

"Small is Beautiful"?

Place-Based Innovation through Open
Hardware



Code for America Programs

The Fellowship, CfAs flagship program, connects talented developers and designers with local governments to harness technology for public good.
codeforamerica.org/fellowship

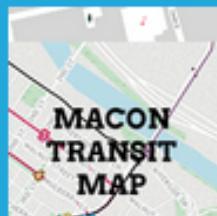
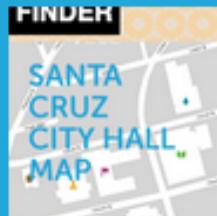
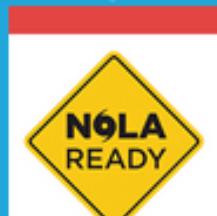
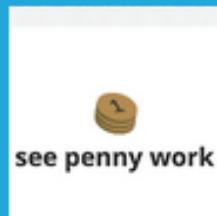
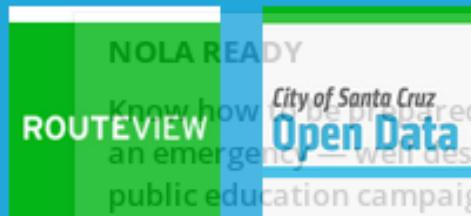
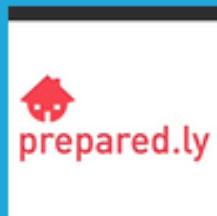
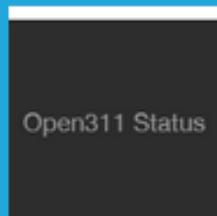
The Brigade is an organizing force for civic minded developers, designers, data scientists, and leaders who contribute their talents towards addressing the problems we see everyday. Join: brigade.codeforamerica.org

The Accelerator: With more than \$140 billion poured into the civic tech industry – we're looking to find and support entrepreneurs to take advantage of it, and disrupt the current ways of doing business.

The Peer Network: The Peer Network connects local governments around the country to facilitate peer learning, collaborative problem-solving, and the spread of innovation best practices between cities.



2012 CfA Fellowship Apps





CODE *for*
AMERICA
BRIGADE

NATIONAL DAY OF CIVIC HACKING

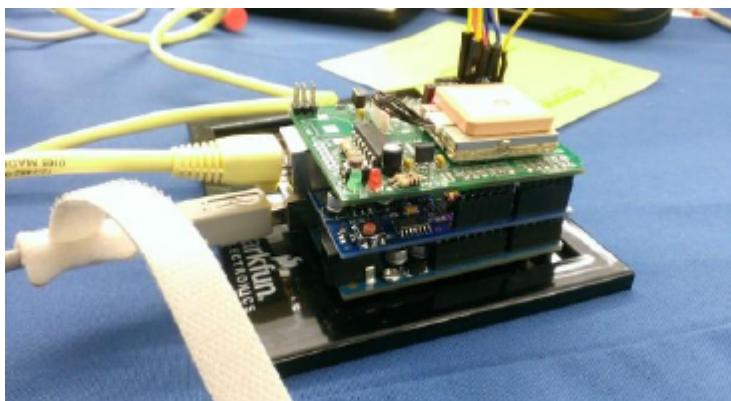


Adopt-a-Buttler

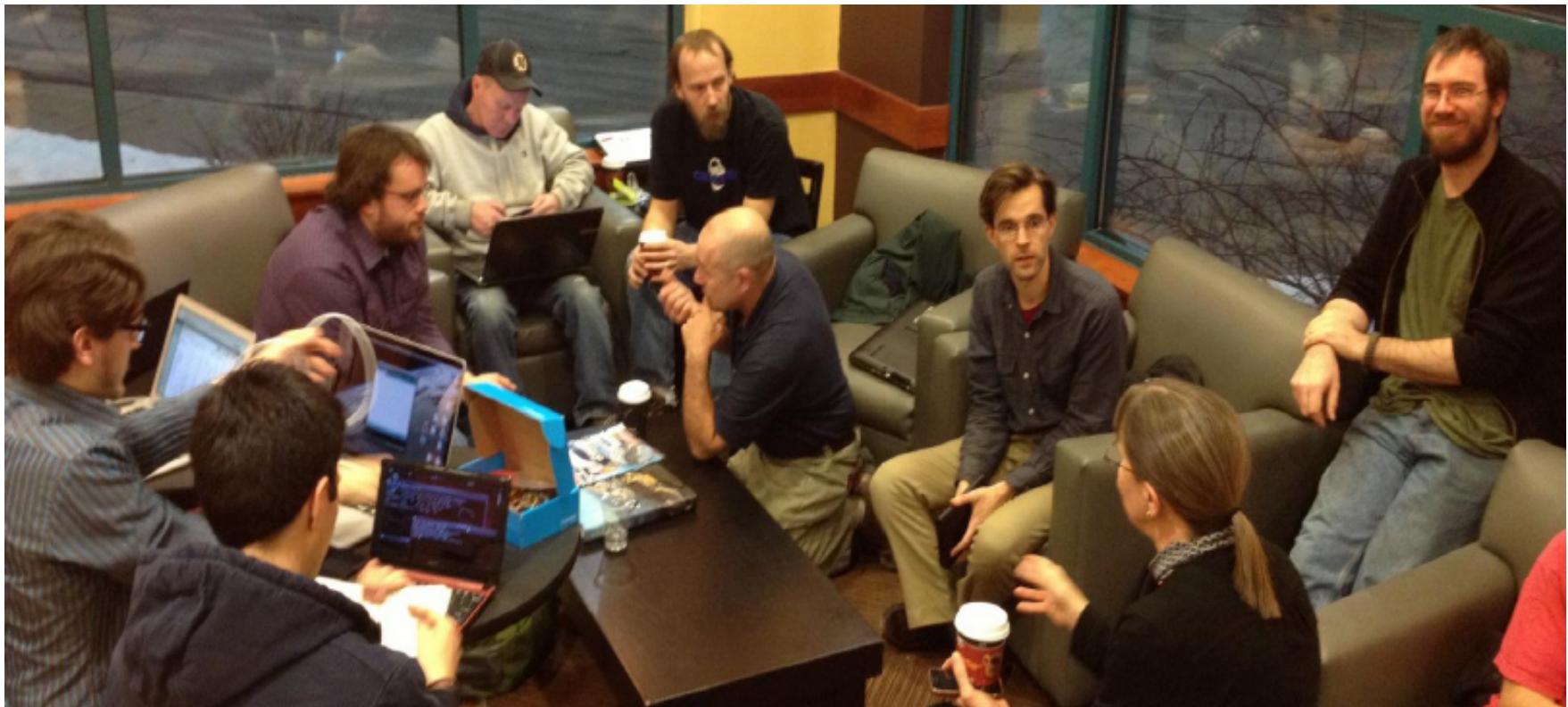
Good day! May I clean up your city's butts?



Adopt-a-buttlitter is a solution to cigarette litter. These friendly, stylish Buttlers want nothing more than your butts in their faces. By sponsoring a Buttler in your neighborhood you can support cleaner streets and help to turn peoples' bad habits into [useful products](#).



So a Clown, a Game Designer and a Folkorist walk into a Hack-A-thon...



-574
Predicted Job Loss in
Tech Sector by 2018




32nd
Entrepreneurial
Activity


25th
Venture Capital

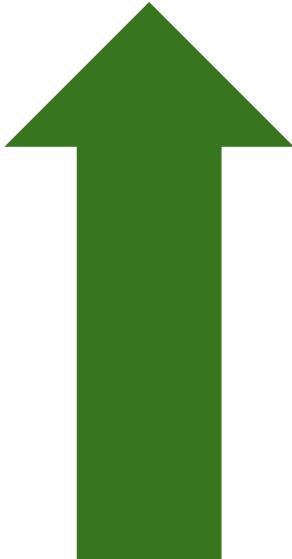

48th
Non-Industry Related
R&D


31st
Inventor Patents

Sources-

- *The Georgetown University Center on Education and the Workforce* - <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/maine.pdf>
- *The 2012 State New Economy Index* <http://www.itif.org/publications/2012-state-new-economy-index>

1st
out of all 50 states
in overall Civic
Health



 **3rd**
Social Cohesion

 **3rd**
Non-Profit Density

 **3rd**
Percentage of
Registered Voters

Sources-

- National Conference on Citizenship- Civic Health Index <http://ncoc.net/CHI>
- Knight Foundation Soul of the Community Report- <http://www.soulofthecommunity.org/>
- US Census Voting and Registration Survey <http://www.census.gov/hhes/www/socdemo/voting/>



Ten questions you've always wanted to ask.



A Citizen Education project of the
Maine Municipal Association

A Citizen's Guide to TOWN MEETING



Strengthening Hyper-Local Government

ANCBrigade is a project in Washington, D.C. to strengthen our unique hyper-local level of government called **Advisory Neighborhood Commissions (ANCs)**.

The District is divided into 40 ANCs, about 5 per ward. Each ANC is made up of about 7-8 commissioners. Commissioners are each elected from Single Member Districts (SMDs) comprising about 2,000 District residents. There are 296 ANC commissioners (and SMDs) in the District.

This website is a project of the [DC chapter](#) of the [Code for America Brigade](#). We're volunteers interested in using technology to solve problems in our civic lives. This is a work in progress.

ANC Brigade

Open government for DC's advisory neighborhood commissions

Start Here

What's your address? We'll locate your commissioner and tell you more about ANCs.

DC Wards

A map of Washington, D.C. showing the 40 Advisory Neighborhood Commissions (ANCs) across 8 wards. The map includes labels for Ward 1 through Ward 8, various neighborhoods like Chevy Chase, Silver Spring, and Georgetown, and surrounding areas like Arlington and Maryland.

GOVERNING the COMMONS

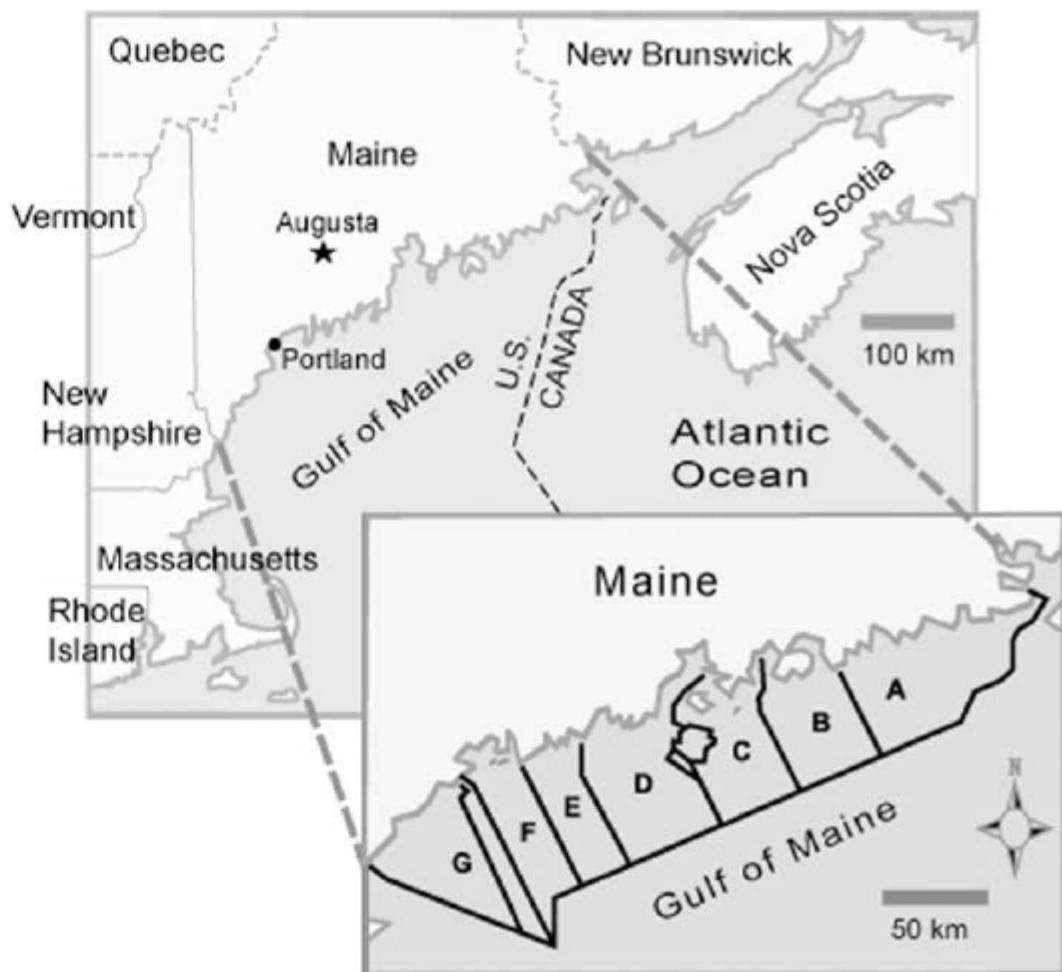


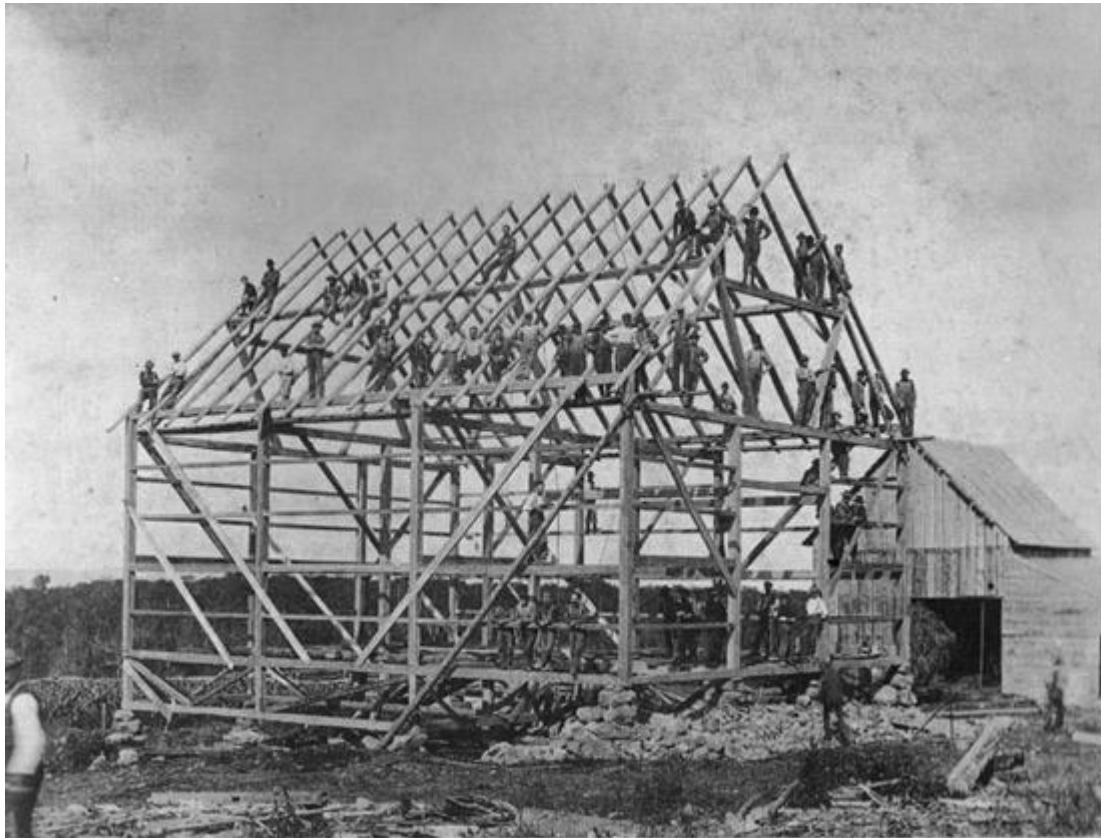
ELINOR OSTROM

The Evolution of Institutions
for Collective Action

2009
Nobel Prize
Winner

Political Economy
of Institutions and Decisions





Because the word describes people working together in a social group, a common [false etymology](#) is that the term derives from the [insect](#) of the same name and similar social behavior. According to etymological research recorded in dictionaries, the word in fact probably comes from dialectal *been* or *bean* (meaning "help given by neighbors"), which came from [Middle English](#) *bene* (meaning "prayer", "boon" and "extra service by a tenant to his lord")[\[1\]](#)[\[2\]](#)

Harpswell grange marks 100th anniversary

By Rachel Shelly, Times Record

Posted March 06, 2013, at 10:39 a.m.

HARPSWELL, Maine — If the grange is a dying institution in rural communities, nobody told the members of Merriconeag Grange 425, who still gather and do good things for their neighbors 100 years after incorporation.

Maine Secretary of State Matthew Dunlap awarded the officers of Merriconeag Grange a commemorative plaque Friday as the group that numbered nearly 40 celebrated their staying power with a catered lunch.

"The grange was once the most powerful political entity. Even the Legislative season was scheduled around planting and harvesting," Dunlap said.

These days, grange membership in Maine and around the country has dwindled to the point that many, if not most, have closed.

"It's not common for [a grange] to make it to 100," Dunlap said.

Secrets and sea goddesses

Merriconeag Grange was incorporated on Feb. 5, 1913.

But it had been around informally for years before that, since Harpswell was primarily a farming community — and farmers on that coastal peninsular thumb relied on each other as much, if not more than, on the soil and the seasons.



RO'S CO.

MECHANICS' HALL.

CRESSE

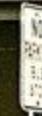
EST. 1854



CARTER BROS.

EST. 1854

515



517

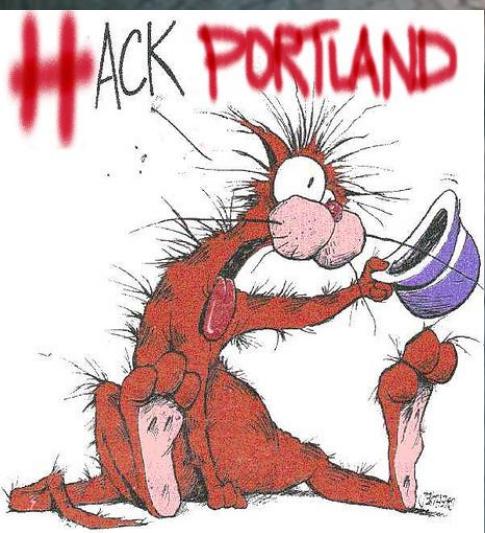
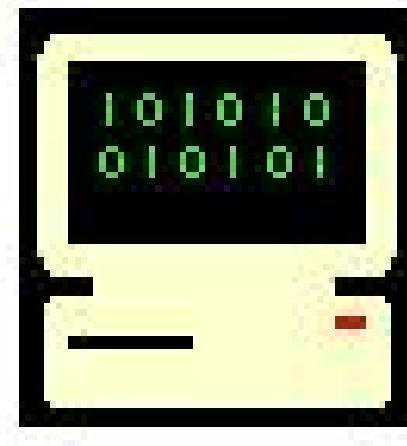
TO LET
Upper & Library
2nd FLOOR

TOILET
LADIES & GENTLEMEN'S
W.C.
NO CHARGE
OPEN 24 HRS.



MECHANICS BANK

otoshops



**Maine
Hacker
Club-
Bangor**



Power to the Freight Shed: Building a Winter Farmers' Market

by Bath Freight Shed Alliance · You're a backer

[Home](#)

Updates 15

Backers 237

Comments 20

Bath, ME

Food

Funded! This project successfully raised its funding goal on March 31, 2012.



237

backers

\$18,448
pledged of \$18,000 goal

0

seconds to go

The Bath Freight Shed Alliance combined a traditional fundraising campaign with community groups like the Rotary Club with an online crowdfunding platform called Kickstarter to raise over \$18,448 for a new community event space.



What Makes a Maker?



Cultures of the “Maker” movement

-[Alison Powell](#)

What I see happening now is a collision of the two worlds: the Making culture has a cultural history from the MIT hackers but it also has a strong influence from traditional crafting cultures.

1. open hardware projects cut across and connect with other forms of DIY, taking up this politicized and gendered dialectic in a productive and interesting way.
2. Many open hardware entrepreneurs are women. My observation of these projects is that they are pragmatic, creative, and fill market niches, but that compared with open software projects they are less concerned with the debates about licensing, division of labour, etc.
3. There is also a cultural link connecting open hardware with new media art and experimental art forms. Hardware designers and entrepreneurs aren't just coming out of computer science departments, they are coming out of media and design departments and through a whole range of other professional and creative paths. While the art world



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All I

The "How-to" for making an Arduino controlled smoker

Civic Hacking



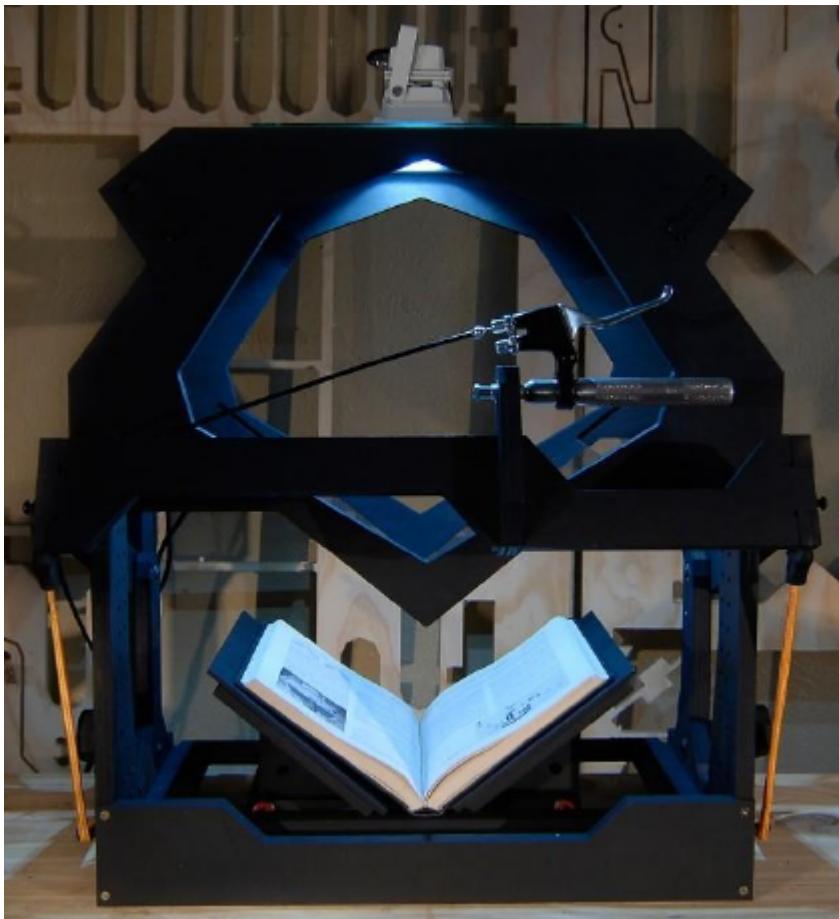
+



The Maker
Movement

Open Civic Hardware*

Open Source Hardware+Civic Technology



*Name Subject to Change in case somebody comes up with something better...



diybookscanner

This is the official git repository for diybookscanner.org.

Contents

- openscad/ : conversion of the 0.9.20 diybookscanner.org design to openscad (work in progress)
- misc/ : a simple electronic triggering script for use with a foot pedal, and more
- wiki (branch) : the official diybookscanner.org wiki

TODO

- port every wooden part from DIY_Book_Scanner.9.2.0.dxf to an independent, 3D layered openscad file
- recreate a sheet with all wooden parts from .9.2.0
- model essential other parts (glass, L brackets, felt pads, ...)
- create an assembled model of .9.2.0



raleighpublicrecord/dochive





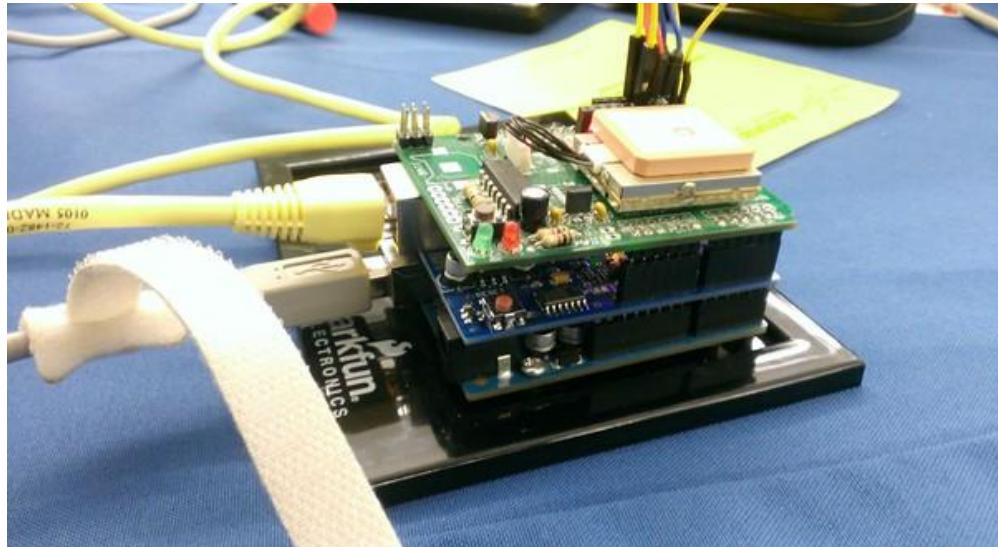
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Open Vehicle Tracker



GPRS-GPS Shield with Arduino Uno



GPRS-GPS Shield with Raspberry Pi via Connection Bridge



Arduino Code on Github-

<https://github.com/Code4Maine/TraLog.git>

TRAlog Wiki- [http://rocketscream.com/wiki/index.php/TraLog_Shield_\(Arduino_Compatible\)](http://rocketscream.com/wiki/index.php/TraLog_Shield_(Arduino_Compatible))

Potential Applications



" Rural ITS Solutions Need to Be More Flexible

Putting Transit to Work in Main Street America

How Smaller Cities and Rural Places
Are Using Transit and Mobility Investments
to Strengthen Their Economies
and Communities



Federal Transit Administration Research

Evolution of Intelligent Transportation Systems for Mobility Management and Coordination Serving California's Rural Frontier- January 2012

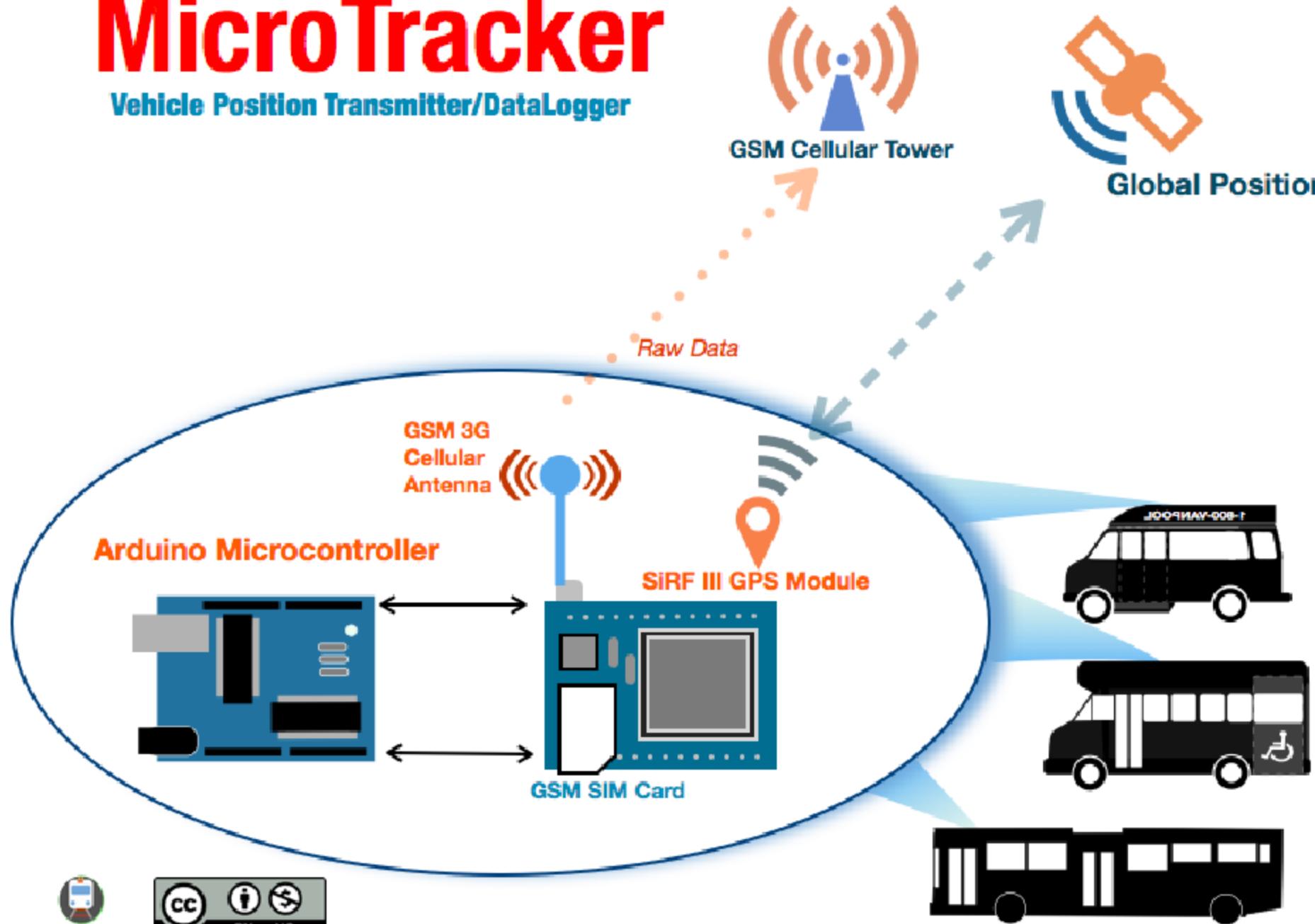
How to Avoid Pitfalls in ITS Innovations Deployed in a Rural Frontier Community (pp21) -

MCTC agreed to review any write-up the Contractor saw best to meet their internal needs for use-cases; however, with such limited MCTC staff, there was not time or resource for a small frontier rural agency to undertake another time-consuming complex use case document. This is one example of challenges the Contractor and the agency could not resolve through this ITS project or through functional prototyping. Similar ITS trip planner initiatives spent months to years developing the use-case scenarios while user expectations and technological capacities are changing so fast—as soon as the specifications are buttoned up, a new expectation pops up. Future ITS projects may consider a modified approach to detailed use-cases because technologies and user expectations are changing so rapidly. Alternatively, as with the OpenTripPlanner project, a shared vision through on-line collaboration brought a next generation of multi-modal trip planner to production in just 12 months. OpenTripPlanner continues to evolve swiftly with changes in technologies and user expectations.¹⁹ OpenTripPlanner is fully deployed as a multi-modal trip planner for Tri-Met in Portland, OR. For more information on various initiatives and projects, visit <http://openplans.org/projects/#transportation.FEDERAL>

Future rural ITS projects should have clear, specific milestones that can be accomplished in six to nine months. Each of these milestone tasks will roll up to the larger project vision, with future data integration in-mind. This should avoid the possibility that a project is lost in a litany of uncertain requirements, the programming team is overwhelmed, or, worse, they find themselves unable to succeed.

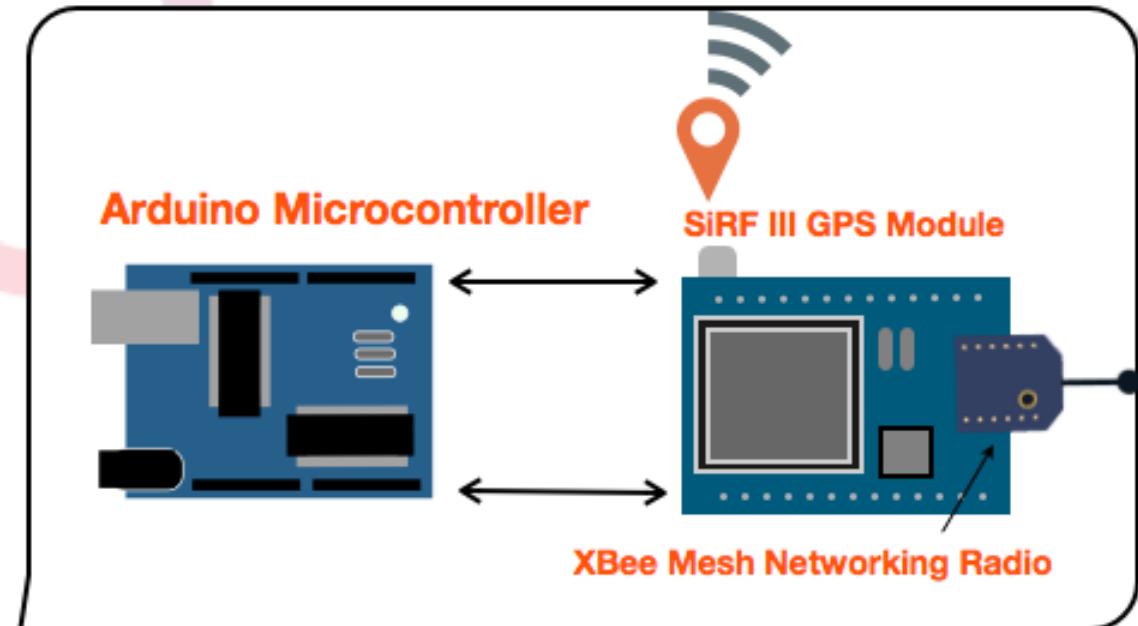
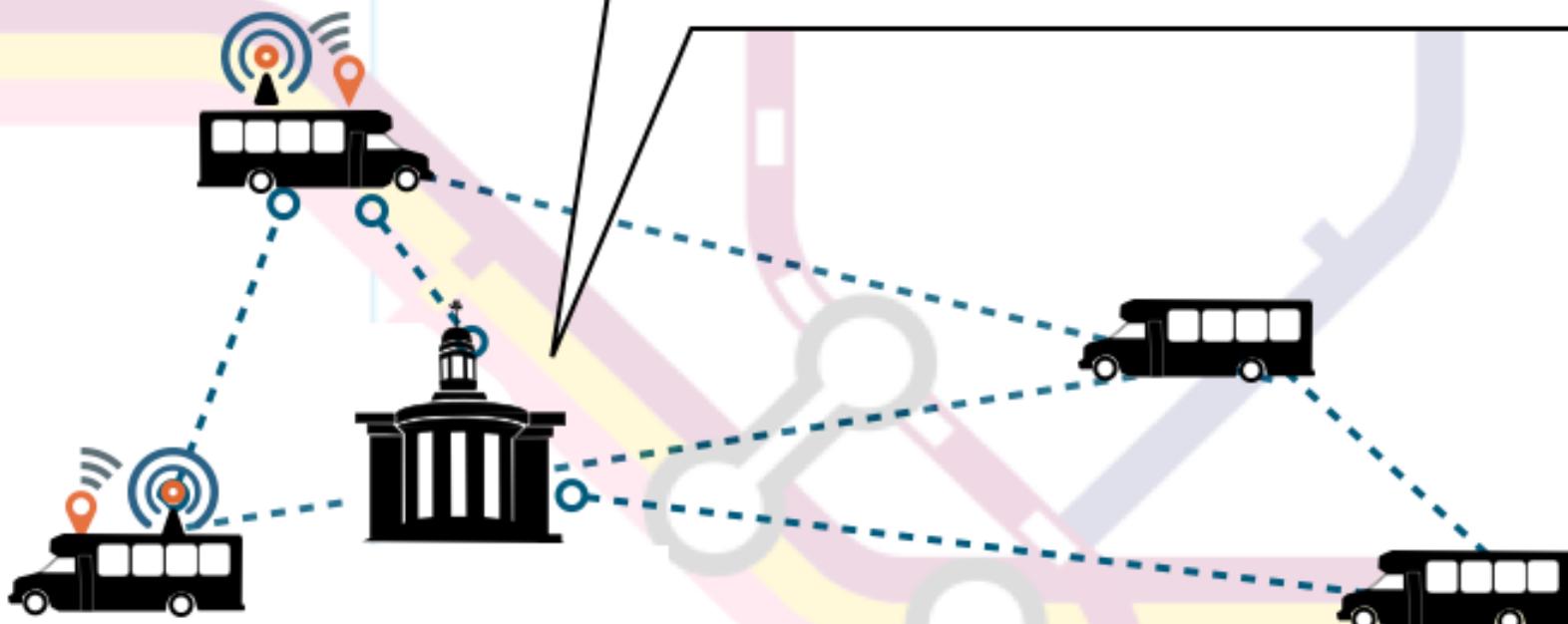
MicroTracker

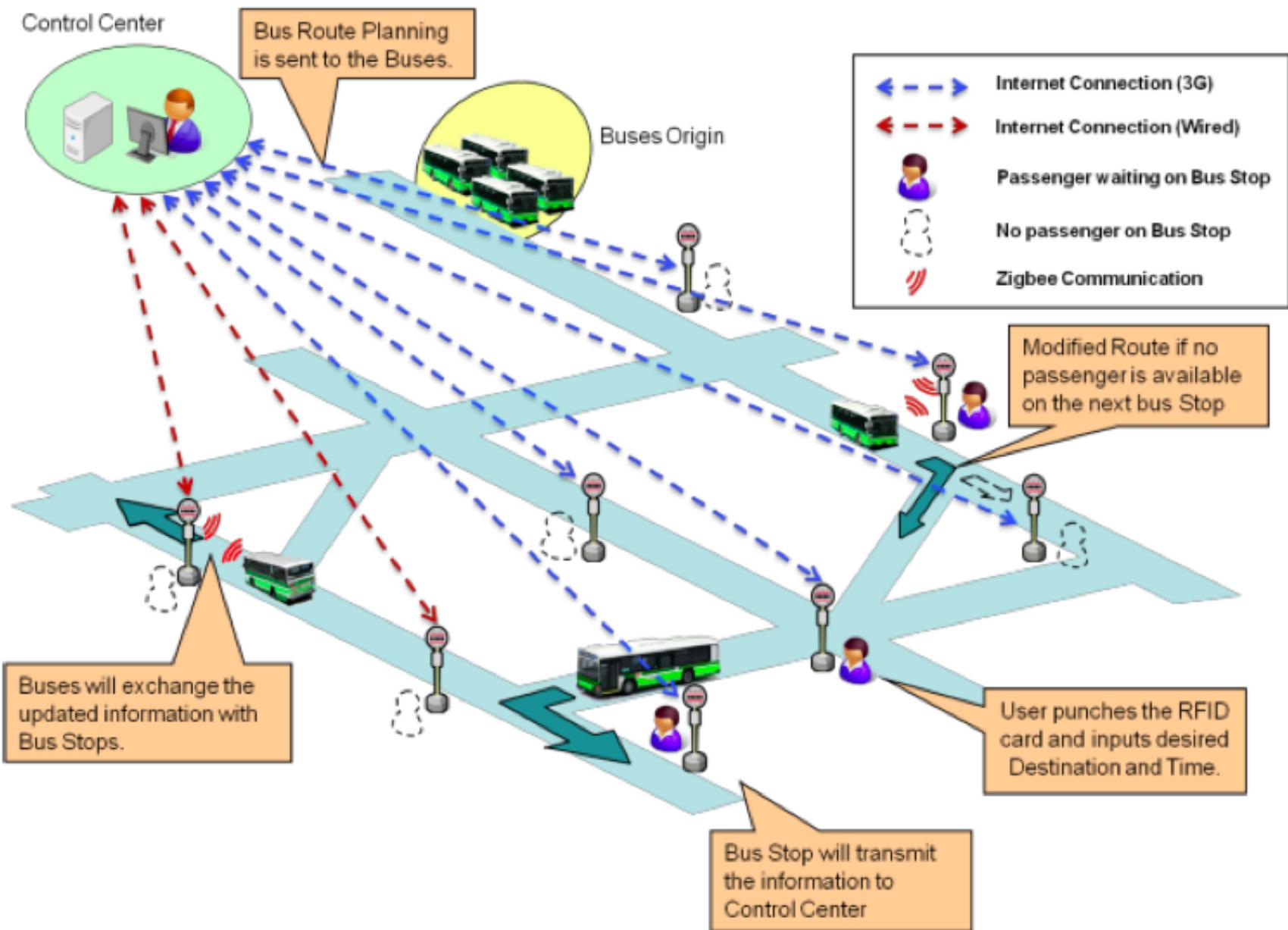
Vehicle Position Transmitter/DataLogger





XBee Mesh Networking





*

Slides 30-33 from Article called “Flexible Bus Systems Using Zigbee as a Communication Medium”

(<http://www.online-journals.org/index.php/i-joe/article/view/1579>)

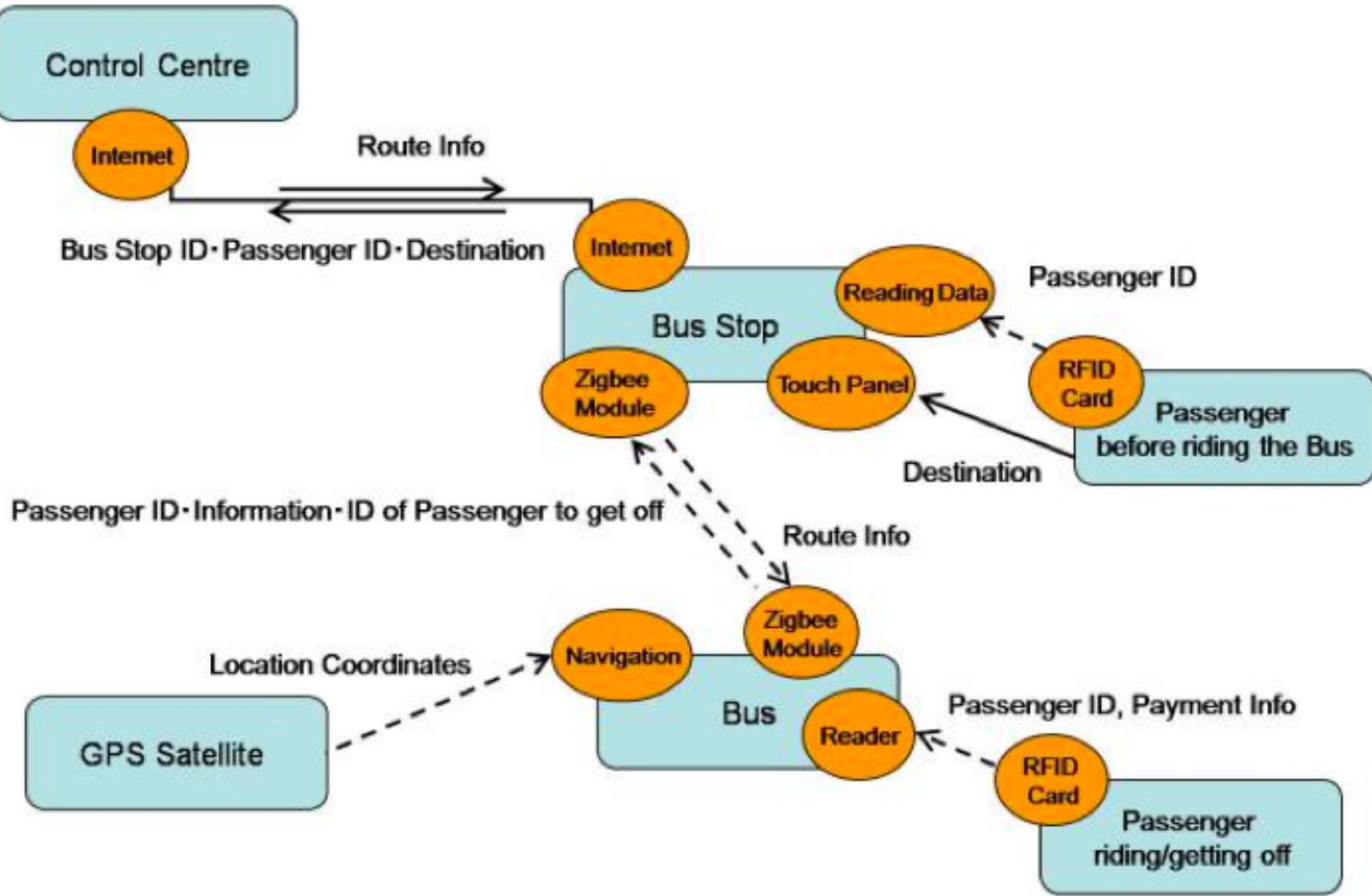


Figure 3. Algorithm flow for The Flexible Bus Systems

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Slides 30-33 from Article called “Flexible Bus Systems Using Zigbee as a Communication Medium”
[\(<http://www.online-journals.org/index.php/i-joe/article/view/1579>\)](http://www.online-journals.org/index.php/i-joe/article/view/1579)

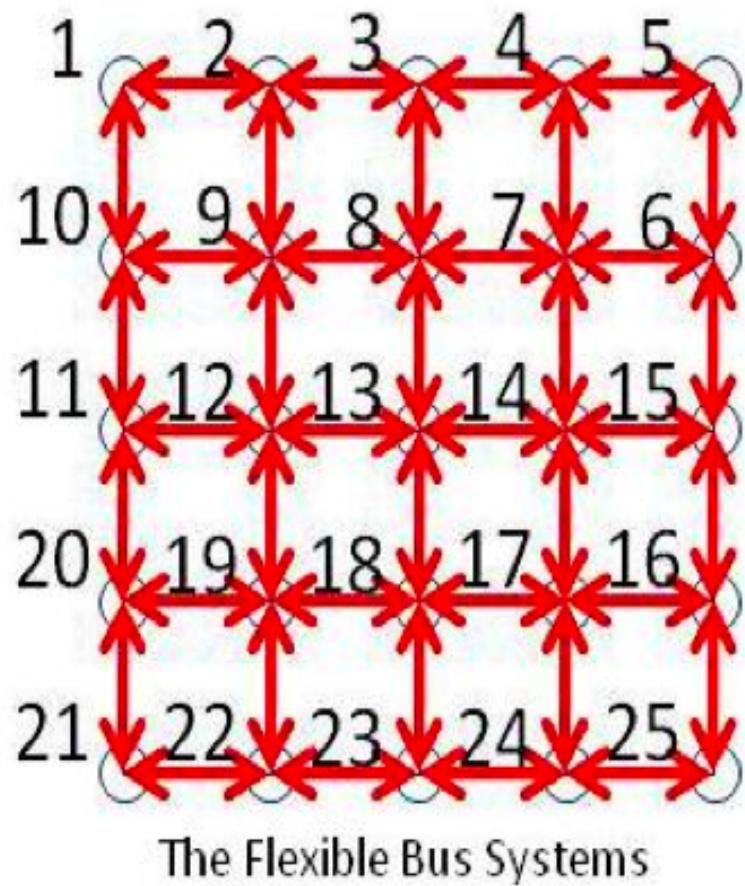
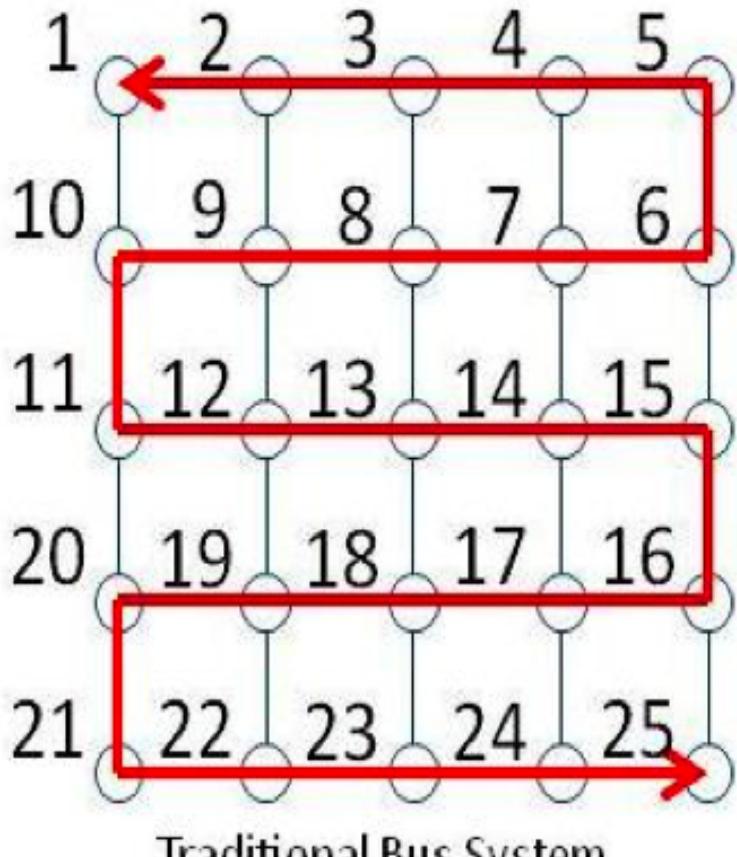


Figure 4. Traditional Bus System and the Flexible Bus System Grid Model

*

Slides 30-33 from Article called “Flexible Bus Systems Using Zigbee as a Communication Medium”
[\(<http://www.online-journals.org/index.php/i-joe/article/view/1579>\)](http://www.online-journals.org/index.php/i-joe/article/view/1579)

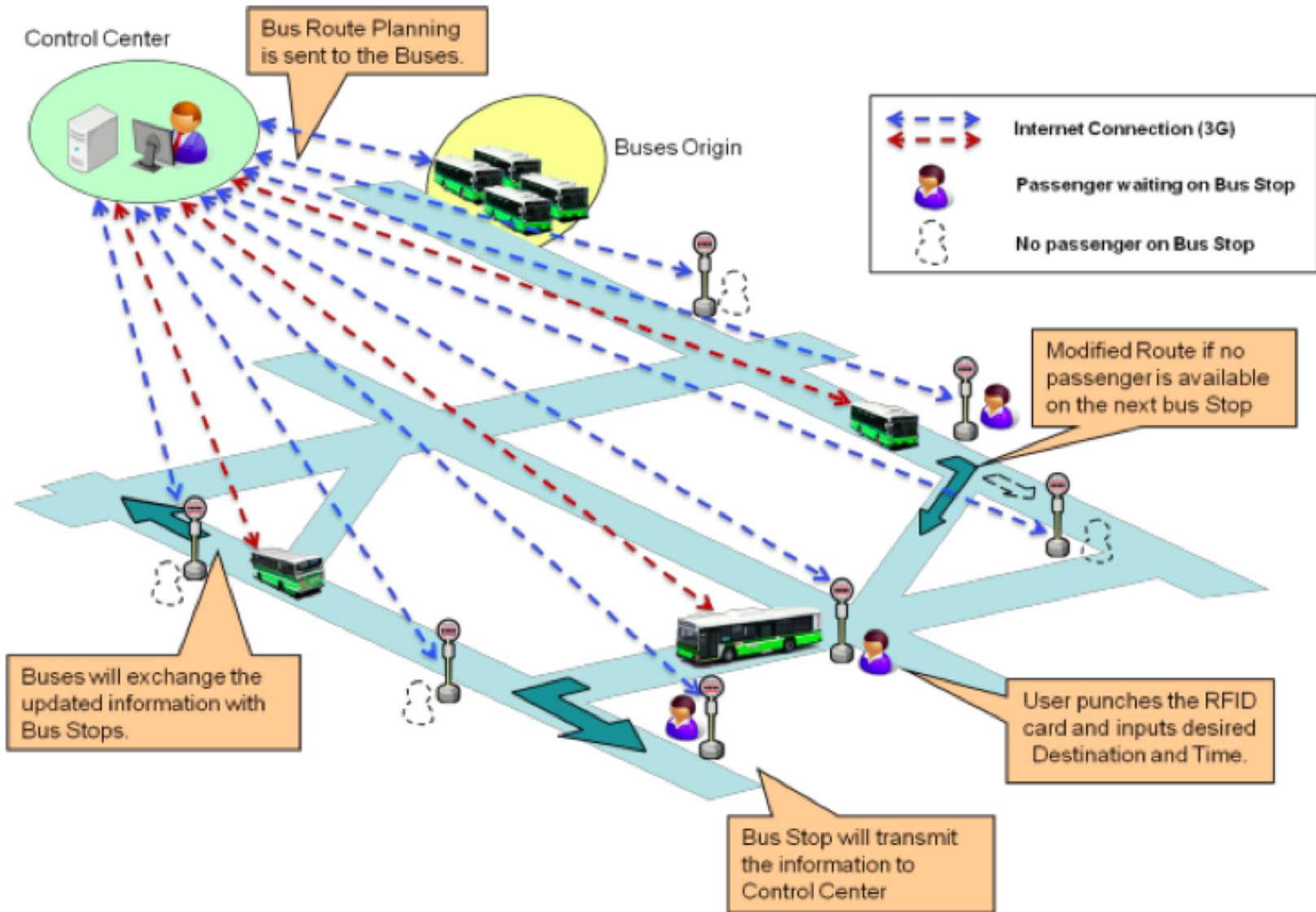
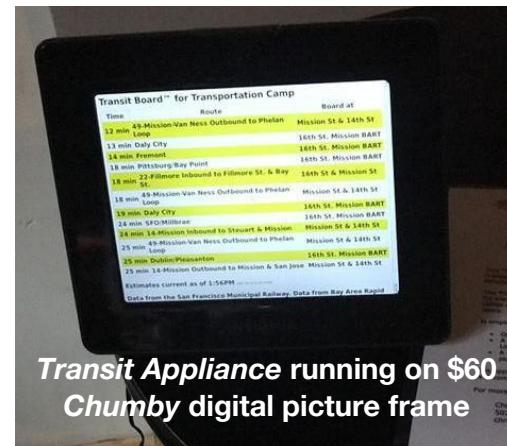


Figure 1. Example of typical DRT System Model

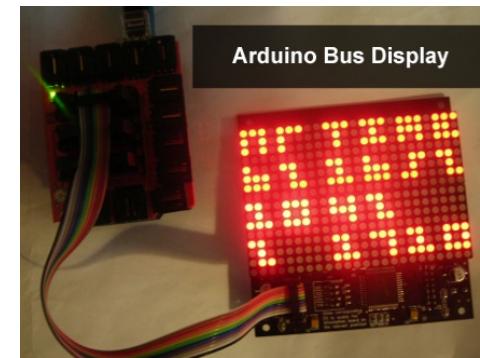
* Slides 30-33 from Article called “Flexible Bus Systems Using Zigbee as a Communication Medium”

(<http://www.online-journals.org/index.php/i-joe/article/view/1579>)

Open Source U/X



"Homebrew" Transit Stop Notifiers built with Open Source "Arduino" Hardware and Open Transit Data



Island Explorer Bus Arrival
Screen Per Unit Cost*-
\$7 142.85714



*Southern Maine Regional Planning Commision
Planning Study, Chapter 7- <http://www.smrpc.org/transportation/Other%20Planning/atlantic/documents/chapter7.pdf>

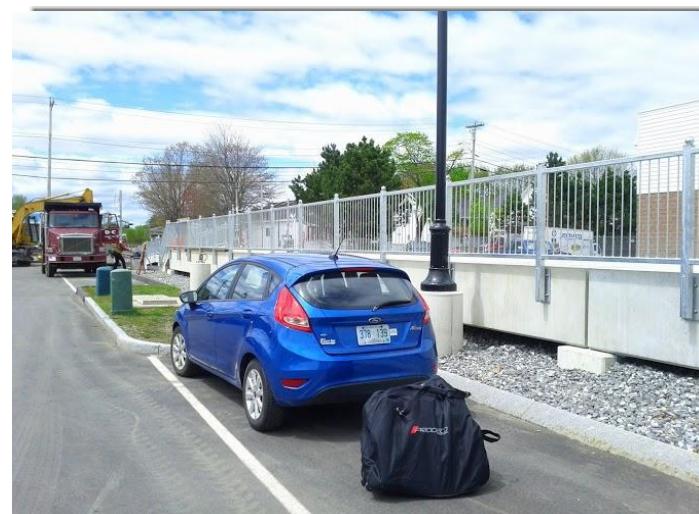
Raspberry Pi, Linux based Bus
Arrival Screen **\$35.00**
+Cost of Monitor





A DIY, Foldable Electric Bicycle

Converted from a used folding bicycle, and powered by a Microcontroller, brushless motor and 12v Battery this folding bicycle has a range of over 20 miles and can fold into a carrying case for storage in a compact car, van, bus or rail luggage rack.



Hack Procurement

Technology enables open marketplaces. Technology now makes it easier to track and open reports on spending, particularly when technology itself brokers the transaction (e.g. modern financial markets). As online marketplaces emerge for government contracting, data will as well, leading to accountability through transparency and cost-savings through competition.

Governments are increasingly open to new software. Changing what is currently a closed, typically paper-based process into an electronic, open one will require substantial political leverage; fortunately, senior leadership in local, state, and federal government is emerging that not only understands technology, but realizes the procurement process has to change.

Software is eating the (government) world. The rapid disruption in other markets is driven in large part by the commoditization of technology through software-as-a-service. There's no reason governments couldn't do the same – except for the paucity of civic startups. That's changing though. Dozens if not hundreds of companies are now beginning to recognize the opportunity to get into the govtech space. - See more at: <http://codeforamerica.org/2013/05/07/towards-a-procurement-strategy/#sthash.9248226K.dpuf>

Presidential Innovation Fellows: RFP-EZ

Building a platform that makes it easier for small high-growth businesses to navigate the federal government, and enables agencies to quickly source low-cost, high-impact information technology solutions.

EasyBid A Technology Marketplace That Everybody Loves

For Small Business

Create a simple online profile and begin bidding on [projects](#). If you're selected to work on one, we'll walk you through the government registration process.

[Register as a Company](#)

For Government

Make great statements of work and find great contractors. Browse eligible firms and see their online portfolios. Receive bids from small innovative tech companies.

[Register as a Contracting Officer](#)





NOW RECRUITING: CIVIC STARTUPS

Apply now for the CfA Accelerator.

[Apply Now](#)

CfA sees three models for startups that'd fall within the civic space:

1. they provide services on top of open government data;
2. they bring modern web technologies directly to governments;
3. they change the way citizens ask, get, or need services from government.

Experiments in GitHub Based Procurement

March 27, 2013 by mheadd

RFP-EZ in 5 easy pieces



SOWComposer:

Agencies draft and save statements of work online .



BidMaker:

Small businesses ask questions and bid via a web-based interface.



BidMonitor:

Agencies view proposals, read discussions and find prices already paid for similar items.



RFP-EZ Marketplace:

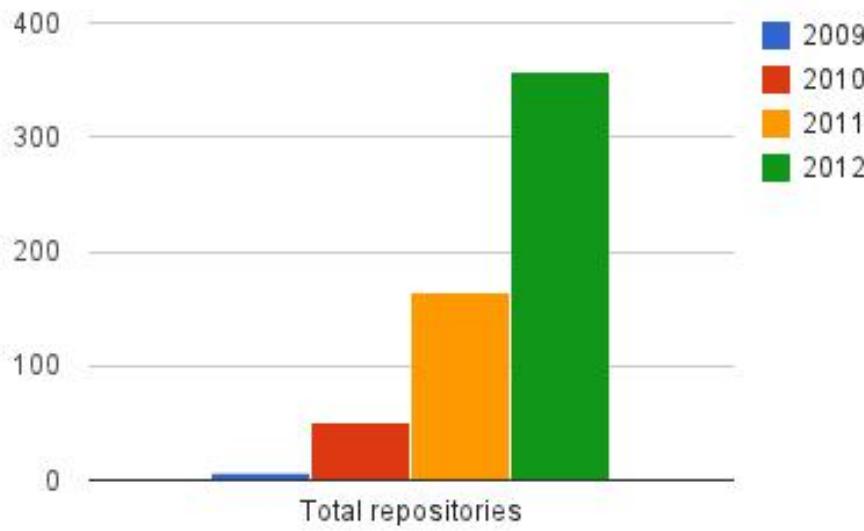
Small businesses create accounts and receive alerts for new solicitations.



Portfolio Browser:

Agencies get detailed profiles of small firms that have previously worked for the government.

Growth in government repositories



Unlike Software, mechanisms for version control are relatively crude

Until we have a "version control for stuff" as effective as Github, Much of the value of the return cycle will be lost.

Real Community collaboration in hardware is still too hard.

-Chris Anderson 2012 Open Source Hardware Summit *Microeconomics for Makers*
<http://2012.oshwa.org/files/2012/07/Microeconomics-for-Makers.pdf>

Open Hardware Business Model

“Give away the bits, sell the atoms”

- Charge 2.6x BOM
 - Keep ahead of cloners by innovating faster, supporting better
 - “90-10” Rule: 90% the performance of commercial products at 10% the price
 - Democratize the technology: low prices = high volume = high innovation.

-Chris Anderson 2012 Open Source Hardware Summit *Microeconomics for Makers*
<http://2012.oshwa.org/files/2012/07/Microeconomics-for-Makers.pdf>

- . There are no unifying standards or best practices for creating high quality documentation.
- . Documentation for OSHW projects is dispersed across many platforms.
- . No clear definition of scope exists.
- . Lack of standard formats, clear organization, and technical jargon makes it difficult for the layperson to understand existing documentation.
- . There's no simple way to remix and mashup hardware.
- . Derivative work is difficult to track. Lack of appropriate software for designing, displaying and sharing plans makes collaborative development difficult.
- . It's difficult to update and evolve open source hardware designs due to documentation dependencies
- . Documentation is time-consuming.

[Building an Open Hardware Economy on Open Source Success](#)

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