Abstract
Urban public transportation in the city of Boston has recently been expanded to include a rapid bus service between Logan Airport and downtown. The Silver Line is partially electrified and the buses have the potential to be made into completely electric vehicles. This project seeks to determine if an emerging technology, resonant magnetic coupling, could be used to electrically power the silver line. Wireless electricity is more efficient than batteries, safer and more aesthetically pleasing than overhead wires, and less polluting than current diesel infrastructure. Implementing wireless technology on the Silver Line could yield a dramatic reduction in emissions across multiple parocities and demonstrate a dynamic pilot program applicable to other mass transit systems around the world.

Blueprints for the future
A bus will have 9 receiving coils. This insures maximum efficiency of 90% at all times. A transmitting coil will be activated when a bus approaches. A minimum of 3 coils are transmitting to the bus at all times.


Human natural frequency: 5 Hz. Coil: 10^6 Hz. The graph above shows how the transmitting/receiving ratio needs to be 1 for energy transmission.

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