



# Project Niu

## Nature Imparts Understanding

Evan Rapoport

Archinoetics, LLC

# Archinoetics, LLC

- Honolulu-based high tech company
- Fuse science, engineering, and physics
- Over 30 employees, including 5 Ph.D.'s
- Other projects:
  - Intelligent computing
  - Unmanned environmental monitoring & surveillance
  - Sleep & fatigue monitoring
  - Assistive & training technologies
  - Functional brain imaging

# Project Participation

## Sponsored By:

### NOAA B-WET Hawaii

Bay Watershed Education & Training



## Participation to Date:

- 200+ students
- 6 teachers
- 3 schools
- 4 devices deployed
- 3,500+ miles traveled



# Project Overview

- Project-based, STEM education
- Custom-made ocean-drifters (“Niu”)
- Drifters simulate marine debris
- Help students develop a life-long, personal connection to the ocean



# Technology

## ‘Niu’ is an ocean-going drifter device

- Iridium 2-way communications
- GPS
- H<sub>2</sub>O temperature
- Wave height
- Upwelling light
- Solar panels
- Digital camera
- Over one year battery life



# Where's Niu?

## Tracking Application

- Interactive Flash app
- View drifters' locations
- Interact with the data
- Learn about points of interest in the Pacific
- “Buy” part of the ocean

[maps.projectniu.org](http://maps.projectniu.org)



# Blogs & Forums

## Community Website

- Students contribute stories voluntarily!
- Forum for students, teachers, scientists, etc.
- “Ask a Scientist” section
- Promotes public interest

[www.projectniu.org](http://www.projectniu.org)



# Curriculum

- **Scientific method**  
Hypothesis formation, observation, etc.
- **Oceanography**  
Currents, weather, marine biology, etc.
- **Human impact: past & present**  
Marine debris, sustainability, policy, etc.
- **Standards for Science Education**  
Supports Hawaii & National standards



# Stewardship

- Students learn the impact of their actions
- Deploy Niu from local beach park
- Trash on a beach travels like Niu
- Beach cleanup



# Next Steps

- Expand to more schools for 2009-2010
- Expand software suite & lesson plans
- Make Niu device manufacturable
- Commercial / research version of devices

# Mahalo!



**Web:** [www.projectniu.org](http://www.projectniu.org)

**Track:** [maps.projectniu.org](http://maps.projectniu.org)

**Twitter:** [@projectniu](https://twitter.com/projectniu)

**Facebook:** “Project Niu”