TELECOM TRIPTYCH design vignette 02 due 05 nov 2009

If you cannot measure it you cannot improve it - Lord Kelvin

activating environments fall 2009 / eric paulos / cmu / hcii

Vast quantities of data are collected about us and our world: credit card transactions, movements and traffic flows, social networks, disease outbreaks, bird migrations, and flowers blossoming. These datasets span a wide range of public and private information and contexts. However, it is the emergence of a host of mobile phone based citizen sensing platforms that is poised to become the dominant contributor to our datasets. In this assignment we undertake the challenge to participate in this important new shift in mobile phone usage – from communication tool to "networked mobile personal measurement instrument". You will explore how these new personal measurement instruments can enable an entirely



novel and empowering genre of mobile computing and research called citizen science. More importantly you will be called on to propose solutions to a set of challenges and focus specifically on the need for introducing design strategies for engaging these datasets that encourage doubt rather than promoting blind acceptance of fact as a path towards social change.

Successful mobile phone based citizen science solutions will lead to important contributions along four primary long-term research themes:

- Improve the science literacy of everyday citizens through active participation in basic scientific data collection and use of scientific principles
- Provide professional scientists and stakeholders with access to richer, finer-grain data sets for modeling, analyzing, and advancing both fundamental and applied knowledge regarding people and ecosystems
- Develop new usage models and user experiences for the mobile phone as a tool for promoting transparency and enabling grassroots participation in local community and civic government policy making
- Create a greater public awareness and understanding of the relationships between humans and the natural environment

Your solutions will also leverage the power of crowd sourcing, the recent open development platforms of mobile phones, and the cultural adoption of participatory practices to promote collecting, sharing, educating, raising awareness, and solving problems across neighborhoods, cities, and nations.







TRIPTYCH: CITIZEN SCIENCE SERVED THREE WAYS

Your group will formulate three variants of citizen science solutions using mobile phone technology and serve it to us three ways.

L'antipasto

```
void exisitingSensor() {
    // A sensor that is currently available on your commercially available mobile phone
}
```

ll primo

```
void newSensor() {
```

```
// A known and existing sensing technology you add, integrate, attach, or connect to a // mobile phone
```

}

II dolce

```
void dreamSensor() {
```

```
// An imaginary or envisioned sensing technologies that can be integrated into a // mobile phone experience
```

}

And served up to us three ways. You now have three dishes but you will present each one differently to the class. You are free to choose the prsentation mapping for each dish. However, you must do all three presentations (i.e. one for each dish/technology).



Bake:

Fry:

A storyboard presentation of the experience and interaction.



A 2-4 min video demonstrating the usage and experience of your system.



Flambé

A live performance skit in class demonstrating the narrative and overall experience of your system.

DETAILS AND INGREDIENTS

Serves: 10 - 10,000,000

Use an existing, commercially mobile phone platform. Mix in sensors. Stir in generous amounts of data from others. Separate into individual bite-sized portions. Serve warm and with friends. A delicious teat that will satisfy and make you think, act, and change your world.

You are to create a citizen science system and scenario around each of the sensor choices as decibed previously. Some issues to keep in mind in terms of ideation and final presentation.

community You need to be specific in your choice of users and/or community. Is this for teenagers that ride the bus? Single mothers that garden? Skateboarders that live near dog parks? Etc.

collect How will measurements be taken – when? Where? Automatic? Sensor accuracy? Range? You will need to demonstrate this from the point of view of the individual mobile phone user.

solo express Next you need to demonstrate how readings are expressed in terms of expressing the personally collected data collected by the user. Is it numeric? Ambient? Iconic? Historical? An average? Min? Max? Range?

share How will collected data be shared? What benefits come explicitly from sharing this data? How are people motivated to share this data? Which data standards, protocols and formats will you adopt and/or expand? How will privacy be addressed? What techniques will be used to insure valid data? What practices of fair use, reuse, and individual ownership will be appropriate/allowed? How will data be archived, preserved, and authenticated? How can data best be shared with nonexperts, community leaders, scientists, urban planers, health organizations, urban planners, civic government, decision and policy makers, local non-government organizations (NGOs), local industry, and activists groups?

group express Next you need to demonstrate how collectively shared readings are expressed. Again you will need to clearly communicate how the data is expressed back to individuals? As before you will need to be specific and clear in your design choices. Is it numeric? Ambient? Iconic? Historical? An average? Min? Max? Range?

change What tools and techniques will facilitate the most productive debate and ultimate positive social benefit? How will people use the data to argue for and against various hypotheses and issues? How will data be compared?

GRADING

You will be graded on the quality of your solutions and overall presentations including the incorporation and addressing of the questions outlined above. While you do not need to address every one of them you must include many of them into your overall solutions.