HereLab

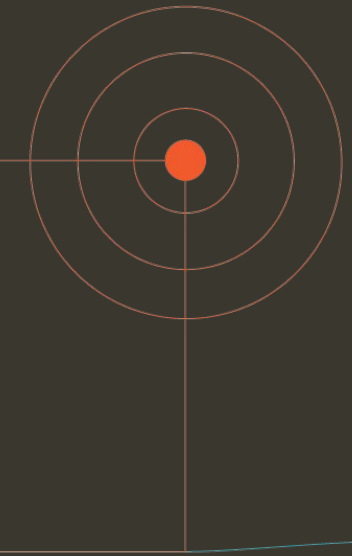
a public good

Smart Island Project

Place-focused, Community-driven IoT
on Martha's Vineyard

The Big “Why?”

Enable Community-Oriented, Public Good IoT



Living Laboratory Facilitation
— Natural, Built-Space, Social Environments

Enabling people here to connect to and understand OUR World

- For good, profit, sustainability, social impact,
- We can specifically manage/respond to what we can measure,
- Bring a world of innovative knowhow here,
- MV can lead the way, eventually exporting public good IoT.

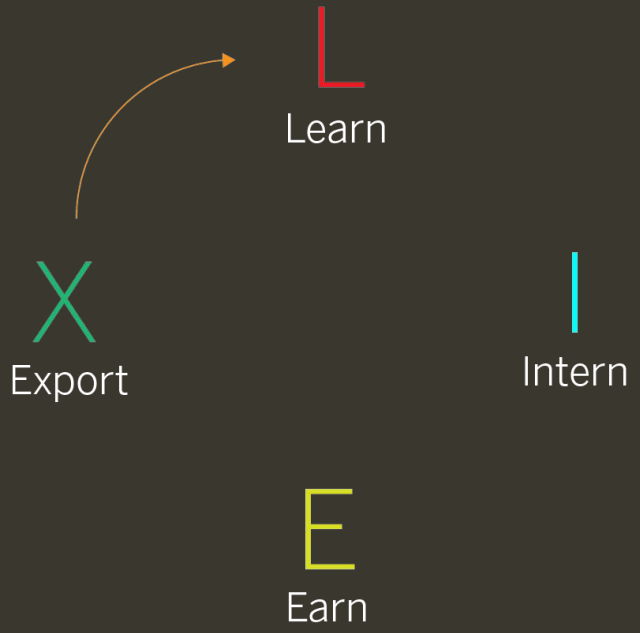
Make “Education to Export” a Reality

The Big “Why?”

Enable Community-Oriented, Public Good IoT

Develop a cycle of “education to export:”

- Teach teachers, students, leaders, entrepreneurs,
- Build pathways for new internships,
- Establish open access to tools, code, data for entrepreneurial initiatives,
- Foster import/export cycle.



Who?

Building Direct & Indirect Capabilities

Leadership: Patrick & Derek

Experienced Delivery/Thought Leadership team: engineering, data science, marine biology and system architecture

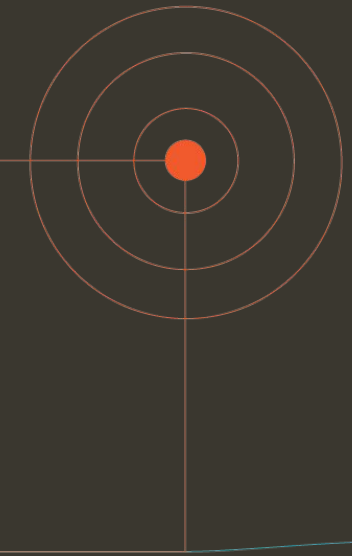
Liaisons / Emerging Partnerships with:

- Education - MVRHS, West Tisbury School
- NOAA/MBL scientist & Falmouth Aquafarm
- Industry & Delivery Leaders - MultiTech, OpenSensors.io, etc.
- Local/MA Non-Profits - MV Libraries, Island Grown, Trustees, etc.

Discussions with Analog Devices, GE, Cisco, IBM, EMC, MathWorks.

What? When? How?

Key Priorities / Progress since Mid-December 2015



LoRaWAN Network - Design, Build, Test, Deploy

Six LoRa gateways, five up and running.
— For trials, prototyping, education & partial island coverage.

Developing server / node / architecture strategy during community and Education-centered testing.

Realtime data from sensor to data on mobile device

— Phase One Focus: Vineyard Haven Pilots/North East MV

Key ?? - Optimal placement / hosting for best coverage

What? When? How?

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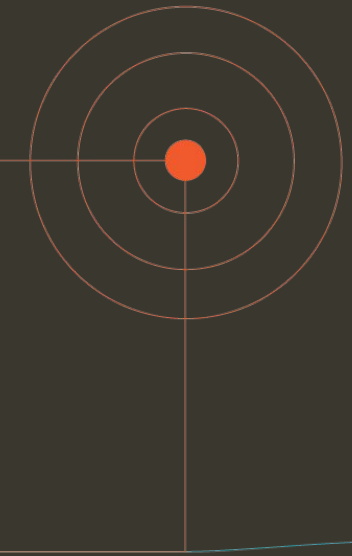


Jump Start “Education to Export” to Island Capacity

West Tisbury School Temperature Sensors

- “Bare metal” to data visualization and actuation

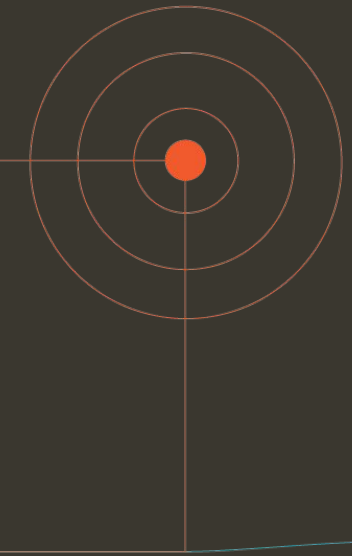
MVRHS Cross-Disciplinary Project, multiple sensors teachers & applications:

- Computer Science, Physical Science, MicroClimates, English, Space/Building Use, Library/Media

Deliverables: Falmouth and MV Maker Faire, April 27 and May 7

What? When? How?

Key Priorities / Progress since Mid-December 2015



Developed, coded and deployed MV-centric sensors

Soil, water, air temperature (built, natural environments)

Sonic Rangefinding — flood sensor and counting cars/people,

Water quality pod prototype,

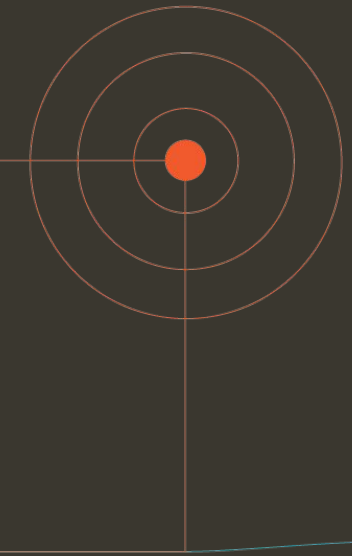
Populating a code library for ‘downloadable’ knowledge sharing,

Developed sensors/designs directly applicable to Island-wide “lab”.

Deliverables: MV Maker Faire, May 7

What? When? How?

Key Priorities / Progress since Mid-December 2015



Environmental / Entrepreneurial

Working with Dan Ward, N. Falmouth Oyster Farmer & MBL Scientist

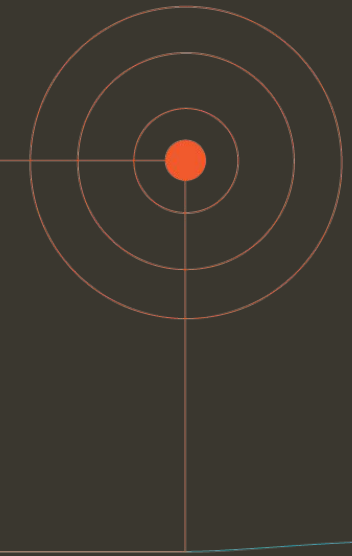
Goal - USDA/Grant(s) to develop:

- Open source, mainstream use of emerging sensor and data technologies for agricultural advancement and environmental preservation
- Nitrate/Chlorophyll sensor for salt- or fresh-water deployment integrated as part of low cost, high quality network and data solution offering.

Deliverables: Reviewing grants, deploying prototypes.

What? When? How?

Key Priorities / Progress since Mid-December 2015



Municipal — “Learn to Intern”

Working with Melinda Loberg

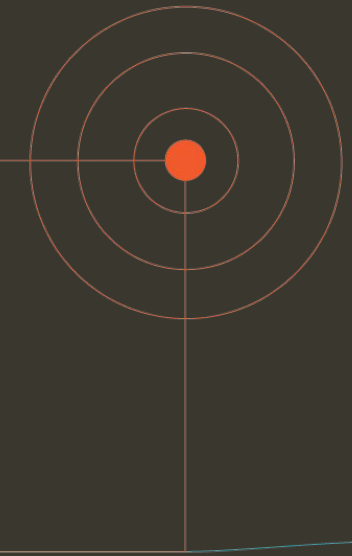
Goal - Vineyard Haven “Low Key Smart Town”:

- Establishing Network
- Piloting Traffic, Water, Energy and Trash applications
- Focusing on: Parking/Access
- Water Coliform/BOH Possibilities

Deliverables: Realtime Data, Network, Pilot Need-based Projects.

What? When? How?

Key Priorities / Progress since Mid-December 2015



Municipal / MVC: EPA Supplemental RealTime Data

Community-centric broadcasting of Nitrate Remediation Project

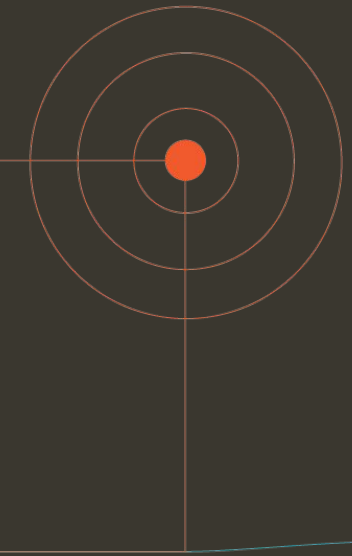
Goal - Supplemental, Community-focused, Realtime Data

- Establish Lagoon Pond Network
- Collaborate with VH, MVC and MV Shellfish
- Provide Internships
- Expand “marketplace of ideas”

Deliverables: Realtime Data, Network, Nitrate Correlate Sensors.

What? When? How?

Key Priorities / Progress since Mid-December 2015



Artistic / Cultural / Environmental "Export"

Relationship with Winona MN community organization.

Developing grants for water/civic/cultural (Smart Town) initiatives in coordination with MultiTech as technology partner.

Plans to morph MVRHS data into sensory arts project.

And we're just getting started…

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