

## **Project Title: Signal Propagation in Homes**

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Field study of the effects of various common building materials on signal propagation. A compare / contrast of frequency bands, signal methods and multiple physical layers used in conjunction with each other. Examples being Bluetooth, Insteon, WiFi, Zigbee.

Learning Objectives:

1. Study:
  - a. Electronic and communication systems
  - b. Electromagnetic propagation principles
  - c. Interconnected devices
2. Analysis:
  - a. The effects of various materials / structures on common signaling methods and protocols.
3. Implementation :
  - a. Design a test of signal strength and throughput of common communications devices for use in homes.
  - b. Execute in-home tests, analyze data and provide conclusion on findings

**Design tool used (include but are not limited to):**

- TBD as part of initial test design

**Project Diagram:**

TBD