



International Journal OF Engineering Sciences & Management Research

HYDRAULIC BASED SOLAR TRACKING

Makhale R. B.^{*1}, Bheke K. Y.², Chikhale S. S.³ & Wakade M. R.⁴

^{*1}Mechanical Engineering, Jaihind Polytechnic, Kuran., India

²Mechanical Engineering, Jaihind Polytechnic, Kuran., India

³Mechanical Engineering, Jaihind Polytechnic, Kuran., India

⁴Mechanical Engineering, Jaihind Polytechnic, Kuran., India

Keywords: Hydraulic System, Solar panel, Control Valve

ABSTRACT

Now a days we know that there is need to use renewable energy source . To use the renewable energy of sun there are many innovative devices deals with capturing maximum solar energy and convert it into useful energy through the use of solar panels . One particular device is couple with a to collect maximum energy of sun it is necessary that the position of solar plate is perpendicular to the sun.so to change position of plate continuous we used hydraulic system in which hydraulic cylinder is used with flow control valve.

INTRODUCTION

Now days it is important need to use renewable energy. This movement has been thecauseof quite afew veryinnovatedevices being developedand implemented. Oneof theseinnovatedevices deals with capturing solar energy and converts it into useful energythrough the useofsolar panels. To capture maximum rays of sun by solar panel it is necessary to direction of solar panel is perpendicular to rays of sun.This design is useful to increase the system efficiency.

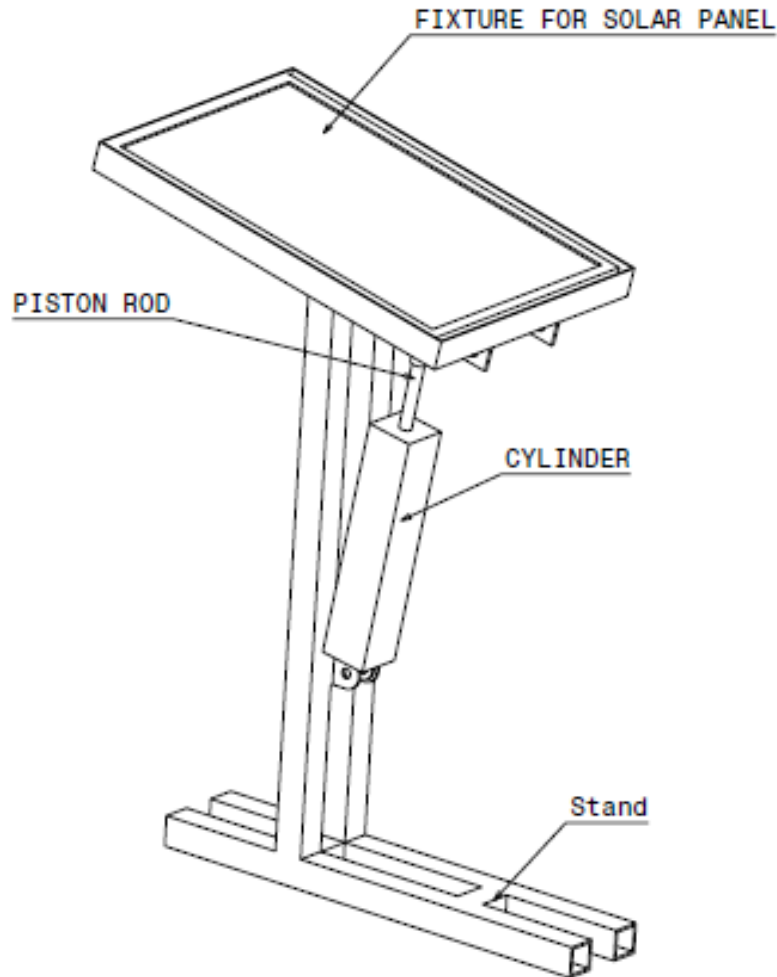


Fig 1 : TimeHydraulic based solar tracking

TABLES

Table 1: Materials Specification.

MATERIAL	Max Stress (N/mm ²)	Maximum Deformation, (mm)	Maximum Temperature, (°C)
Mild Steel	60	52	60
Steel	35	2	65

CONCLUSION

Solar tracking systems are costly and could use improvements in energy efficiency. The solar panels are limited to the set angle they are placed at. This project should be energy efficient with low maintenance requirements. The solar tracking system should be operational even in any weather condition this is especially true for flag staff



International Journal OF Engineering Sciences & Management Research

snowy weather. The solar panel should be made within our budget, fit within the space provided and must be able to move the solar panels. The solar tracking device will track the movement of the sun such that it optimizes the efficiency of the solar panels and must be able to operate in varying weather conditions. This fragment should obviously state the foremost conclusions of the exploration and give a coherent explanation of their significance and consequence.

ACKNOWLEDGEMENTS

We are profoundly grateful to Prof. Mr. Darekar Sir (PROJECT COORDINATOR) for his expert guidance and continuous encouragement throughout to see that this project reaches its target since its commencement to its completion. We would like to express deepest appreciation towards Prof. KOHINKAR Sir (HOD, Mech. Dept), whose invaluable guidance supported us in completing this project. At last we must express our sincere heartfelt gratitude to all the staff members of Mechanical Department who helped us directly or indirectly during this course of work.

REFERENCES

1. Beckman A., William, Duffie A. John, 2006, "Solar Engineering of Thermal Processes", Third Edition, John Wiley & Sons, Hoboken, New Jersey
2. Budynas G., Richard, Nisbett J., Keith, 2011, "Shigley's Mechanical Engineering Design", Ninth Edition, McGraw-Hill, New York, New York
3. Leo J., Donald, 2007, "Engineering Analysis of Smart Material Systems", John Wiley & Sons, Inc., Hoboken, New Jersey.