“WI-FI AMQUITION TO CHARGE PACEMAKER”

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A Project Report

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ABSTRACT

Biomedical Implants require a clean and medically safe source of energy to perform their operations. Early implants such as pacemakers sourced their power from small lithium ion batteries and when the batteries get discharged an operation would be conducted on the body to recharge the batteries. While this solution allows for the operation of the implantable device without a wire connecting the internal and external circuitry, limited battery life causes the impracticality, health risk and expense of operating on patients for the mere purpose of replacing the battery. A significant development in the supply of power to implantable devices is the use of inductive coupling to charge an implantable rechargeable battery. The concept may be understood by considering two windings of a weakly coupled transformer, where the core is in fact a large air. The primary winding is the transmission coil and the secondary winding is the receiving coil. Numerous applications have been developed along this wireless battery charging idea, varying in size, frequency and coil structure.

The concept of wireless battery charging has been extended to the idea of supplying power only wirelessly, where implantable batteries are not at all used. Real-time powering systems save a considerable amount of implant space; however they require the constant supply of wireless energy to the implant. Wireless power transfer has generally been implemented in the kHz to MHz range and the transfer of energy becomes less efficient as the frequency of transmission increases. In addition to making circuit elements smaller, this naturally makes the design of highly efficient transmission circuits a point of interest

Keywords **---** Switched Power Amplifier, Class-D Amplifier, Class-E Amplifier, Class-F Amplifier, Spiral Coil, Spiral Coil Array, Rectifier