2012 Business Plan Competition
at The Paul Merage School of Business

From *Vision to Venture*

Team IMpower

CAMPUS WIDE COMPETITION
UNDERGRADUATE TEAM

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Overview

LIONsaver™ is a home energy management device that reduces energy consumption from plug-in devices. The unique feature of the system is the combination of the occupancy sensor and the interactive web based software. The occupancy sensor detects when appliances and other electronic devices are not being used based on the customer's presence and thereby turns those devices off, eliminating costly vampire power. The software analyzes power consumption data and reports it to the customer in order to provide feedback on conservation progress.

In addition to increasing energy efficiency, LIONsaver™ is designed to influence human behavior to create environmentally conscious individuals. The system's web based software allows customers to create energy reduction goals which can be viewed on the display screen. Once goals have been established, the software lists suggestions to help customers successfully reach their energy reduction targets. LIONsaver™ will empower customers to increase control over their consumption. Customers will discover that they can contribute to saving energy. Offering energy and money savings, LIONsaver™ complements any plug-in device.

Why we need LIONsaver™?

U.S. Average Electricity Prices
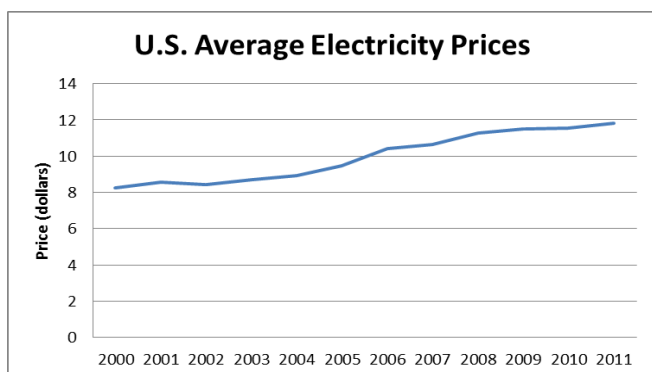
Although the prevalence of energy efficient products is increasing, the total amount of electricity generated in the United States continues to increase every year as consumers purchase more products that require electricity. According to the U.S. Department of Energy, standby power (also referred to as 'vampire power'), account for 5 to 10 percent of household energy consumption, which is equivalent to around $4 billion in wasteful energy spending every year, a minimum of at least $130 a year per household. This is the perfect opportunity to commercialize LIONsaver™, a product that complements any device draining energy. In addition to saving energy, LIONsaver™ is an example of a suite of products that are revolutionizing the way customers think about the environment. Unlike other seemingly similar energy management systems, LIONsaver™ features an occupancy sensor, which signals the system to turn off electric devices when the user is not present. There is no commercial energy management system that has significantly impacted human behavior. By looking at the growing number of products that consume energy in homes since the 1970s, it's time to implement a product that not only adds energy efficiency to other products, but also informs customers of what they can do to reduce their environmental impact. LIONsaver's™ interactive approach to energy usage

2000s

Typical energy using products in the home today (Box 2)

Televisions
Video players
DVD player/recorder
Portable music players
Mobile phones
Hairdryers
Hair irons
Electric toothbrushes
Wireless telephone/answering machine
Slave portable phone handsets
Electric kettle
Smoothie maker
Magimix
Ice-cream maker
Digital radio
Mini hi-fi systems
Washing machine
Tumble dryer
Dishwasher
PlayStation/games console
Cappuccino maker
Digital clock/radios
Electric lawnmower
Strimmer
Microwave
Electric oven
Electric hob
Extractor fan
Large fridge/freezer
Drinks cooler
Portable fan
Vacuum cleaner
PC computer
Monitor
Printer
Scanner/fax
Digital camera
Set-top box
Electric shaver
Steam iron
Juicer
Home security system
Broadband connection
Halogen bulb light fittings
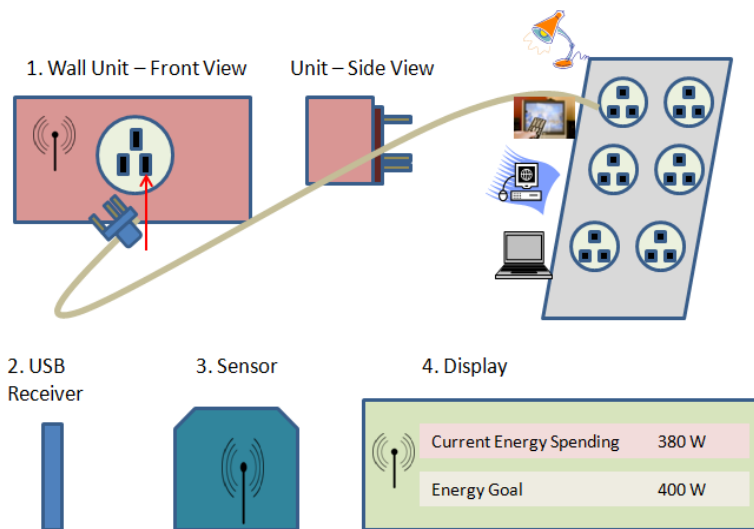Personal care products
Power tools
Electric blanket

1970s

Typical energy using products in the home 30 years ago (Box 1)

Television
Vacuum cleaner
Electric bar heaters
Hi-fi music system
Hairdryer
Electric kettle
Washing machine
Iron
Electric blanket
Radio
Sewing machine
Cooker
Cassette player
Fridge
DIY appliance
Toaster
Occasional lamps

will challenge customers to reduce their energy usage in a constructive and fun manner. From the web based software, customers will be shown how much greenhouse gas emissions their technology usage causes and learn how they can reduce their energy consumption.

How LIONsaver™ Works

LIONsaver™ is comprised of four essential physical components:

1. Wall Unit – Front View   Unit – Side View
2. USB Receiver
3. Sensor
4. Display

| Current Energy Spending | 380 W |
| Energy Goal | 400 W |

1.   Wallet (wall outlet unit)

The wallet will directly plug into the wall and connect to any type of power strip. The wallet also features a program timer, which allows the user to set a schedule for when the devices will not be in use and can therefore be turned off completely. As long as there is a wallet in each power active room of the home, the customer can monitor how much energy is consumed. This allows our customers to only track the most energy taxing areas of the home. The wallet will interface with the sensor, display and USB receiver.

2.   USB receiver

The wallet will collect and monitor energy usage data from the plug-in devices connected to the outlet and transmit the data wirelessly to the USB receiver, allowing customers to view the energy consumption over a given period of time with the product software.

3.   Sensor

The wireless occupancy sensor and can be mounted anywhere in the room for optimal range to detect when occupants enter the room. When the sensor detects movement, it will transmit motion information to the wallet and the wallet will allow power to flow to the devices so that they will be ready to turn on when the user desires. If no movement is detected after a certain amount of time, vampire power will be eliminated completely, reducing energy and saving customers money.

4.   Display

The interactive web based software will allow customers to integrate monthly energy consumption goals. The interactive software contains an algorithm that 'learns' the customer's energy usage patterns, and provides suggestions on how the consumer can achieve their energy reduction targets. The web based software will also send biweekly alerts to the user to ensure progress is made towards the goals set. The display will consist of two pieces of information: (1) how much energy has been consumed per month thus far, and (2) the energy goal the consumer has set for the month. The display will serve as another method of motivating feedback to the customer, and can be placed in a location visible to the customer on a daily basis (i.e. next to the front door or on the refrigerator), reminding the customer of his or her energy reduction progress. By combining the available technologies of energy

"A scenario which does not involve any change to behavior…will not achieve the reductions needed to achieve sustainability."

– Dr. Sarah Darby, University of Oxford, 2000

monitoring and energy cutting with providing the customer real-time data and goal setting, LIONsaver™ will be effective in influencing the customer to achieve their optimal energy saving.

How to Market LIONsaver™

LIONsaver™ has a potentially vast market that consists of the 116 million households in the U.S. Our anticipated customers include environmentally conscious individuals as well as average homeowners increasingly frustrated with rising energy costs. The company, IMpower, expects LIONsaver™ production to include a manufacturing cost of approximately $50 and a competitively low retail price, ranging between $90 and $110. LIONsaver™ will be marketed as a complement to plug-in devices, serving to increase the energy efficiency of those devices. IMpower intends to seek local and national government support in the form of grants and rebates, which could dramatically reduce the retail price of LIONsaver™. In addition, IMpower plans to apply for grants from environmental associations such as the Energy Foundation. In 3 years, IMpower conservatively estimates to acquire 3 percent, yielding a total revenue of $174 million.

LIONsaver™ will be extensively marketed through printed and digital media, which may include CNET News magazine and NBC Green is Universal commercials. Investment in direct-response marketing approaches, such as infomercials, will be a top priority, especially if startup funds are scarce. IMpower also plans to form alliances with leading environmental organizations, such as the Sierra Club, the National Resources Defense Council, and the Earth Policy Institute, to gain recognition and support within the environmental action group community. Based on the enormous potential and growth of green technology, we anticipate LIONsaver™ will generate billions of dollars in revenue.

Our Management Team

Our management team is comprised of members with diverse backgrounds:

Sean Thomas Burke is an undergraduate student double majoring in Electrical Engineering at the Henry Samueli School of Engineering and Business Information Management at the Paul Merage School of Business**.** He is also a research assistant for Prof. Bachman's eHealth lab and is the president of the Engineering Student Council.

Zachary Davis is an undergraduate student majoring in Electrical Engineering. He is also a research assistant for the Calit2 Plug Load Research Center.

Jonard Talamayan is an undergraduate student double majoring in Civil and Environmental Engineering. He is also a research assistant for the Calit2 Plug Load Research Center.

Jennifer Tsau is an undergraduate student majoring in Mechanical Engineering. She is also a research assistant for the Calit2 Plug Load Research Center and holds a B.S. in Business Administration. Prior to returning to school she worked as a subcontract manager and business analyst at Northrop Grumman.

Rena Yang is an undergraduate student majoring in Mechanical Engineering and minoring in Materials Science. She is also a research assistant for the Calit2 Plug Load Research Center.