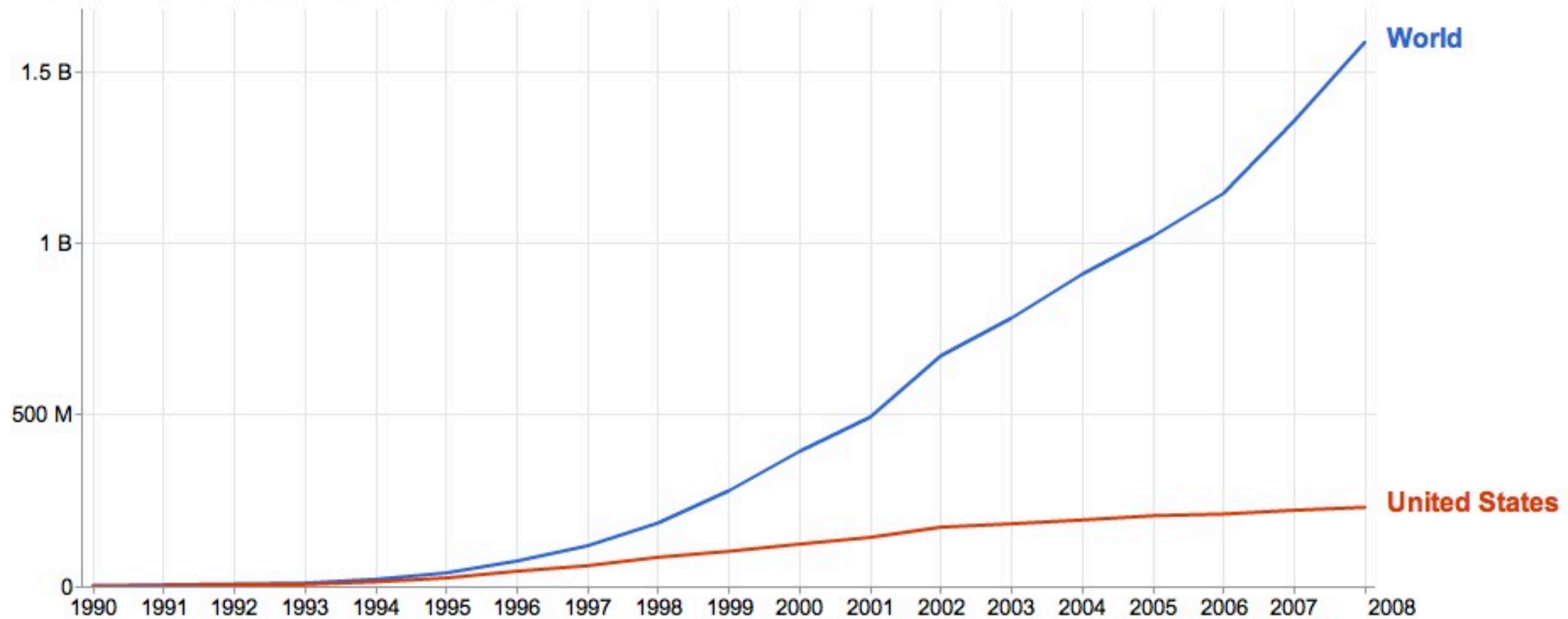


Giving People Voice

Tapan S. Parikh • parikh@ischool.berkeley.edu

Internet users

People with access to the Internet. [More info »](#)



Data source: [World Bank, World Development Indicators](#) - Last updated October 1, 2010

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The Internet for the Rest

- Within the next decade, the rest of the World will gain access to the Internet
- Designing for the future of the Internet means addressing *contextual diversity*
- For most user, it will not be via a computer, or in an office



Who's Missing?

- Access \neq Active Participation
- Large populations in Africa, Asia, and Latin America (and here!) coming online
- Poor, indigenous, uneducated, low-literacy, vernacular speakers getting left out
- Incredible diversity is embedded within these communities

The Technocratic Fallacy

- *Assumption:* Everyone will learn to read and write English; and will use computers running a traditional OS
- *Responses:*
 - It will take another two generations
 - Still won't cover everyone
 - Will be significantly less diverse

Internet as Space; Internet as History

- More of the world's commerce, governance, communications and leisure is being mediated by technology
- The web serves as a record of the events, ideas and sentiments of our generation
- Will the poor and dis-enfranchised be systematically excluded?
- Can we make their voices heard?

* Introduction

* **Awaaz.De: Voice Social Media**

* **LocalGround: Paper Mapping**

* **Summary and Conclusion**

Awaaz.De:
Social Media for the Rest

Farmers Need Information

- Knowledge about inputs
- Dealing with pests and diseases
- New practices, technologies
- Access to markets, capital, weather, government programs, etc.

Agricultural Extension?

- Traditional extension programs are costly; still don't reach most farmers
- Low-literacy, local language, remote
- Ignore local experience and expertise
- Ag-dealer - de facto local knowledge hub



Giving Farmers a Voice





தர்ந்தெடுக்கப்பட்ட ள்ளார்

தேதி : 12/10/02

1		விஜயா	50	50
2		பாரதிதாசன்	50	50
3		கார்த்திக்	50	0
4		பிரியா	50	<input type="checkbox"/>
5		மீனா	50	
6		லஸ்வி	50	
7		சித்ரா	50	
8		சத்யானந்தன்	50	
9		சகுந்தலா	50	
10		விவகானந்தன்	50	
11		கார்த்திக்	50	


4 பிரியா

 50

12.10.0250✓

05.10.0250✓

22.09.0250✓

15.09.020✗

03.09.0250✓

26.08.0250✓













பூ ஆரம்ப இருப்பு 12.10.02

குழுவின் மொத்த சேமிப் 1080

பூ Group Investments

பூ கையிருப்பு 1600

பூ Bank balance 6850



Design for Low-literacy

- Leverage existing representations
- Use icons that are familiar and realistic
- Provide guidance throughout the task
- Numbers are more accessible than text
- Vernacular speech is most successful

Orality

- Oral communities have their own ways of representing and managing information
- Aggregative - tolerant of repetition, redundancy and inconsistency
- Situational - tied to specific situations and people; not abstract concepts
- Dialectic - reinforced by dialogue

Awaaz.De



Awaaz.De

- Farmers and experts use an IVR-based voice system to:
 - record questions
 - provide answers
 - listen to prior questions and answers
- Popular questions re-broadcast on radio
- Usenet w/ voice, radios and dumb phones

Development Support Centre (DSC)

Non-governmental organization (NGO)
working on enhancing natural resource
management and agricultural productivity















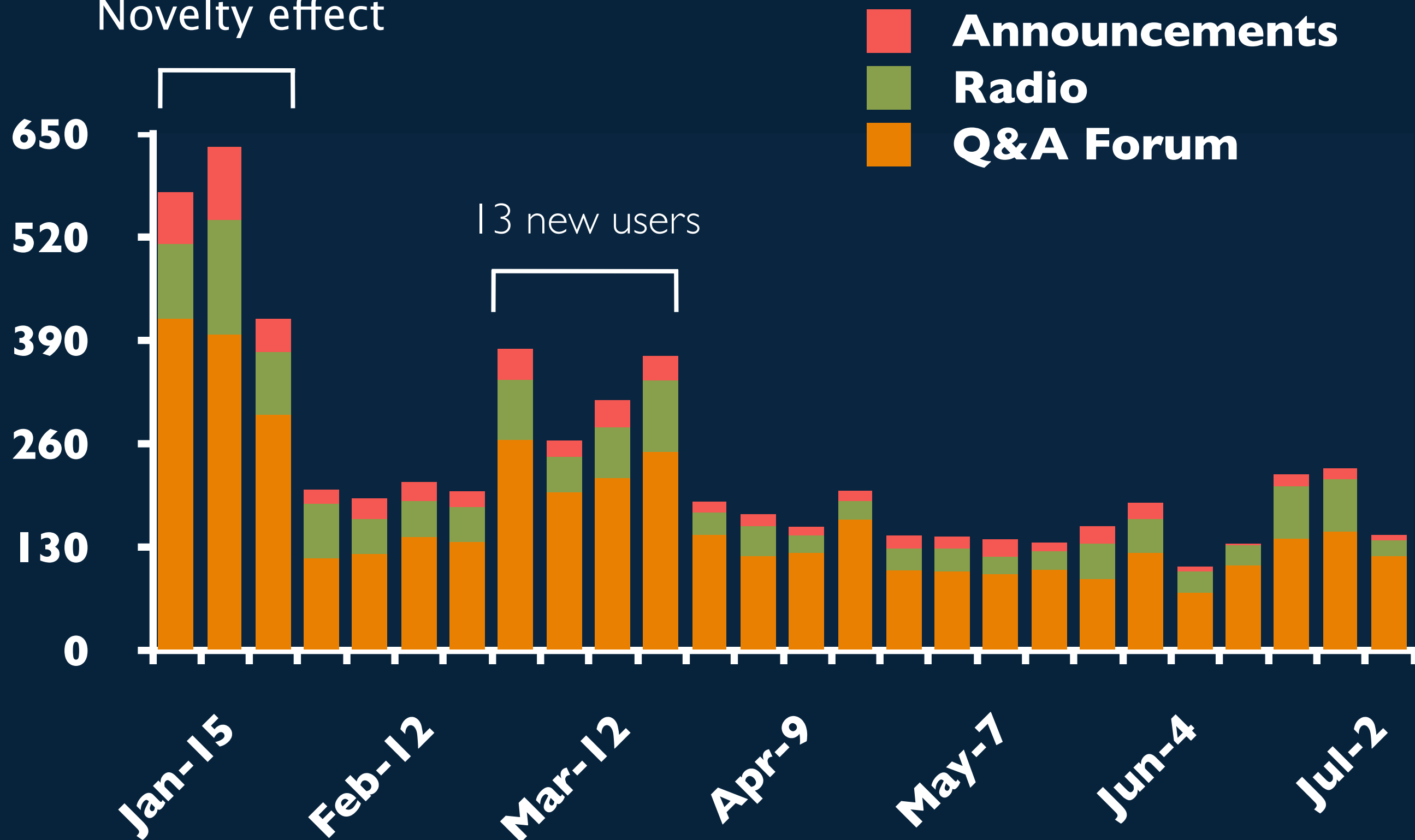


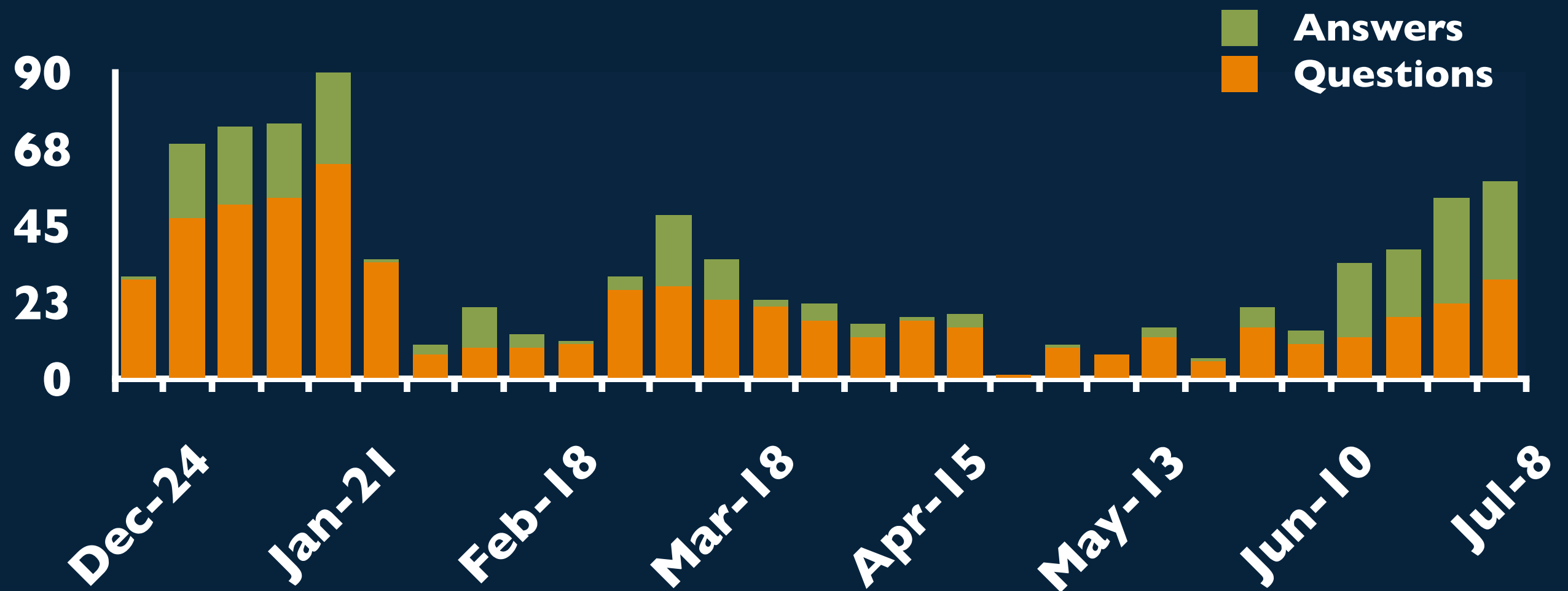


Pilot Deployment

- Eight months (Dec 2008 to July 2009)
- Toll-free phone number
- 63 small & medium farmers
- All males between 18-60
- Across 4 regions of Gujarat

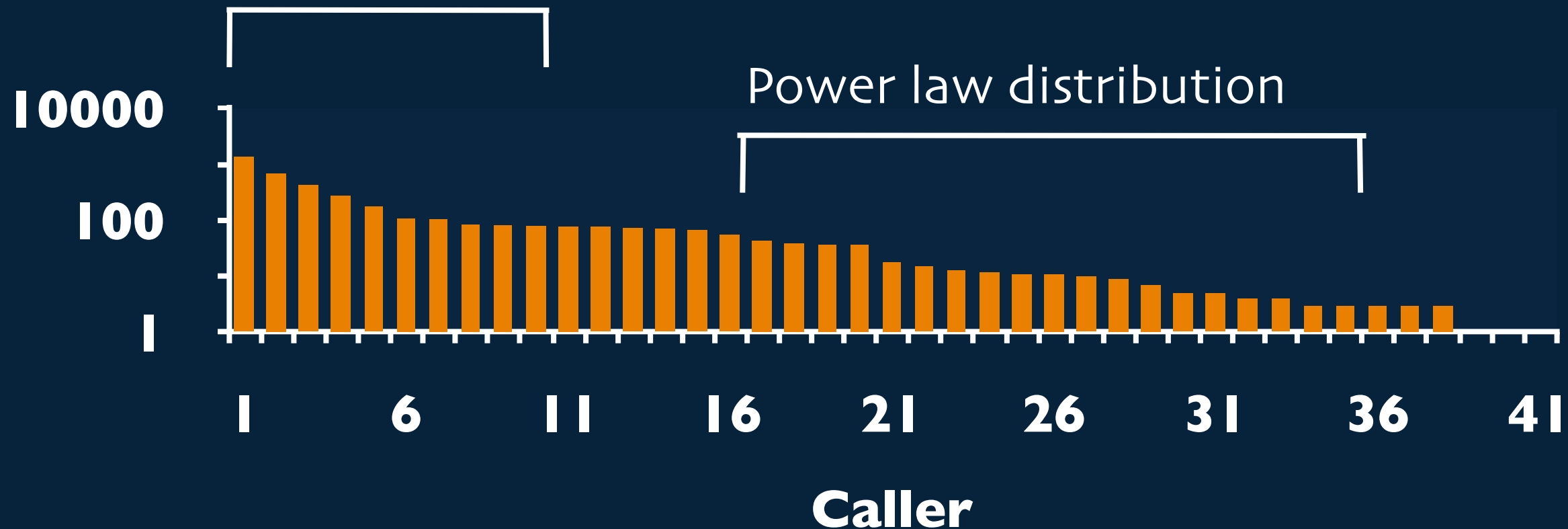
Novelty effect





- 690 ques / 286 ans (122 from farmers)
- Lurking constituted 73% of traffic
- Average of ~5 minutes per call

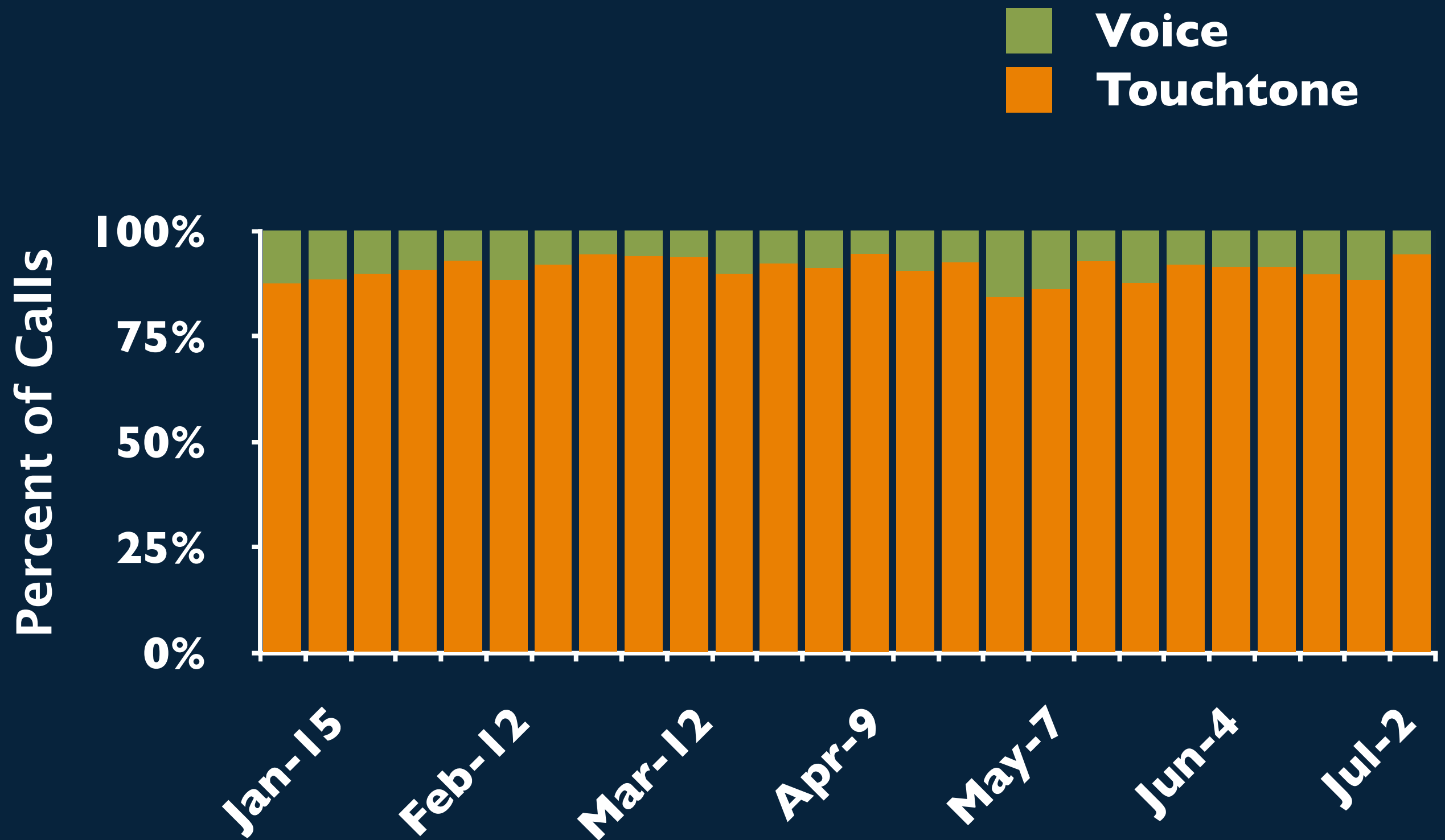
Top ten callers = 80% of calls



45 / 63 called at least once

Top 3 callers were:

- Progressive, experimental farmers
- Age less than 30
- Geographically remote
- Education less than 10th grade



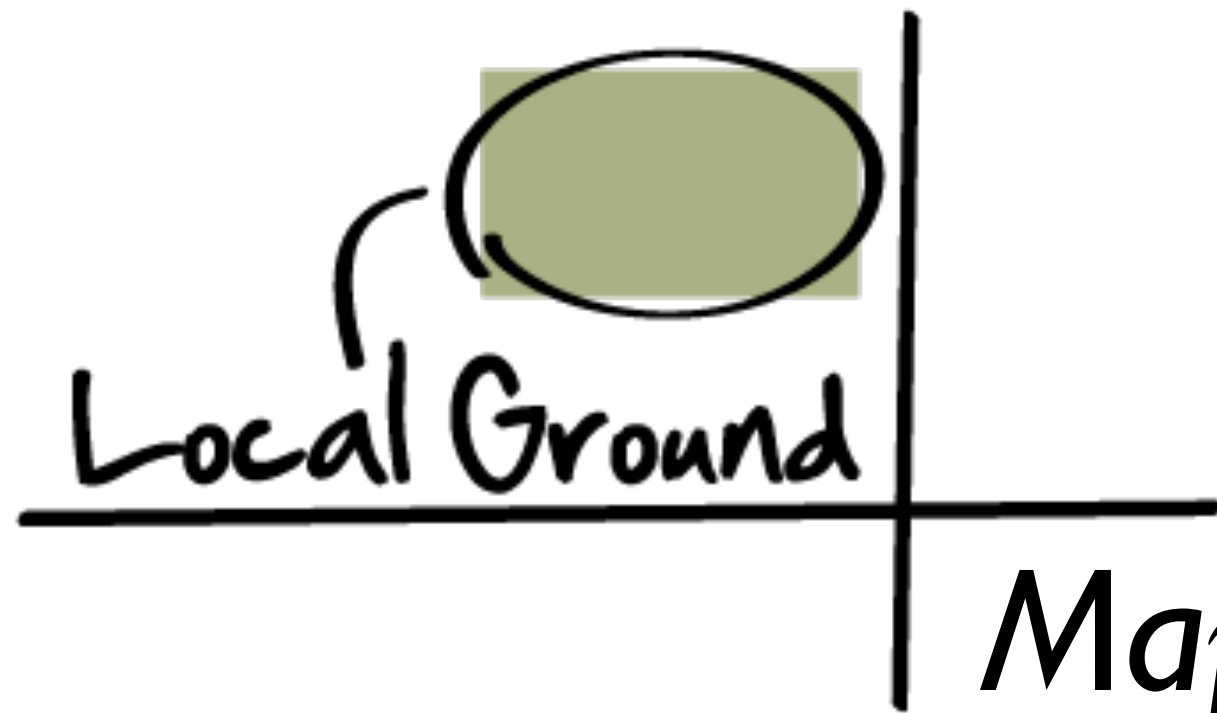
91% of calls used touchtone

Current Status


- Launched as hosted online service
- Other Applications:
 - Agriculture #2 (w/ DG and Pradan)
 - Education (w/ Sesame India)
 - Labor Rights (w/ Labor Voices)
 - Health, Women's Empowerment
 - Entertainment

Research Directions

- Organizing content for oral users
- Establishing trust, reputations
- Using data to improve ASR
- Automatic tagging
- Connecting to diaspora
- Impact assessment



Mapping for the Rest



Communities & Planning

- Marginalized communities are left out of the planning process
- Dams, irrigation, infrastructure, public projects
- This is as common in our own backyard as anywhere else





Maritime Center



Nystrom Village Housing



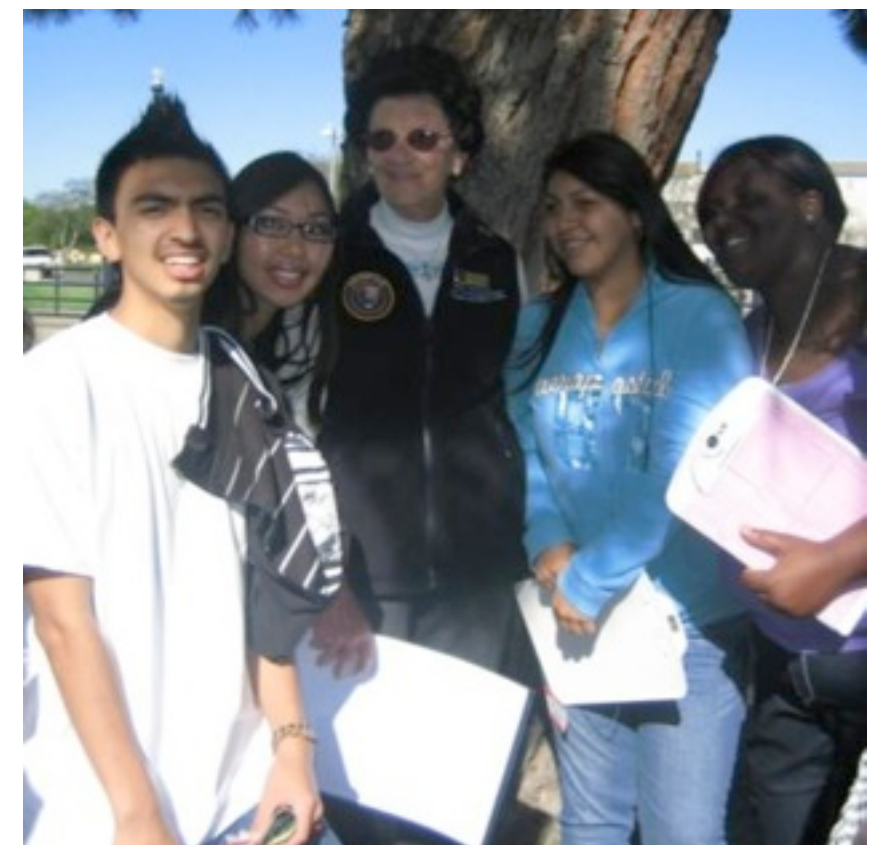
Nystrom Elementary



Martin Luther King Jr. Park



NURVE (Nystrom Urban ReVitalization Effort)





Giving Youth a Voice

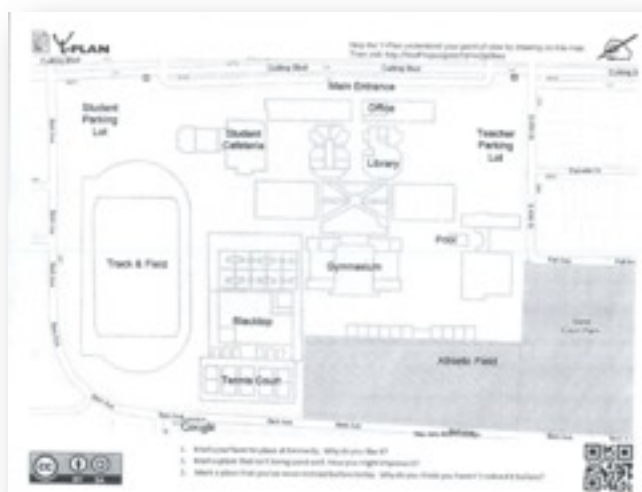


Giving Youth a Voice

- Residents know a lot more about an area than is in planning documents
- They know what they want to happen
- How can we document local geo-spatial knowledge and ideas?
- Little to no access / experience with PCs, mapping software



LocalGround.org



1. Print



2. Annotate



3. Scan or photograph



4. Upload



5. Edit



6. Visualize





I. Print Bar-Coded Paper Map

Print a Bar-Coded Map

[View](#) | [Print](#) | [Upload](#) | [Admin](#)

1. Search

kennedy high school, richmond ca

go

2. Print

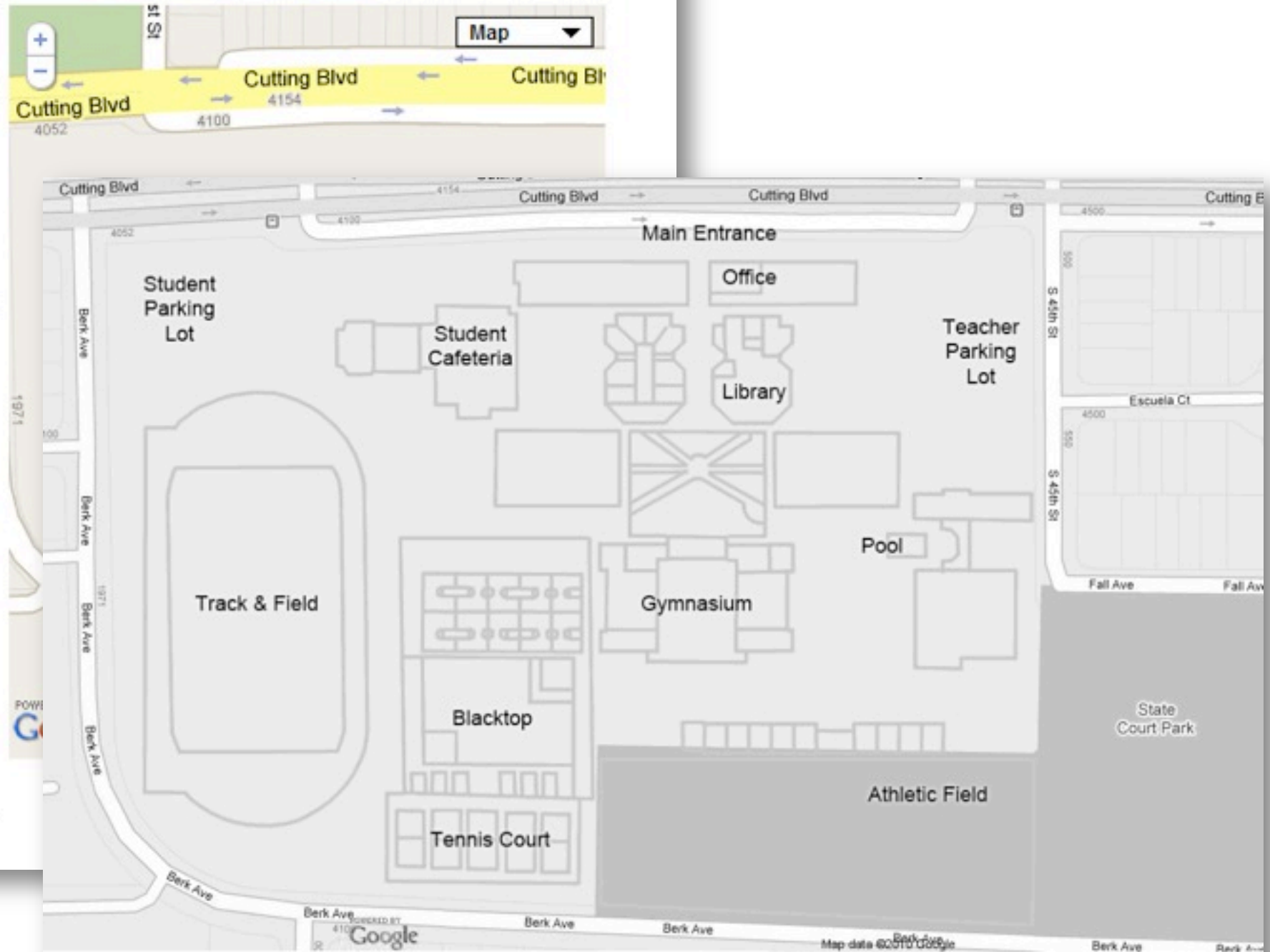
- ☐ Landscape
- ☐ Landscape + Margin
- ☒ Portrait
- ☐ Portrait + Margin

Generate Map

3. View Results



- [Map Image](#)
- [KML File](#)
- [Print PDF](#)



1. Mark your favorite place at Kennedy. Why do you like it?
2. Mark a place that isn't being used well. How you might improve it?
3. Mark a place that you've never noticed before today. Why do you think you haven't noticed it before?



2. Annotate Map in Color

Help the Y-Plan understand your point of view by drawing on this map.
Then visit: <http://tinyurl.com/print7d2m2p58w3>

1. Mark your favorite place at Kennedy. Why do you like it?
2. Mark a place that isn't being used well. How you might improve it?
3. Mark a place that you've never noticed before today. Why do you think you haven't noticed it before?



3. Scan or Photograph Map



4. Upload Maps

Upload Your Map

[View](#) | [Print](#) | [Upload](#) | [Admin](#)

You're Uploading A Scanned Map

You're here because you have a paper version of a printed map and you'd like to send a scanned version to trace into OpenStreetMap. Your scan should be a reasonably-high resolution (200+ dpi) image file, such as a JPEG. A PDF file will not work.

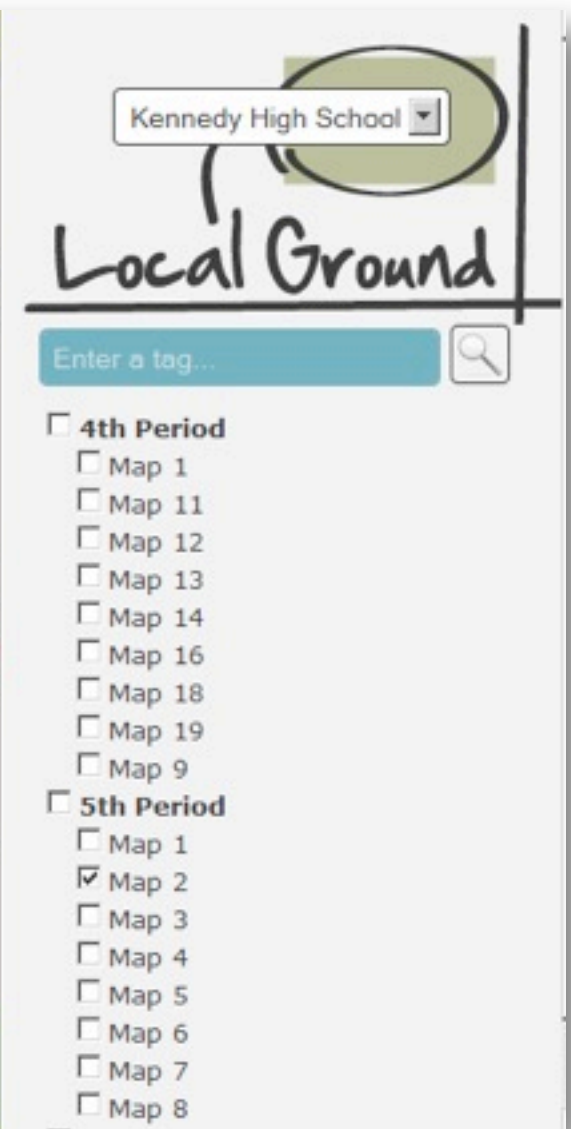
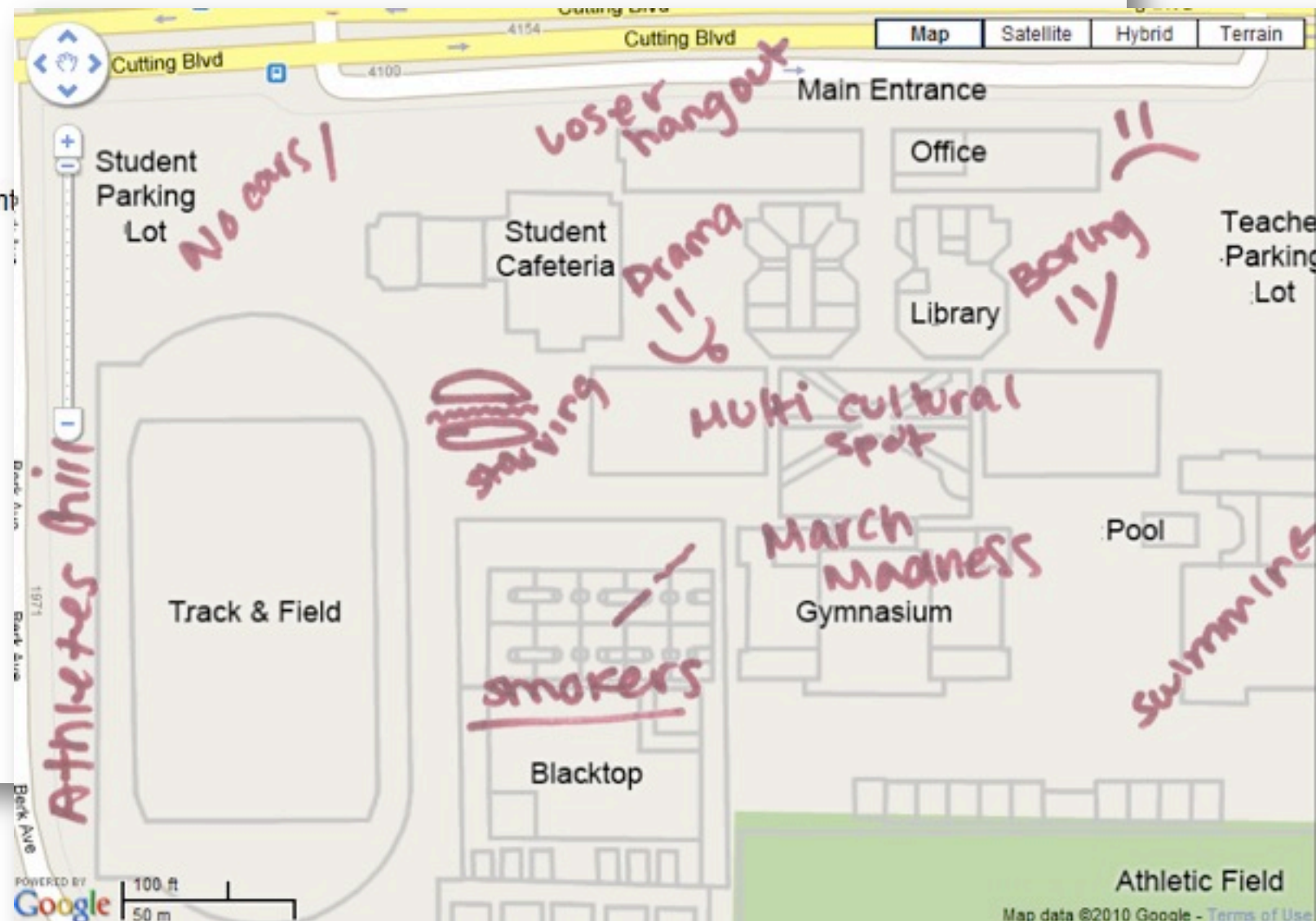
Name:

Group:

Mapping Event:

Description:

Upload File:



5. Edit Data

The screenshot displays a Google Maps interface with a map of Kennedy High School. Handwritten red text is overlaid on the map, including "Cool PPL", "Food", "Fun memories", "The K", "Have Learning Experiences", and "No Parking". A pop-up window for "Gathering Space" is open, showing its name, description ("Cool PPL"), and tags ("lunchtime, food"). A list of features is visible on the right, including "Gathering Space", "The 'K'", and "Track". The bottom panel shows a sequence of map views with feature counts: 0 features, 0 features, 0 features, 3 features, and 0 features.

Name: Gathering Space

Description: "Cool PPL"

Tags: lunchtime, food

Save Overlay Delete Overlay

1 Gathering Space

2 The "K"

3 Track

0 features

0 features

0 features

3 features

0 features



Maritime Center

Nystrom Village Housing

**Nystrom
Elementary**

Martin Luther King Jr. Park



NURVE (Nystrom Urban ReVitalization Effort)





Help the Y-Plan understand your point of view by drawing on this map.
Then visit: <http://finalProject/print?id=ch32rskb>



Need benches

X Nystron
village
community
not very
welcoming

trash every
where

my house
1500' BIK.

fencing
(low)
robbery
type
area

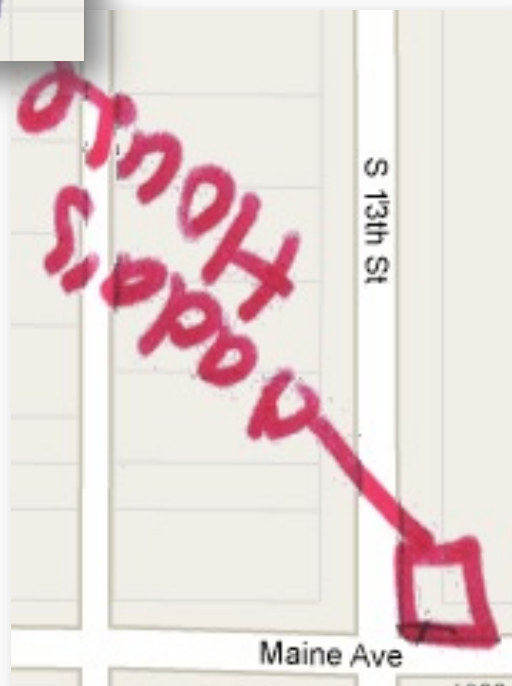
liquor

No trees



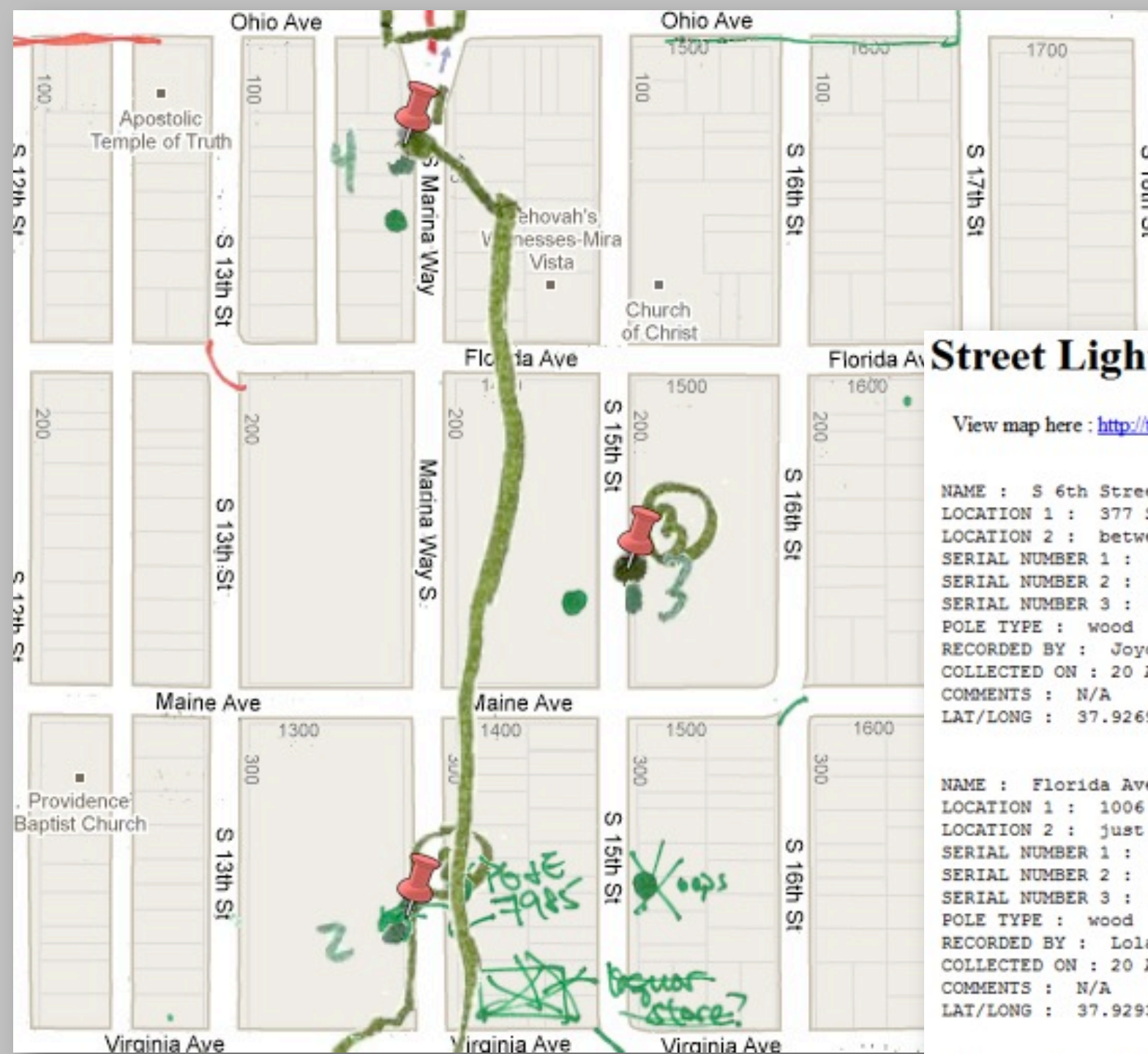
Nystron
village
community

looks like
crack house



1400
300
mostly houses
on every
house

500/1000
S 13th



Street Light Outages

View map here : <http://tinyurl.com/streetlight-outages-2010>

NAME : S 6th Street
 LOCATION 1 : 377 S 6th Street
 LOCATION 2 : between Maine Ave and Virginia Ave
 SERIAL NUMBER 1 : 77971
 SERIAL NUMBER 2 : N/A
 SERIAL NUMBER 3 : N/A
 POLE TYPE : wood
 RECORDED BY : Joyce
 COLLECTED ON : 20 April 2010
 COMMENTS : N/A
 LAT/LONG : 37.92693596360593,-122.36391390

NAME : Florida Avenue
 LOCATION 1 : 1006 Florida Avenue
 LOCATION 2 : just East of S Harbor Way
 SERIAL NUMBER 1 : 110398385
 SERIAL NUMBER 2 : 7892
 SERIAL NUMBER 3 : 892
 POLE TYPE : wood
 RECORDED BY : Lola
 COLLECTED ON : 20 April 2010
 COMMENTS : N/A
 LAT/LONG : 37.92935400611216,-122.35983569

NAME : S Harbor Way
 LOCATION 1 : 350 S Harbor Way
 LOCATION 2 : between Maine Ave and Virginia Ave
 SERIAL NUMBER 1 : 110233293
 SERIAL NUMBER 2 : N/A
 SERIAL NUMBER 3 : N/A
 POLE TYPE : wood
 RECORDED BY : Sarah
 COLLECTED ON : 20 April 2010



 Visioning a
New Nystrom



Maritime Center

Nystrom Village Housing

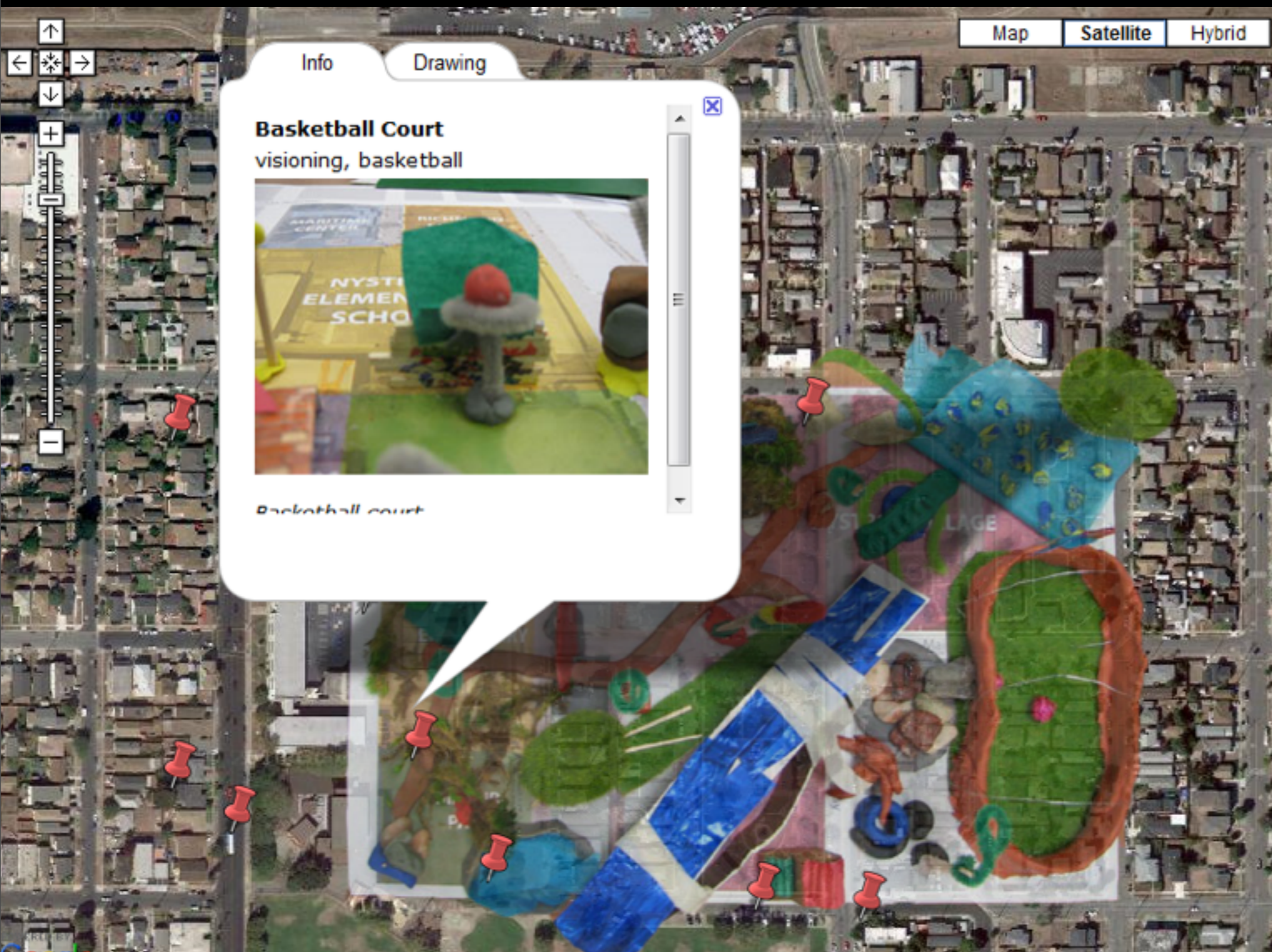
**Nystrom
Elementary**

Martin Luther King Jr. Park



NURVE (Nystrom Urban ReVitalization Effort)





Basketball Court

visioning, basketball



Basketball court

NURVE Project

Local Ground

visioning

☐ General

☐ Student Photos

☐ Nystrom Village Visioning

☐ 4th Period: Group 1

[Artistic Statue](#)

[Finishing Touches](#)

[Graffiti Wall](#)

[Landscaping](#)

[Presentations](#)

[Welcoming Gate](#)

☐ 4th Period: Group 2

[Basketball Court](#)

[Landscaping](#)

[Skate Park](#)

[Statue](#)

[Swimming Pool](#)

☐ 4th Period: Group 3

[Fun](#)

[Welcoming Gate](#)

[YMCA](#)

☐ 5th Period: Group 1

☒ 5th Period: Group 2

☐ 5th Period: Group 3



NURVE Project

Local Ground

Enter a tag...

☐ General

☒ Student Photos

☐ Nystrom Village Visioning

☒ 4th Period: Group 1

☐ 4th Period: Group 2

☐ 4th Period: Group 3

☐ 5th Period: Group 1

☐ 5th Period: Group 2

☐ 5th Period: Group 3

☐ Nystrom Walk - 4th Period

☐ Map 1

☐ Map 2

☐ Map 3

☐ Map 4

☐ Map 6

☐ Map 6

☐ Street Light Mapping

☐ streetlights_20100420-1.jpg

☐ streetlights_20100420-2.jpg

☐ streetlights_20100420-3.jpg

☐ streetlights_20100420-4.jpg



Engaging
City Hall





Lessons Learned

- Paper made the process fun
- Minimal training & supervision
- Obtained “out-of-band” information
- Digitization makes information *legitimate*; allows comparison with formal sources
- Impact requires continued engagement



Current Status

■ LocalGround.org

- Open source prototype
- Developing hosted version
- Exploring other applications

■ Nystrom

- Still underfunded
- Students discouraged; but want to continue
- Y-PLAN plans to go national w/ Local Ground

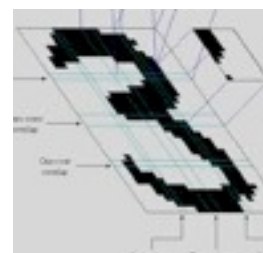
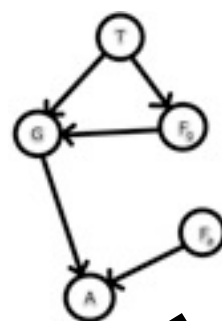
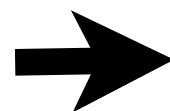
Whats the Big Picture?

Drawings and Voices?





+

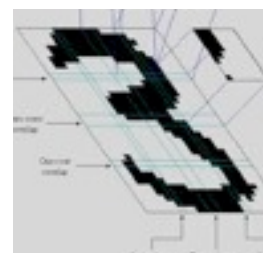
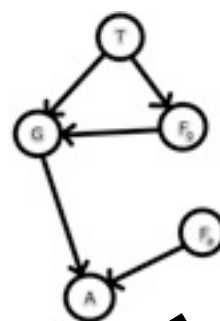
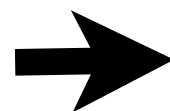


=





+



=



Shreddr

w/ Chen, Kannan, Hellerstein

Will it Scale?

- Labor is cheap in developing world
- “Cognitive surplus” in developed
- Process over time; on demand
- Don't need much structure initially
- Anything is better than status quo

Conclusion

- Designing for the future of the Internet requires addressing contextual diversity
- Reaching new audiences means unpacking assumptions of computing interfaces
- Combining low-tech interaction with online, distributed processing has both immediate value and immense potential

Thanks for all the fish!

- Kuang Chen, Rose George, Paul Goodman, Kurtis Heimerl, Akshay Kannan, Neha Kumar, Meena Natarajan, Neil Patel, Joyce Tsai, Sarah van Wart
- CCD, DSC, Digital Green, Pradan, Labor Voices, Sesame India, Y-Plan, Center for Cities and Schools, Kennedy High School
- Farmers of Gujarat and Kids of Richmond!