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We're helping to engineer the future. We do this by accessing, integrating and improving the knowledge base from multiple technology disciplines.

– Zero Point

Energy Huntsville Forum

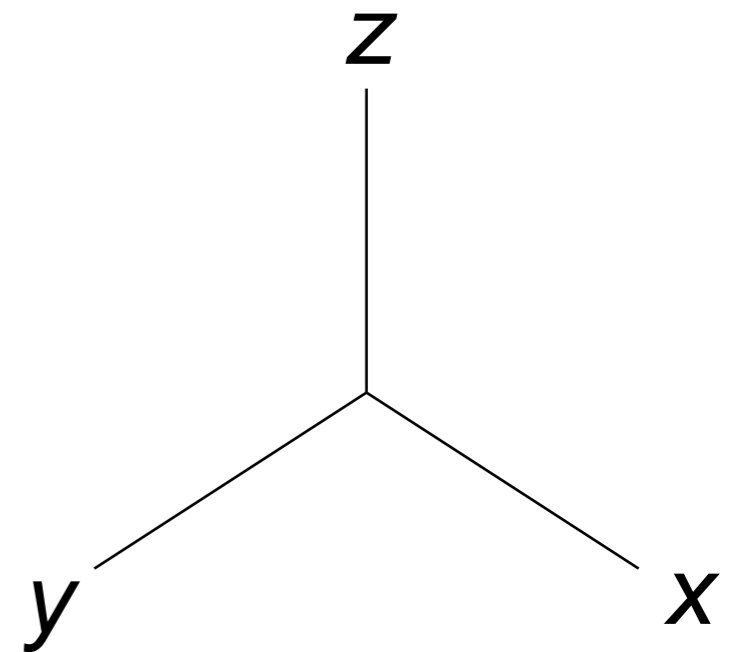
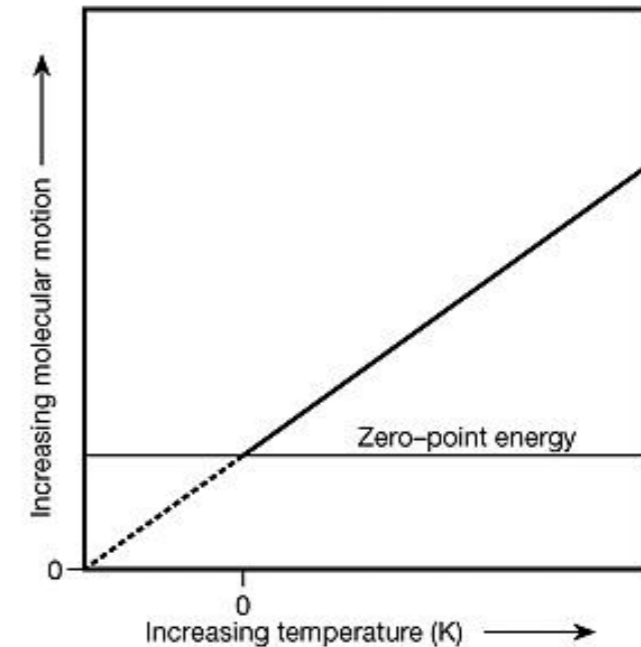
August 2013

What is a Zero Point, anyway?

In Physics – If you were to bring the temperature of the entire universe down to 0 Kelvin (-459° F or -273° C), theoretically all physical motion or kinetic energy would cease. And yet physicists have determined that energy still exists at that “zero point,” which could be tapped.

In Engineering – Every engineering design starts from a point of origin—a zero point—from which all measurements begin. Once you know your zero point, you can begin to design.

At Zero Point Frontiers – We remove the “noise” from a complex system and get it down to its essence—its zero point—to ensure we are solving the correct problem. After that, we can tap the right ideas and build a system that meets the need.



Who We Are

Small business with large-business capabilities

Shared, open workplace: no offices or cubicles

Apple office hardware (Mac, iPad, iPhone)

Project tracking via 37signals

In-house 3D printer



Science fiction fans

Community involvement

- Yuri's Night Sponsor
- NASA Great Moonbuggy Race Participants
- AIAA Board and Committee members

StarshipZero internal research project

Social Media presence



iTunes



Facebook



Twitter



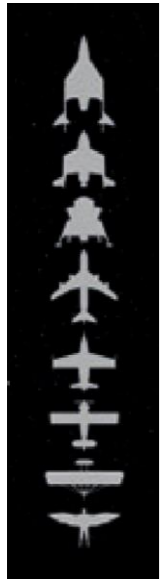
Tumblr



Instarocket



What We're Doing Now



Air-Launched Rockets: Zero Point Frontiers is partnering with Virgin Galactic to define a systems engineering approach for an air-launched small satellite launch vehicle under DARPA's Air Launch Assist Space Access (ALASA) program.

In-Space Architecture Tools: We are helping NASA develop automated tools that will help them calculate the mass of in-space transportation systems. Calculating the mass is the first step toward understanding how much the system will cost and how long it will take to build.

Space Launch System (SLS) Advanced Development: ZPFC began as a NASA contractor at Marshall Space Flight Center and continues to support the SLS Program Office's planning and advanced development for the nation's heavy-lift launch vehicle.

3D Printing: The future of industrial development will not be defined by the factory but by desktop product printing. ZPFC is conducting internal research and development with this technology to begin prototyping low-cost space hardware.

iOS Apps: [Instarocket](#) was just our first step into the app world. We are continuing to define new apps for iPad and other platforms. Expect other developments soon!



BLAST



How this relates to Energy

Clarity from Complexity: Systems engineering applied to optimize & simplify

The ZPFC holistic approach to engineering has 3 steps:

1. Identifying and understanding the interactions of any technical system
2. Removing the "noise" from the system and getting it down to its essence—its zero point—to ensure we are solving the correct problem
3. Tapping the right ideas to build a system that meets the need.

This approach allows companies and organizations to **understand their environment, identify their key constraints, and make good decisions based on solid analysis.**

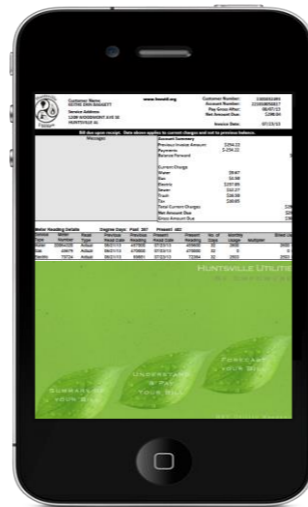
In the Near-term (Currently IR&D)

1.0 Utilities App (Phase 1)

Home

Understand
Your Bill

Summary &
Forecast



Take a picture of bill
Automated sync
Data populates app
Discover where to save

Comparison Capability

- Last Year/Next Year
- Last Month/Next Month, etc.

Trending Energy Data

- Neighborhood
- City
- State

Need some Energy?



Zero Point 
FRONTIERS CORP.

2.0 The Power of Zero App

Energy Initiative Awareness/Education



In the Mid-term

1.0 Output analysis & optimization

AMRDEC Energy Lab and decision analysis support for solar panel systems

2.0 Charger 1 (formerly DM-2)

UAH collaborative to design compact and mobile power station system with cost/safety benefit and performance analysis, and ultimate testing on Charger 1



3.0 m-SOLAR


Mobile Solar-powered Optimized Location Application for Real-time
Offer real-time, mobile energy decision-making software available to:

- personnel at military installations
- property owners investigating ROI
- low-income housing initiatives (Nexus)

Incubation Stage

Early-stage thoughts to move into hardware
Leverage skillsets for multiple technology domains

7 **A new hand and a new world for Kate: Huntsville company 3D prints a hand for 2-year-old (photos, video)**



Kate Berkholtz, 2, of Huntsville, gets her first chance to try a prosthetic hand made with a three-dimensional printer at Little Gym Friday, August 16, 2013 in Huntsville, Ala. (Eric Schultz / eschultz@al.com)

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By Lee Roop | lroop@al.com
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on August 19, 2013 at 12:47 PM, updated August 19, 2013 at 12:48 PM

HUNTSVILLE, Alabama - Kate Berkholtz is about to get a new hand, but the beautiful, blond 2-year-old couldn't care less.

It's too much fun chasing her brother around The Little Gym in south Huntsville with a big foam mallet in her right hand. That's the hand with fingers, the one that came whole when Kate was born. It's not the one with just a thumb, the one left fingerless by some mystery in the womb. That hand has brought everyone here, where Kate is a student, and where The Little Gym's owner, Angel Hundley, is married to a man with a high-tech company whose slogan is, "We're helping to engineer the future."

Jessica Berkholtz, Kate's mom, sits on the gym mat and calls her daughter. Mom's next to a big guy with bangs named Shawn Betts and a small woman with a coppery red hair and wide smile named Megan Beattie. Beattie is an engineer at Zero Point Frontiers, Betts is an intern and engineering student at the University of Alabama in Huntsville, and the combined age of all three would barely qualify for Social Security.

There's a plastic tub beside them, and Betts is pulling things out and putting them on the mat. That is interesting, and Kate keeps a close eye on Betts as she comes near.



Concept-to-Hardware Approach

Phase 1: Concept development

Phase 2: Concept deployment

Phase 3: Inexpensively build real-time monitoring device (3D print)

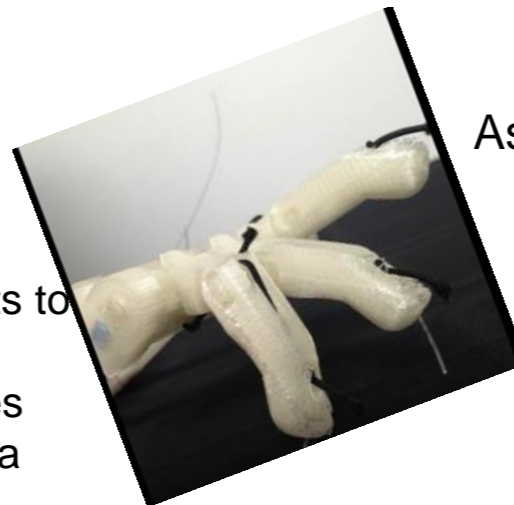
Phase 1



Built-in functionality for tiered usage

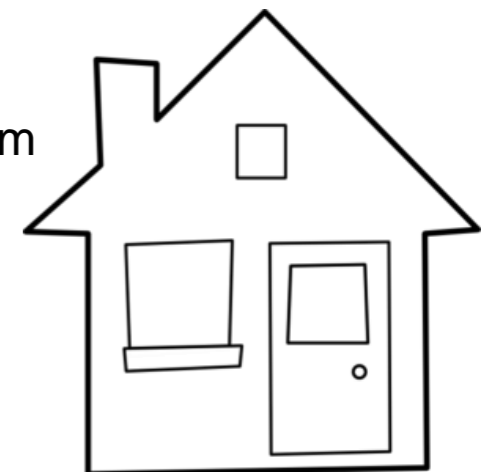
- Tier 0.1:** Average customer wants to understand bill and save money
- Tier 0.2:** Applicable to businesses
- Tier 0.3:** Detailed analysis of data

Phase 2



Assess energy usage per room
Detect potential for savings

Phase 3



Net - ZERO

- Long Term for ZPFC
- Quantify and Define Rules (Application Framework for Achieving Net-Zero)
- Use ZP Decision Framework for tailored ROI Investment tradeoffs (lease, buy, forego)
- Blend and evaluate technologies for achieving Net-Zero

