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CHARGING OF MOBILE PHONE WIRELESSLY USING MICROWAVES

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ABSTRACT

When we are travelling, if our mobile phone battery is getting off and you urgently need to charge it. At that time there is no option left to get charger from anywhere. So, it is hectic task to carry a mobile charger everywhere while travelling. This is a big problem in today's life. It is major problem of electronic gadget through the worlds is leading with the developments in technology. But this technology is still incomplete because of certain limitations. Today's world requires the faster development in technology for this purpose we are introducing a new technology "Charging of Mobile Phones Wirelessly Using Microwaves".

INTRODUCTION

Mobile phones becoming a basic part of human life because it is one of the main source of the communication media that's why it is very essential part of our life. The problem of mobile battery is a big issue facing by a people. The main objective of this current proposal is to make the recharging of the mobile phones independent of their manufacturer and battery make. And the recharging of the mobile phone is done automatically as you talk in your mobile phones!

Microwaves are radio wave i.e. a form of electromagnetic radiation with wavelength ranging from one millimeter to one meter the prefix "Micro"- in "Microwave" indicates that microwaves are "small" & they have shorter wavelengths. Microwave technology is extensively used for point to point telecommunications. Microwaves are especially suitable for this use since they are more easily focused into narrow beams than radio waves. They have comparatively higher frequencies allow broad bandwidth and high data transmission rates.

FUNCTIONING

The Rectenna is the basic addition to the mobile phone. A Rectenna means a rectifying antenna. It is a special type of antenna which is used for the conversion of microwave energy into DC electricity. A simple Rectenna can be constricted from a schottky diode placed between antenna dipoles. The current induced in the antenna by the microwaves rectifies bye the diode. A Rectenna comprises of a mesh of dipoles and diodes for the purpose of absorbing microwaves energy from a transmitter and converting it into electric power. Rectenna are highly efficient at converting microwaves energy to electricity. As the phone has to be charged as long as the user is talking and if the mobile phone receives and massage signal than there require a simple sensor which detects message signal. Thus a simple F to V converter would serve it. In India the operating frequency of the mobile phone operators is generally 900MHz or 1800MHz for the GSM system for mobile communication.

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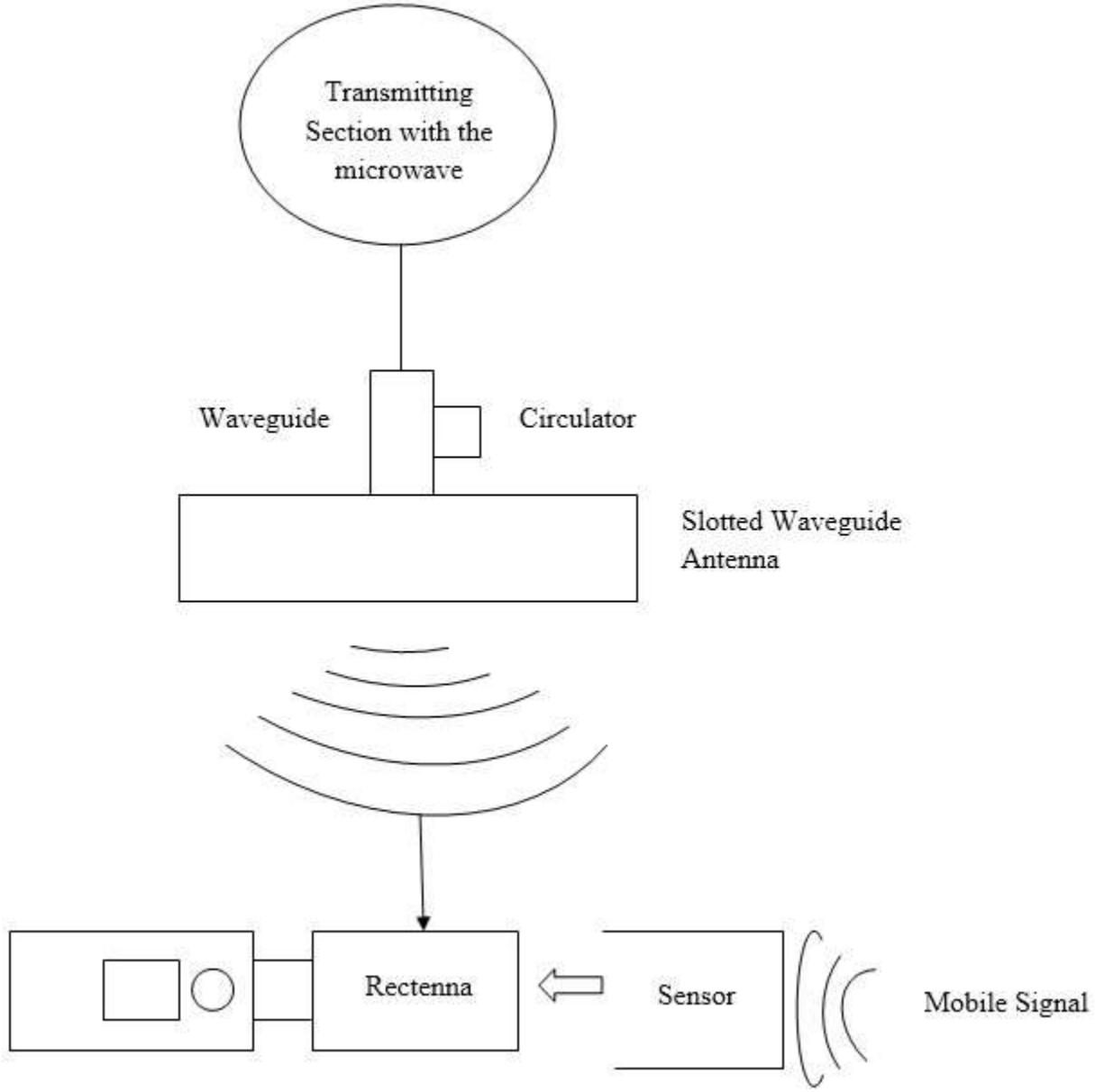

Fig: Block Diagram of the System

LIMITATION

The "Rectenna" which is the additional device of mobile handset which make it bulky the size of the device up to molecular level is necessary. The device has lower frequencies and increased resistive heating in comparison to direct contact are the main drawback of wireless charging.

Also the lower efficiency, devices can take longer to charge and also the implementations using lower frequencies or older technology charge slowly and produce heat within most portable device

CONCLUSION

In this modern generation of science and technology we need a smarter technology particularly in our communication media. We cannot have enough time to stay in one place and while travelling we can't carry a charger. For this situation

this technology is useful and very efficient in recharging without being interrupted. A novel use of the Rectenna and a sensor in a mobile phone could provide a new dimension in the revolution of mobile phone. This new system creates Innovate change in recharging electronic equipment and will upgrade or maintain our lifestyle. This paper successfully demonstrates the microwave's technology to charge mobile phones.

REFERENCES

[1] Theoretical and experimental development of 10 and 35 GHz rectennas "IEEE Transactions on Microwave Theory and Techniques", vol. 40, no. 6, June 1992
[2] Pozar, David M." Microwave Engineering Addison–Wesley Publishing Company. ",2010.
[3] Wireless Power Transmission "A Next Generation Power Transmission System, Internation- al Journal of Computer Applications" Volume 1 – No. 13,2010.
[4] Lander, Cyril W "Rectifying Circuits". Power electronics (3rd ed. ed."),2011.
[5] Espejel, J.D., "RF to DC power generation", University of Maryland, December 2003.
[6] Hagerty,J.A.,"Nonlinear Circuits and Antennas for Microwave Energy Conversion"2009,
[7] Lin, G.H., "Topological generation of Voltage Multiplier Circuits", September 2003.
[8] Pylarinos, L. and Roger, E. "Charge Pumps: An Overview", 2010.
[9] Sedra, A.S. and Smith K.G, "Microelectronic Circuits", 5th Edition, 2004.
[10] Stremler, F.G., "Introduction to Communication Systems", 3rd Edition, 1990.