CMR COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ENGINEERING

TECHNICAL SEMINAR – 1

WIRELESS POWER TRANSMISSION TECHNLOGY

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CONTENTS

INTRODUCTION

- Wireless power transmission has been attracting a lot of attention in the recent years as scientists believed that the world is being impoverished because of high cost of power transmission and the politics involved in acquiring oil and natural gas, as some countries of the world tends to consume more power or energy than others. Presently, the major sources of electricity/power comes from the by-products of natural resources such as natural gas, oil and coal, which are collectively called fossil fuels and others are from non renewable source such as nuclear fuel. These sources of electricity have been the cause of major environmental pollution and global warming . Other sources of power generation that have not been able to meet the demand of the world includes hydroelectricity, geothermal energy, waves, ocean thermal and solar energy as they are confronted by high cost and scalability obstacles in the high-tech needed for capturing, converting and storing in an economical approach

❑LITERATURE REVIEW

S.NO	AUTHOR	TITLE OF PAPER	INTERFACE
1	D. Nikam, R. Rane, and M. Joshi,	Lunar wireless power transfer	Lunar Wireless Power Transfer is replaceable source of power generation in future. It will be clean and use existing technology. It will provide abundant power. It will provide continuous power, only interrupted for three hours each year during the lunar eclipse. It will provide reliable power and will be renewable. The moon's environment is perfect for long term dependable operation of solar power arrays, due to its total lack of atmosphere. Only limited amounts of manpower and materials need to be transported from earth. Most everything needed can be made from lunar materials
2	S.S. Mohammad K. Ramaswamy T. Shanmuganantham	WIRELESS POWER TRANSMISSION – A NEXT GENERATION POWER TRANSMISSION SYSTEM	The concept of Microwave Power transmission (MPT) and Wireless Power Transmission system is presented. The technological developments in Wireless Power Transmission (WPT), the advantages, disadvantages, biological impacts and applications of WPT are also discussed. This concept offers greater possibilities for transmitting power with negligible losses and ease of transmission than any invention or discovery heretofore made. Dr. Neville of NASA believes "You don"t need cables, pipes, or copper wires to power. We can send it to you like a cell phone call – wherever you are in the world, it is a dial away. Will be applications if all the conditions are favourable.

WHAT IS WPRELESS POWER TRSNSMISSION

- The transmission of energy from one place to another without using wires

- Wireless power transfer is the transmission of electrical energy without wires as a physical connection. Wireless power uses the same fields and waves as wireless communication devices. Various radio-frequency (RF) technologies are used for wireless power transmission.

WHY NOT WIRS

- most of the electrical power transfer through wires only
- There is most of energy loss during thetransmission
- On an average more than 30%.
- In india exceeds 40%

WHY WIRELESS POWER TRANSMISSION

- Relaible
- Efficient
- Fast
- Low maintenance cost
- It can be used for short range and long range

WORKING OF WPT

Working of Wireless Power Transfer:

- Wireless power transfer works on the principle of electromagnetic induction.
- A transmitter placed on the generation side generates flux to link with the receiver end.
- At the consumer end, we will place a receiver it receives the flux and covers it with electricity.
- It will be used for a permissible distance, by using solar power satellites we can transfer power anywhere in the world.
- In the solar power satellite transmission, We just need to place a transmitter at the satellite end. We can place receivers wherever need power on the earth.

ADVANTAGES

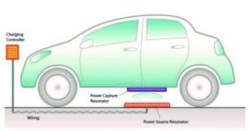
- WPT overcomes power loss as in the case of electric power transmission
- Wireless power transmission can be use in locations that are hard to reach. Particularly, small villages in rural community could be powered using WPT.
- Wireless power transmission is safe when applied in Health and Environment sectors.
- The cost of maintenance is affordable as it eliminates the need for towers and grid and consumers bills are minimize.
- It enables household appliances, and all other electrical gadgets to be charged wirelessly

DISADVANTAGES

- Wireless power transmission interferes with more electric gadget especially in hospital.
- Cost of implementing wireless power transmission is expensive
- Some of the Wireless power transmission techniques such as rectenna occupy large space.

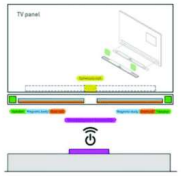
APPLICATIONS

- Electric automobile charging
- Consumer electronics
- Industrial purpose



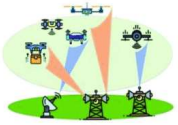
Wireless powered electric vehicle

Wireless powered electric toothbrush



LED HDTV is powered by wireless power

Mobile device being charged by wireless pad



Unmanned aerial vehicle powered by earth beam

Wireless-powered wireless identification and sensing platform

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CONCLUSION

- The wireless power transmission (WPT) as emerging technologies has a great prospect as electronic and powered driven/electrical devices that cannot be previously deployed in areas where grid lines are inaccessible and those deployed in battlefield such as wireless sensor device that suffer power limitation can now be powered wirelessly. Advancement in electronic devices still face the challenge of over-dependent attachment to electrical grid by cable, which could be permanent, for a while and also often recharging of mobile phone battery. The emerging of wireless power transmission will rid or free electronic and electrical/power devices andsociety from physically attachment to plugs and also the technology is on the brink of having impact in our society as Wi-Fi and radio waves has on the society. The advancement in WPT will quicken breakthroughs in the field of medicine and ease the challenges of power and lifetime in wireless sensor network. In fact, WPT is really a future we cannot wait to witness.


THANK
YOU