

## Wireless Control: Sending and Receiving Electromagnetic Waves

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### Basic physics behind wireless communication:

Sudden motion of charged particles emit electromagnetic radiation.

### Two physical facts:

1. Information transfer is **not instantaneous**. For electric phenomena, the “transfer rate” is  
 $c = 300,000,000 \text{ m/s} = 3 \cdot 10^8 \text{ m/s}$
2. In a region of no electric charge (“free space”), electric field lines are continuous. In other words, field lines do not disappear in vacuum.

### Extras:

If you are interested in seeing more electric fields radiated by accelerated charges, try:  
<http://www.its.caltech.edu/~phys1/java/phys1/MovingCharge/MovingCharge.html>

If you have additional questions regarding this topic, feel free to send me an e-mail!