Abstract: Energy is available in various forms from different natural sources such as solar energy, Nuclear energy and Chemical energy of fuels. The paper gives wireless charging techniques for electrical vehicle using solar energy. The fuel existing cars produces noise, air pollution and it produces major effects on an environment. But, the wireless charging technology overcome this pollution problems. Wireless Power Transmission [WPT] is very reliable, efficient, noiseless and pollution free technology.

Keyword: WPT-Wireless Power Transmission, EV-Electrical Vehicle, IPT-Inductive Power Transfer.

I. INTRODUCTION

Now a day, the world facing most serious problem is the energy demand [1]. Electrical energy is produced from energy available in various forms in nature i.e. from the sun, water, the wind and nuclear energy. Out of these sources, at present sun energy is primarily used for generation of electrical energy. In the last two to three years wireless power transmission [WPT] is one of the fastest growing technologies for power transmission without using cables. This newly advanced technology is very reliable, and efficient. In present days, the wireless power transmission is become very necessary because to continue the driving electrical car thus it become profitable.

In the last two decades power transmission using inductive and magnetic coupling we see. This paper is about to charge the battery by using solar energy and it can support more than one devices. Thus it become more beneficial. Power transmission using cables lost 25-30% power and by using cables for power transmission it has many accidents But WPT is completely safe for human. Thus, it is become safe for environment and for climate than conventional cars. Modern wireless power transmission techniques are more reliable, efficient. Wireless Power Transmission has improved significantly in the past 2-5 years. The advantages of the Wireless Charging systems are given as below- 1) Variable frequency Possible 2) It can support more than one device.

II. LITERATURE REVIEW

Nikola Tesla was the first who invented Wireless Power Transmission [WPT] technology in 1890.He wanted to create the supply system without use of the wire thus he invented inductive and capacitive coupling system for WPT. he invented coil known as Tesla Coil.

Ehruvwu Ayisire has given the idea related charging system for Electrical vehicle [EV] [2]. N. Uthaya Banu, U. Arunkumar, A. Gokulakannan, M. K. Hari Prasad and A. B. Shathish Sharma has given the knowledge about the battery charging by using solar energy and it also analysed primary and secondary side in detail [1].The most difficult and important part while designing wireless charging system that is designing part of the coil. This paper gives knowledge about the Wireless Charging in Electrical Vehicle by using Solar Energy.

III. NECESSITY

Wireless power transmission has attracted the lots of the researches due to the several advantages. Now days the Global Warming become the most dangerous problems in now a day [1]. Wired charging has the many drawbacks. To
resolve the issues of the wired charging system. Thus, now
days wireless power transmission technology become more
useful .Now days this techniques becomes need of the human
life.

IV. BLOCK DIAGRAM

For wireless power transmission if we put large distance
between the primary and secondary then this will affect on
the variable frequency and whenever the frequency get
changed then induced voltage on the secondary side get
decreased. Thus for WPT techniques we can’t put more
distance between two coils and if we want to put more
distance between primary and secondary coils then required
specification for all components must have high ratings with
high variable frequency respectively.

Basic concepts related to WPT in EV –WPT means
transmission of energy from one place to another without use
of wires. WPT technique is based on the electromagnetic
induction principle; emf is induced in the secondary coil.

| Near Field or Non Radiative | Far-Field or Radiative |
|---------------------------|----------------------|
| Wireless Power Transmission Technology | Wireless Power Transmission Technology |

Near Field or Non Radiative-Near field technology is useful
for short distance by using inductive coupling between two
coils. It is useful for charging devices like phone, electrical
brushes, inductive cooking.

Far-Field or Radiative-For long distance transmission far
field techniques is useful. By using electromagnetic radiation
or Laser beams wireless power transmission technique can be
applicable. This radiative far field technique is applicable for
solar power satellites.

Table 2: Shows the different distance between two coils and
induced voltage in secondary coil.

| Distance (mm) | Voltage (V) |
|---------------|-------------|
| 5             | 4.99        |
| 10            | 4.62        |
| 15            | 4.44        |
| 20            | 3.33        |
| 25            | 2.77        |
| 30            | 1.65        |

As per the above table shown the reading of output voltage vs
distance between primary and secondary coil as you increases
the distance between two coils then induced voltage in the
secondary coil will be decreases. Thus in proposed project we
use port to vary frequency and using variable frequency we

As per shown in the Fig:1 Solar panel is placed on the top
sides which are (12V,20W).It uses the solar energy through
photovoltaic effect. PV panel and AC to DC Converter both
are connected to the high frequency inverter through the auto
change over unit. Normally in the cloudy season supply from
the sun is not available thus we can use MSED supply. But
sometimes this both supply system are available then we can
store the supply which is get from the solar energy. In fig:2
we shows the secondary side of the system. In this secondary
side we connect the secondary coil to the rectifier. A rectifier
is connected to convert ac to dc which charges the battery of
electric vehicle. On the secondary side we used special diode
which is IN4148 the purpose of the use of this diode is it
having fast switching charteristics.
get the required induced voltage in the presences of the 3 to 5mm distance between the coils respectively.

B. Renewable energy based charging station-
Renewable energy based charging stations consists of the both solar and wind energy. Charging stations based on the solar or wind energy it is useful to prevent the environment from the pollution. By using solar energy based charging station we can produced power during the day and it can be used at night to charge EVs.

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Manoj D. Patil was born in Sangli, Maharashtra, India, in 1987. He has received his B.E. Degree in Electrical Engineering from Shivaji University Kolhapur, Maharashtra, India in 2009, and the M.E. Degree in Electrical Power Systems from Government College of Engineering Aurangabad (which is affiliated to Dr. Babasaheb Ambedkar Marathwada University Aurangabad), Maharashtra, India in 2011. He is working as Assistant Professor at Annasaheb Dange College of Engineering & Technology, Ashta, Sangli, Maharashtra since July 2011. He is currently working toward the Ph.D. degree with the Division of Electrical Engineering at Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad, Maharashtra, India.

Rutuja Vijay Nerlekar was born in Islampur, Maharashtra, India, in 1998. Currently pursuing B.E. in Electrical Engineering at Annasaheb Dange College of Engineering & Technology, Ashta

Ankita Sambhaji Patil was born in Islampur, Maharashtra, India, in 1998. Currently pursuing B.E. in Electrical Engineering at Annasaheb Dange College of Engineering & Technology, Ashta

Namrata Mahadev Raut was born in Sangli, Maharashtra, India, in 1998. Currently pursuing B.E. in Electrical Engineering at Annasaheb Dange College of Engineering & Technology, Ashta

Ankita Mukund Virbhakt was born in Ashta, Maharashtra, India, in 1998. Currently pursuing B.E. in Electrical Engineering at Annasaheb Dange College of Engineering & Technology, Ashta