

AHEAD//

ACCESSIBLE HOME ENERGY AUDIO DASHBOARD

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DESIGN CRITERIA //

Too often, the commercial design process leaves out a critical factor: accessibility. One of the main goals of the AHEAD project is to show that including this criteria into the design process can be done at nearly no cost, and doesn't hinder the actual device's operation.

Our team set out to do the following:

- receive data over RF to simulate wireless smart meter communication and provide a front-end for smart meter interaction
- integrate smart meter data into a home automation system to control devices and shut them off when energy prices are too high
- demonstrate universal design with a device that accommodates the needs of users with visual, auditory, and motoric disabilities

RESULTS //

The result of our efforts is an in-home, energy management device that is universally accessible. Since AHEAD is able to communicate with a simulated smart meter via XBee RF technology, the framework for future smart-grid integration is already present. It has touchscreen integration for intuitive and universal access. By combining elements of a home automation system, smart meter technology, and universal design principles, we developed a helpful device that will be able to improve the lives of people with disabilities.

BUDGET //

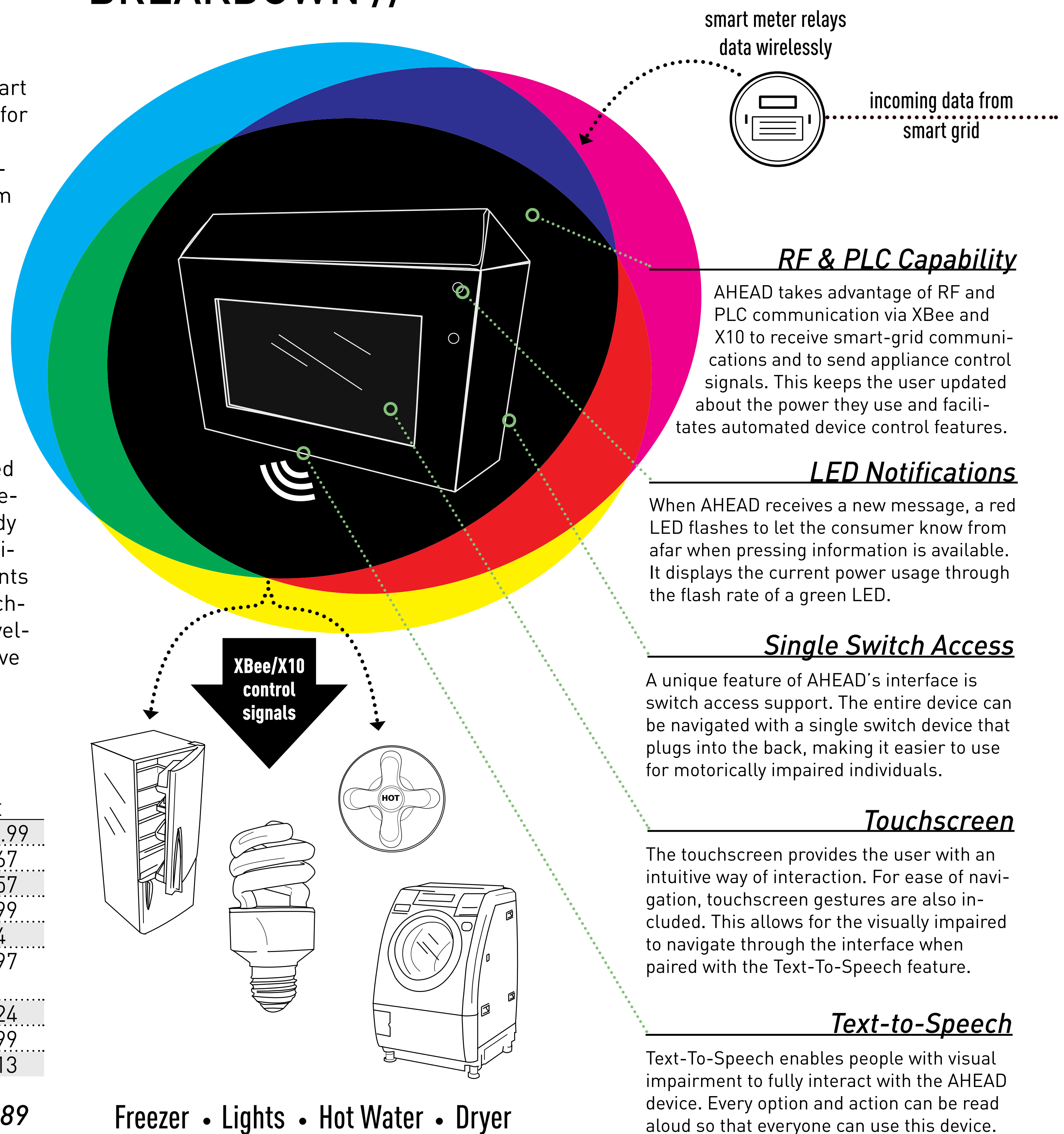
Part	Quantity	Cost
ASUS EEEpc	1	\$219.99
Touchscreen overlay	1	\$87.67
X10 Modules	3	\$24.57
USB Hub	1	\$24.99
Digital Potentiometer	1	\$1.34
USB-to-RS232 Serial Adapter	3	\$53.97
X10 Firecracker	1	\$17.24
Text-to-speech license	1	\$29.99
XBee module	3	\$93.13

Total: \$552.89

BACKGROUND //

Numerous studies have shown that people tend to limit their energy usage when informed of energy price spikes during peak demand. Smart-grid systems, once established, will facilitate the flow of this information between consumer and utility provider. Our team designed a universally-accessible device allows consumers to access this information and control their appliances.

BREAKDOWN //



PHOTOS//



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