Faraday's Bicycle

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The Faraday’s Bicycle apparatus an engineering project based upon Faraday’s Law of electromagnetic induction which states that an rotating magnetic field generates an electric charge within a conductor. The aim of the project was to eliminate friction and increase efficiency within electrical generators. The apparatus was constructed by mounting the wheel, pedals and chain of a bicycle onto a wooden board with an induction coil. An electric current was generated by rotating the wheel while the coil remained stationary. There was no contact whatsoever between the coil and magnets at all, completely eliminating friction within a generator from transferring energy. Forty trials were conducted, twenty for voltage and twenty for amperage, a secondary coil was implemented in ten of each trial set. The coil amplified voltage at the cost of amperage, leading to the deduction that two or more coils, one with and one without a secondary coil, operating in tandem was the optimal layout. Overall, the project was a monumental success with nearly four volts generated at peak performance, as the goal was to achieve at least half a volt. Continuation for this project includes restructuring of the wheel, drive system and all around improvements in regard to the materials used.

Awards Won: