Digital Civics (COMPSCI 592C)

Tools and Applications
Fall 2018

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Objectives

- Build place-based social capital
- Increase civic engagement
- Promote deliberative democracy
- Support Open Governance
- Foster inclusion and diversity
Civic tech includes variety of tools and applications

- Online surveys
- Mobile applications
- Kiosk
- Online engagement
- Online and in-person engagement
Mobile application: fixing the city one photo at a time

Foth, Marcus et al. "Fixing the city one photo at a time: mobile logging of maintenance requests." CHI 2011.
Mobile application: get it done

REPORT
NON-EMERGENCY
PROBLEMS

https://getitdone.force.com/
Kiosk: situated voting devices

Online survey: Wikisurvey

Which idea do you think is more important for transportation in Illinois?

- Subsidize bus and rail transit for users
- Be consistent in ways that respect both pedestrian and vehicles. For ex, use public funds to shovel sidewalks and not only streets.

I can't decide
33926 votes on 185 ideas

Add your own idea here...

Augmenting in-person engagement: UD Co-Spaces

Online engagement: plan your place

CommunityCrit allows the public to participate in the urban design process.

By offering a quick and easy way to voice opinions, CommunityCrit empowers anyone to help shape the future of their community.

Currently, we are collecting feedback on an effort to expand the 14th Street Promenade in East Village. The intersection of 14th Street, National Avenue, and Commercial Street—referred to as “El Nudillo,” or “the knuckle”—is envisioned as a pedestrian destination, a place of social gathering, and a celebration of East Village and its surrounding neighborhoods.

What do you think El Nudillo should be? Please click below to contribute your voice!
Modes of engagement through civic tech

- Providing access to information
- Gathering input
- Voting
- Feedback and deliberation
- Public decision making
UD Co-Spaces: A Table-Centred Multi-Display Environment for Public Engagement in Urban Design Charrettes


[Honorable Mention Award], ISS 2016

[Outstanding Paper Award], CELA 2017
Urban design processes

Consultation

Alternative generation

Alternative measurement

Preferred alternative development

Goals setting

Alternative visualization

Alternative evaluation

Implementation

lack of tool support

Girling, C., Kellett, R., and Johnstone, S., 2006
Problem: lack of tool support during design charrettes

- Integrating data and visualizations of information
- Employing interactive modes to engage people
- Employing social and peer learning

URP: tangible workbench for urban planning and design

John Underkoffler & Hiroshi Ishii, CHI, 1999
Design of digital technology to avoid marginalizing people

- The importance of providing the right information at the right time in understandable formats.

Al-Kodmany 2000, Al-Kodmany 2001
Research questions

‣ How to use collaboration technology & visualization techniques to
  ‣ engage diverse stakeholders,
  ‣ foster collaboration and co-creation,
  ‣ increase understanding of impacts of choices?
6 years human-centered design and development process

This was a long-term interdisciplinary project that started before I arrived at UBC.

1st version: tabletop tool      2nd version: +wall display      3rd version: +handheld

2010  2012  2016
UD Co-Spaces (Urban Design Collaborative Spaces)
- Lack of engagement with metrics on the wall
- Lack of interactivity and customization to engage ppl
- Lack of personal spaces
- Difficulty interacting in parallel with the 3D view
Method

- Analysis of version 2 deployment in the wild
- Interview with urban planners & facilitators
- Design & development of version 3
- Heuristic evaluation with 3 urban planners
- Formal evaluation (comparative study)
System design & considerations

- Adding personal spaces
- Increasing interaction with wall display
- Building interactive visualizations
- Providing accessible and understandable information
Visualization dashboard
Comparative study
Design context

- Design a neighborhood center within a hypothetical existing single family neighborhood in the suburbs of Vancouver.

- Main Goal:
  - Increasing the walkability of the neighborhood
Study procedure

- 40 participants (groups of 5-6, 17 male, 23 female)
- Total time: 140 min (~45 min for design activity)
- Pre & post survey
- Focus group
- Video recorded sessions
Findings: Tabletop surface increased equity of participation

“Having this tabletop got every stakeholder involved so they can make changes themselves, see those changes right away, [which] promotes collaboration”
Muti-display environment catalyzed discussions

“I definitely really liked how everything was synced, specially with regards to 3D, iPad and table itself”
Visualization dashboard increased analytical ability

“Having indicators in real time definitely altered how we approached the project, we could see the larger impact ... it was almost like stepping out and saying, okay, what did we actually do and what is the impact.”
Main contributions

- UD Co-Spaces was superior than paper-based
- Engaging collaborative environment
- Alternative generation and measurement
- Making information and visualization accessible
Contributions beyond urban design domain

- Potential of touch-based interactions
- Increase interactions, engagement & learning
- Transition novices to experts
How can we scale it up to engage a broader range of stakeholders?
CommunityCrit: Inviting the Public to Improve and Evaluate Urban Design Ideas through Micro-Activities

Narges Mahyar, Michael R. James, Michelle M. Ng, Reginald A. Wu, Steven P. Dow, ACM Human Factors in Computing Systems (CHI 2018).
Face to face methods have many limitations

- Engaging representative stakeholders
- Hearing out people’s comments
- Recording/disseminating comments
Urban design tools require time investment and expertise

Online civic technologies often limited to opinion polling

Research question

- How can we create a system for activities beyond opinion polling that
  - captures quality feedback
  - in a short amount of time?
System design & considerations

- Providing a quick & flexible workflow
- Designing understandable questions
- Providing social interactions
- Sending people directly into quick activities
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Currently, we are collecting feedback on an effort to expand the 14th Street Promenade in East Village. The intersection of 14th Street, National Avenue, and Commercial Street—referred to as “El Nudillo,” or “the knuckle”—is envisioned as a pedestrian destination, a place of social gathering, and a celebration of East Village and its surrounding neighborhoods.

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GET STARTED
Background Info on El Nudillo

The 14th Street Promenade, which was approved by the city in 2016, will be a pedestrian-friendly “green street” extending from City College in the north to the intersection of 14th Street and National Avenue in the south. It will feature widened sidewalks, outdoor furniture, and art, in order to promote social gathering and a unique neighborhood feel. The overarching goal for the 14th Street Promenade is to help create a more sustainable, walkable downtown.

We are now engaging the public and local experts to develop the intersection of 14th Street, National Avenue, and Commercial Street, which marks the end of the 14th Street Promenade. This intersection—known as El Nudillo, or “the knuckle”—is envisioned as a pedestrian destination, a place of social gathering, and a celebration of East Village and its surrounding neighborhoods.
1) Pick an idea

2) Do or skip activities
3) Submit a new idea

Submit a New Idea
What would you like to see or do at El Nudillo, the intersection of 14th Street and National Avenue, by yourself or with family and friends?

Give your idea a name.
Name your idea.

Upload a main image (optional)
Choose File No file chosen

Submit

4) View my/all contributions

Ideas
Click on an idea to look at the contributions your fellow community members have made.

Promenade Real
It would be brilliant if the entire length of 14th street was closed to motor traffic and was a truly pedestrian promenade. The only exception could be the small, Free Ride carts that could transport people up and down the street. This would not only provide a pleasant safe space for people and pets [...]

Platform connected with bridges
Instead of making a roundabout we can create a two story triangle platform to avoid a major infrastructure change. It is a platform that works with current traffic, but allows people to walk to get where they need, and creates a green space at the ground level. The three pillars can be lightweight [...]

Interactive Art
Love to see interactive rotating art with current cultural subjects. A place for exchanging ideas which helps the community grow together. Sample image from a San Francisco public art piece
Method

- Partnership with a local planning team
- Design and development of the tool
- Deployment in the wild
  - Interview with community members
  - Think aloud
- Interview with urban planners
- Experts’ feedback on people’s contributions
Case Study: Park-to-Park Project

Current

Proposed
Workshop participants willingness to use an online tool

- Willingness (21/21)
- Technological means (21/21)
- “We have always been overlooked, so my community would be very interested in an online tool”
Workshop ideas

Build a tower
Build a tower in the center of El Nudillo. Sketches of tower concepts as shown.

Roundabout
The intersection right now is basically just an empty lot. We could easily make it a roundabout with three crosswalks so that traffic from National Ave and Commercial St can still get around but so people can also use the open space in the center.
Community Crit ideas

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EL Parquecito
a densely landscaped small urban park. NO Large sculpture or gateway 'ART' archway JUST a BIG canopy tree and pervious ground cover with native grasses to soften
Empowered community members to provide input

“I don’t have time to go to workshops so it provides opportunity to give feedback”. (P6)

“I liked only having to answer 5 questions. I have conducted lengthy surveys myself and thought them to be excessive to the point of endangering the quality of data collection (respondents get bored, distracted, only want the "reward" etc.)” (P2)
Urban planners saw value in public outreach

“Provides more tools for community outreach and for people to participate, and will give us a chance to present ideas that came out of CommunityCrit back to the public during the next workshop and facilitating a discussion around them.” (E2)
Contributions: Scaling & diversifying public participation

Public Workshop

CommunityCrit
Remaining problems and ideas for your projects

- In class activity: team formation
Project deadlines

- Week 2: team formation and project ideation
- Week 3: project ideation
- Week 4: project pitches
- Week 6: no lecture-project discussion and feedback
- Week 7: feedback on early project prototypes
- Week 9: feedback on project prototypes
Remaining problems

1. Increasing civic engagement
2. Making sense of people’s input
3. Organizing opinions and points of conflicts
4. Fostering inclusion and diversity
1. Increasing civic engagement

- Personalizing tasks
  - Send people to tasks biased on their interests
- Communicating outcomes in an engaging manner
  - Visual storytelling
- Meaningful visual encoding
Sources and original plans are lengthy
Personalizing tasks based on people’s interests

Scenario: Betty a single mother
  Role: Resident

Interests
- Mobility

Topics
- Walkability
- Parking

Excerpts

Sources
- Master Plan
- Community Plan
- Design Guidelines
- Street Character
- Furniture
Visualization design for non-specialist users

Infographics to increase everyday people’s engagement
2. Making sense of people’s input

- **Promenade Real**
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- **Roundabout**
Visualizing comments, constructing meaningful summaries

**Public Art Summary of Comments**
Through this idea, local artists would be able to contribute to the community and emphasize cultural significance to the area through beautification. The main issue relates to homelessness within the area.

**Interactive Art Summary of Comments**
There are many examples which support this idea. A potential merge of cultures could be made through this installation as well as an increase in popularity of the area. However, some believe it would require traffic control and few others believe this type of installation is not appropriate.

**Roundabout Summary of Comments**
Several examples were mentioned such as the Columbus Circle. Restrictions such as the trolley tracks, potential learning curve to having roundabouts, and requirement of more information were mentioned.
3. Organizing opinions and points of conflicts

- How to organize opinions, identify patterns of thought & points of conflicts?
I’m a Young Techie. Here’s What San Diego Needs to Do to Keep Me.

THE GIST

Please don’t make me work in Sorrento Valley.
consider.it

Disagree

Top Cons

Slock.it has a private interest to avoid the DAO to get hacked. Its interests are aligned with the DAO. (read more)
5/7/2016, 1 comment

Instant withdrawals are a terrible idea.
5/7/2016, 0 comments

Top Pros

A pause to review security issues is sensible.
5/7/2016, 2 comments

I like that The DAO can crowdsource the security audit of its own code
5/7/2016, 1 comment

https://consider.it
Relevant talks and events

- Fall Speaker Series to Explore Technological Shifts and Social Change

- MIT Design.a.Hack.a.thon: Sept 15-17th
  - [https://www.media.mit.edu/events/city-robotics-hackathon/](https://www.media.mit.edu/events/city-robotics-hackathon/)

- Using the Crowd Mixer, October noon-2pm
  - [https://umassamherst.co1.qualtrics.com/jfe/form/SV_3seo2iVW3CTrRKB](https://umassamherst.co1.qualtrics.com/jfe/form/SV_3seo2iVW3CTrRKB)
Back up Slides
UD Co-Spaces: specifications

- Projectors in Decision Theater (UBC, CIRS building):
  - Native Resolution: 1920x1200
  - Aspect ratio: 16:10 (WUXGA)
  - Image Size: 127-1524 cm

- Touch table: PQ labs touch interface
  - 52” HD TV
  - Resolution 1920 x 1080
UD Co-Spaces architecture
UD Co-Spaces development

- Software uses a layered approach that introduces abstractions for the 2D and 3D displays and for the case database.

- RabbitMQ provides a bulletin-board-style messaging layer to broadcast and listeners associated with each federated component provide asynchronous responses.

- Bindings were written to support PQ Labs multi-touch surfaces for the 2D tabletop, Google Earth for 3D rendering, Google Map, and elementsDB.
CommunityCrit development

- Responsive and mobile-friendly using Laravel framework
- Backend: PHP with a MySQL database
- Front-end: HTML, CSS and Javascript
CommunityCrit workflow

1. Pick an idea
2. Do or skip activities
3. Submit a new idea
4. View all/my contributions