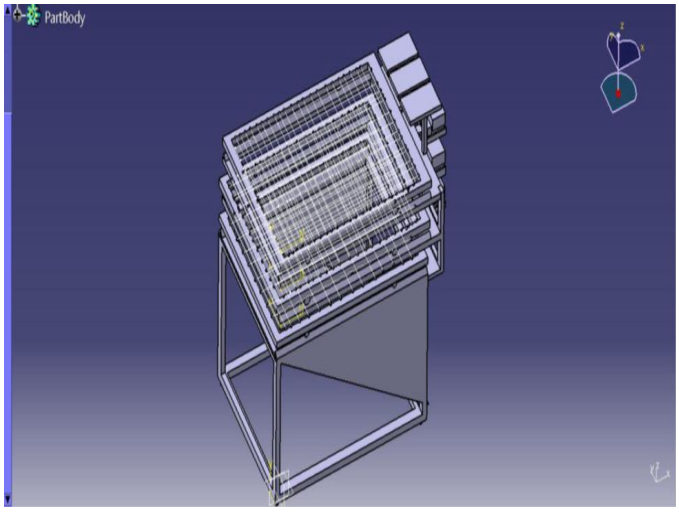

Fig 8:Design Side view

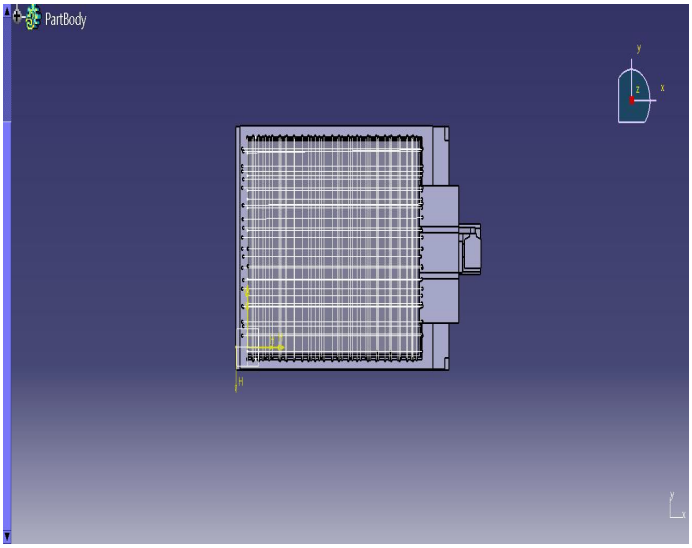

Fig 9: Design top view

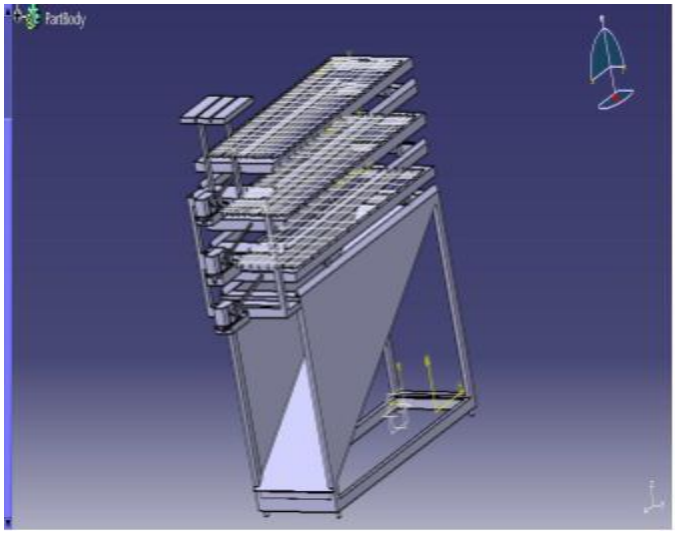

Fig 10: Design sand outlet view

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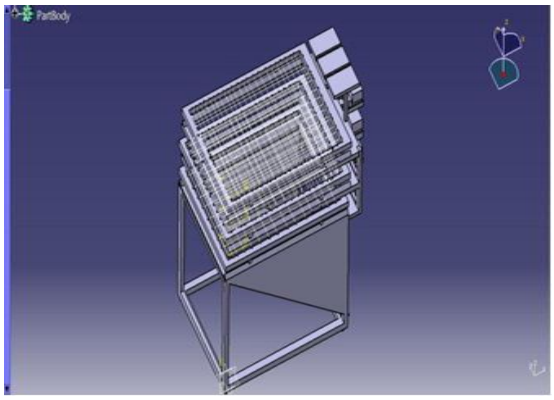

Fig 11: Design over all view

IV. EXPERIMENTAL PROCEDURE

In fabrication process, there is a planning of the overall progress to make sure the project can be finished on schedule'

A. Flow Chart

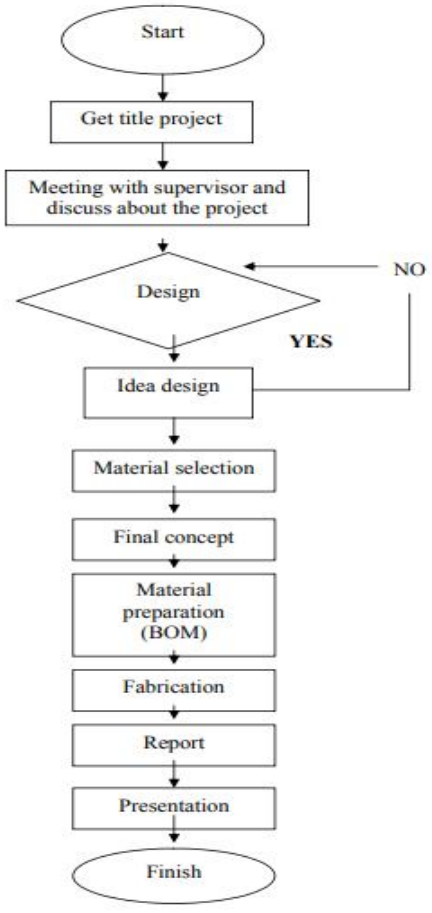

Fig 12: Fabrication Process

Joining process: Semi-conductor packaging is a difficult process of adding many different elements and pieces together. To obtain this, semi-conductor packaging employs a multi stage of adding processes. The ability to select which joining method is suitable at every stage of packaging is important in producing highly reliable packages for semiconductor devices. Below are brief explanation of normal joining mothod used not only in semi-conductor joining, but in other industries as well.

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Fig13 : Mesh welded frame

Fig 14: Base welded frame

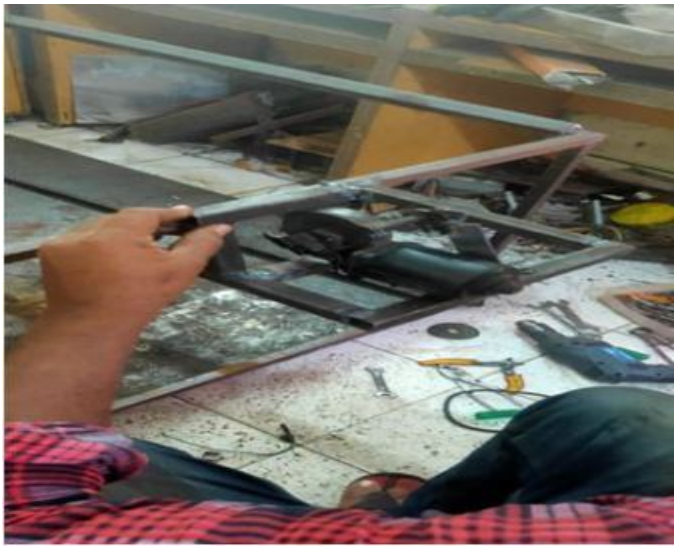

Fig 15: Welded rotor shaft frame

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V. CONCLUSION

Thus a minimum cost and simple model solar operated sand screening machine is fabricated. This equipment minimise the human working struggle and therefore we don't go many persons for sand filtering. This is a simple model of conventional design which gives more efficient work day to day household requirements and every day to day need and it is also used for industrial necessities during power off condition. By using this approach we can perform any type of operation as per our need by using of solar energy.

VI. ACKNOWLEDGEMENT

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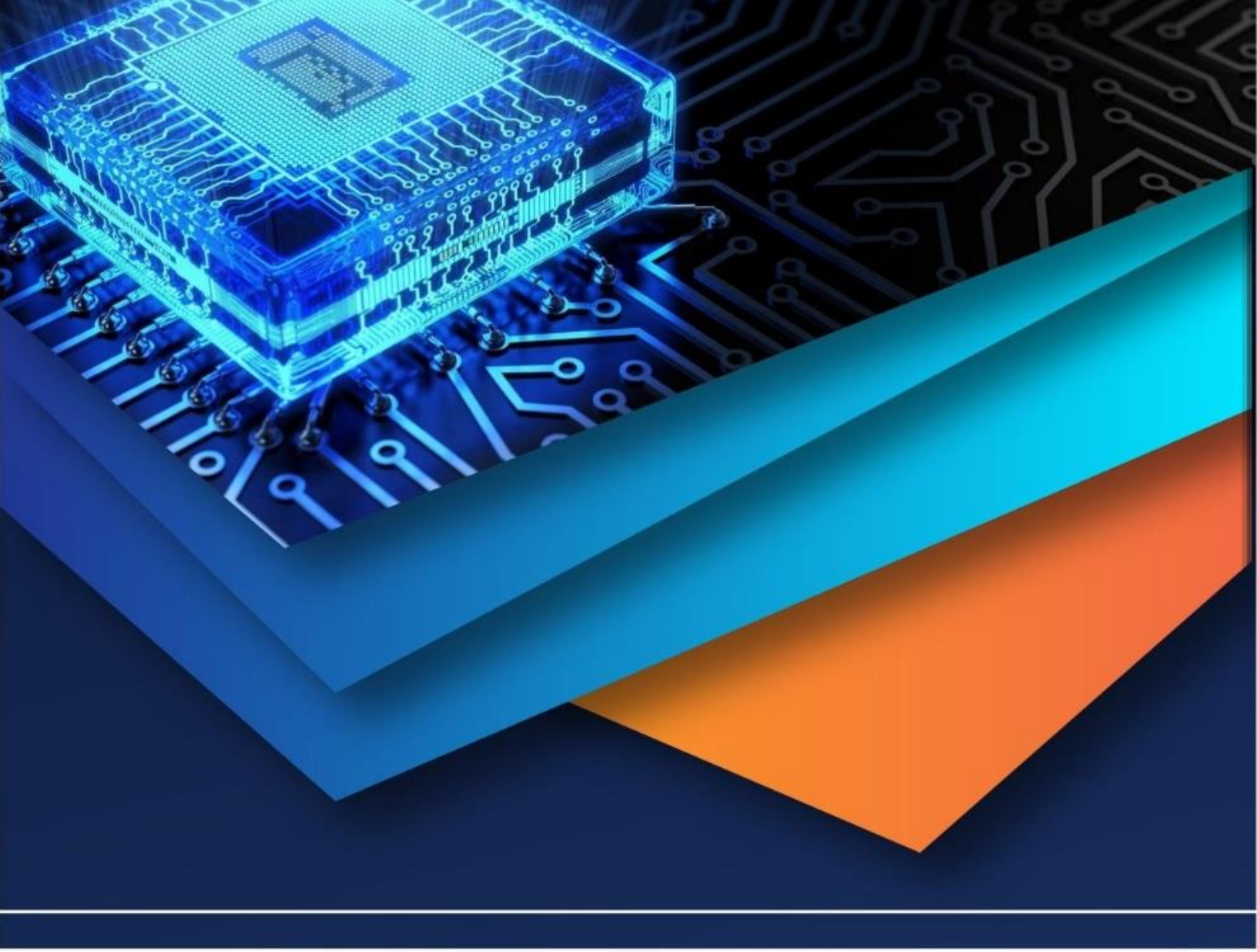

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