# **Sun Synchronus Solar Power Generation Station**

Er Sameer gupta<sup>1</sup>, Er Brijesh kumer Dohare<sup>2</sup>

<sup>1</sup> Engineer, Department of Electrical Engineering [Power System], Maharishi university Lucknow-226013, u.p, india

<sup>2</sup> Engineer, Department of Electrical Engineering [Power System], Maharishi university Lucknow-226013, u.p, india

Corresponding Auther: Er Sameer Gupta

**Abstract:** Sun synchronous solar power station unit is one of the best advance autonomous system decentralize generation(DG) base system on digital intelligence(DI) functioning the core idea behind its optimizes solar radiation and generate renewable electricity and secondly it is portable and movable system use less area to generate surplus power in remote area and handle effective distribution. This research paper presents over view of state of art module and method are applied on ssspgs analyzing and classifying current and future trends in this fields.

Index term- Decentralize generation(DG), Digital intelligence(DI), Sun synchronous solar power station(SSSPGS), Multi body system theory(MBS), vertical moter (V-1), horizontal moter(H-1), soler arrey (SA-1) & roter wheels (W-1)

Date of Submission: 07-05-2018 Date of acceptance: 22-05-2018

## I. Introduction

Sun is huge source of energy ,Sun send 1600TW energy every day on earth but human required only 16TW energy to satisfy their all the needs, it is 100 time more then our requirement[1].SSSPGS it is more effective way to generate solar power in remote areas of Assam,Andhra pradesh,Utter pradesh,Bihar, Chattisgarh & Rajesthan. Many parts of the world there is Huge energy crises specially developing country due to lacks of resources,economy and lacks of technology. The main idea of SSSPGS to generate electrical power in remote areas with the help of sun solar power it is portable system by it self sun synchronous it can track the latitude & the longitude it self to generate 25% more energy then any other ordinary solar power array by using 45% less area of installation ,In recent years of research & development work in area of photovoltic cell & solar power array provide dynamic way of production of electrical power other then other alternative sources of energy. SSSPGS can operate as stand alone system(autonomous)system, with the development of distribution & generation technology we can easily generate renewable electricity by using some best inverting tropologies technology and interfacing PV modules grid is presented .

**Psa Control**-the second mode of control calculates the position of the sun from the platform solar De almeria(PSA) algorithm and positions the trough to keep pace the trough is positioned in the North-South axis in order to track sun East- West direction. Algorithm control latitude and longitude according to geographical location.

Following formula is used to determine the sun location [7]

 $(1) ...jd = [1461X{y+4800(m-14)/12}/4+(367X[{y+4900+(m-14)/12}/100]))/4+d-32075-0.5+hours/24 (2)....n=jd-2451545.0$ 

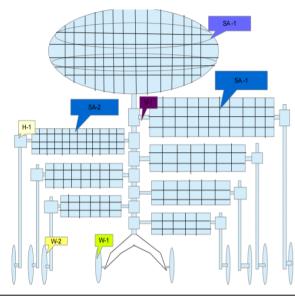
Paragraph comes content here. Paragraph comes content here.

## II. Structural Synthesis And Methods

The synthesis SSSPGS is based on Multibodysystem according to a mechanical system is defined as a collection of bodies with large translational and rotational motions,Linked by simple or composite joints[3].Thus rises the necessity of unitary modelling methods of the tracking mechanisms of the solar energy conversion systems.the interest elements in MBS theory are fixed bodies-drive bodies,drive bodies are complex bodies (more than two connections and bodies,with applied forces[4,5].considering the configuration of the conversion system there are two fundamental ways of tracking the sun ,by one axis or by two axis[6].

The functional design process at structural level consists of the followings-

- ..Identification of all possible graphs based on the following input data-
- •Spatiality of the multi body system,S;
- •Type of the geometrical constraints,gc
- •number of bodies nb
- •The mobility of the multi body system ,m
- •chosen space S- S[g(c,min)=1,g(c,max)=S-1]
- $\bullet m=S(nb-1)$ -gc



[2]

Sun synchronous solar power station unit

### **III.** Conclusions

This paper presents state of art models and optimization methods applied to enhancing the performance of system .SSSPGS model has the following characteristics-[A] the main part of this design it is movable and adoptable it is change according to location and requirement of variable load.[B] It can optimized used area as for installation of SSSPGS unit and agriculture practices at the same time.[C] The main objective of this unit is to minimization of shadow losses by self sun synchronous and tracking methodology.[D] several SSSPGS utility make their own smart movable grid distributing power to local loads. This utility can be extended in several direction and multiplies several other utility to generate more renewable electricity.

### Acknowledgement

The authors would like to thanks all the personnel who take part of this project sun tracking mechaninsm and author espatially acknowledge M. Comsit and visa for design of the linkage type tracking mechanism of the solar energy conversion, J.A. Duffie and W.A Beckman for solar engineering of thermal processes second edition-A willey inter science publication, new York, P. Alexandra, Visa, Functional design of the mechanism(Ro), Editura Luxlibr's, Brasav, Hung FJ, and other virtual prototyping simulation for design of mechanical systems, transaction of ASME, Hung FJ, computer aided Kinematics and dynamic's of mechanical system's.Allyn and Bacon, Visa I., and comsit M, Tracking system's for solar energy conversion devices, In proceeding the ISES international conference of 14-th EUROSUN, freiburg, P. Naidoo, T. I. van Niekerk, M. Brooks, intelligent control & tracking of a parabolic trough solar collector.

## **IV. Implementation And Results**

This system is future ready sustainble energy considering the use of such system at large scale, the design is new, efficient, cost effective and portable renewable energy system. this system produce massive energy rather than conventional systems optimization up to 25% solar energy. The field of approach is new but its give new direction to support to solve energy crises in remote area. the structural synthesis is base on multi body system theory(MBS).

#### References

- M. Comsit and visa, design of the linkage type tracking mechanism of the solar energy conversion, 2007. [1].
- J.A. Duffie, W.A, Beckman, solar engineering of thermal processes second edition-A willey inter science publication, new York, 1991. P. Alexandra, Visa, Functional design of the mechanism(Ro), Editura Luxlibr's, Brasav, 1998. [2]. [3].
- Hung FJ,and other virtual prototyping simulation for design of mechanical systems, transaction of ASME,117:63-70,1995. [4].
- Hung FJ, computer aided Kinematics and dynamic's of mechanical system's. Allyn and Bacon, 1989.
- [5]. [6]. Visa I., and comsit M, Tracking system's for solar energy conversion devices, In proceeding of the 14-th ISES international conference EUROSUN, Pages 783-788, freiburg, 2004.
- P.Naidoo, T.I.van Niekerk, M. Brooks, intelligent control & tracking of a parabolic trough solar collector. [7].

#### **BIOGRAPHIES**

Er Sameer gupta was born in lucknow ,india 1987. he received the B-Tech degree in electronic and communication from R.R.Institute of modern technology,lucknow, India. Er Brijesh kumer Dohare was born in lucknow,india 1983. hr is recived the B Tech degree from HBTI kunper,India.Assistent Prof in Maharishi university lucknow, india.

Er Sameer gupta "Sun Synchronus Solar Power Generation Station " International Journal of Engineering Science Invention (IJESI), vol. 07, no. 05, 2018, pp 33-35