

the Aware Home

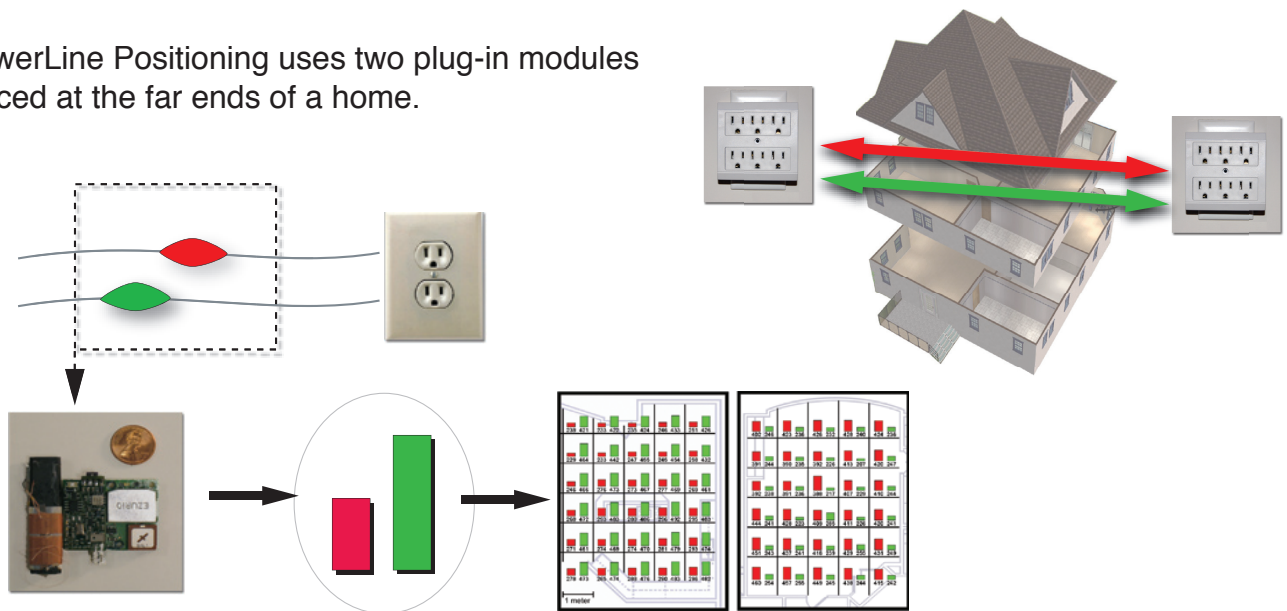
Powerline Positioning: Supporting Ubiquitous Indoor Localization

<http://www.cc.gatech.edu/~shwetak>

About this Project:

Many computing applications can benefit from the ability to sense location information in buildings for use in tracking the location of objects, assets, and people or pets in the space. While current indoor localization solutions require instrumenting homes with many sensors that are expensive and hard to deploy, PowerLine Positioning (PLP) utilizes standard household power lines and requires very little instrumentation.

PowerLine Positioning uses two plug-in modules placed at the far ends of a home.



Each module sends a different mid-frequency signal over the power lines. A tag detects these signals radiating from the nearest electrical wiring at a given location and determines position within a 1 meter resolution at 90% accuracy.

Currently, we are testing PLP's ability to track objects and people through a study with social scientists exploring the mobility issues of wheelchair users. Results of study will be used to identify mobility problems in the home.

Next Steps:

In the future, we hope to take advantage of PLP's low-cost and ease of use to support long-term studies of large numbers of people. PLP may also support other future applications in the home such as location awareness for domestic robots, like the Roomba, or to find lost objects, such as keys or the remote control. In addition, a commercial product version of PLP is under development and should be available soon.