

# Focus Projects and HCI

# Human Computer Interaction (HCI)

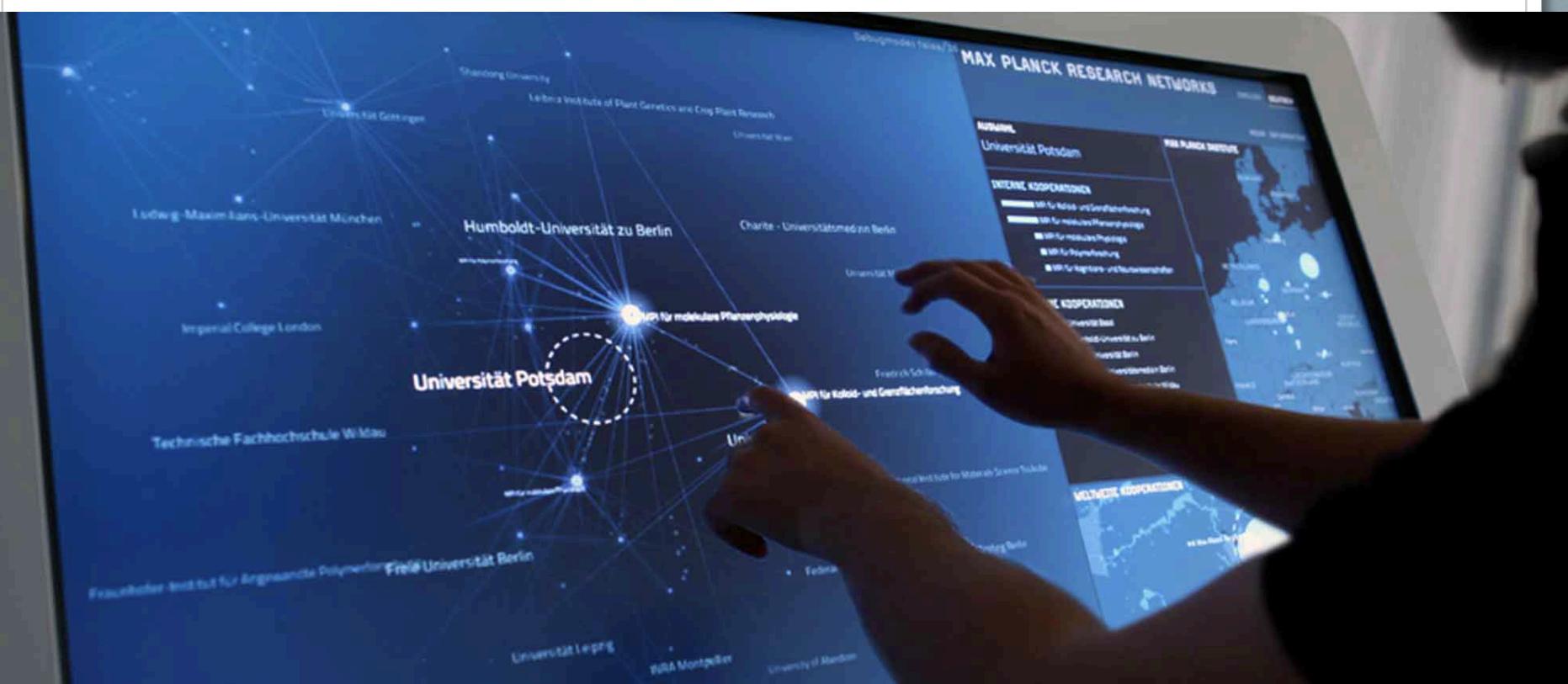
- How do regular people use computers?
- What do they use them for?
- How can we improve everyday lives using computers?

# Accessible Technology



Photo Credit: cnn.com

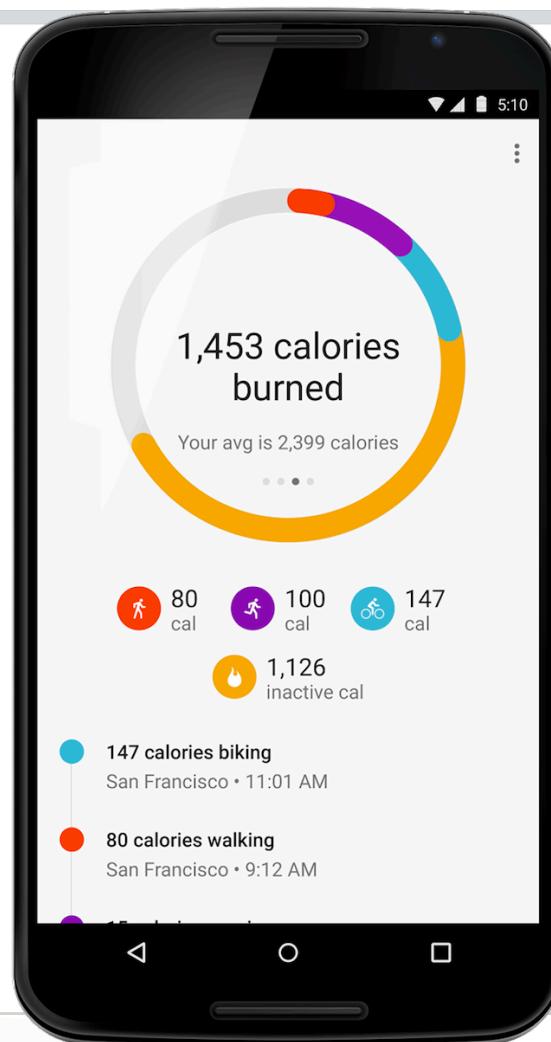
# Interface Design



# Tech for Developing Countries



# Personal Data Tracking



# Education



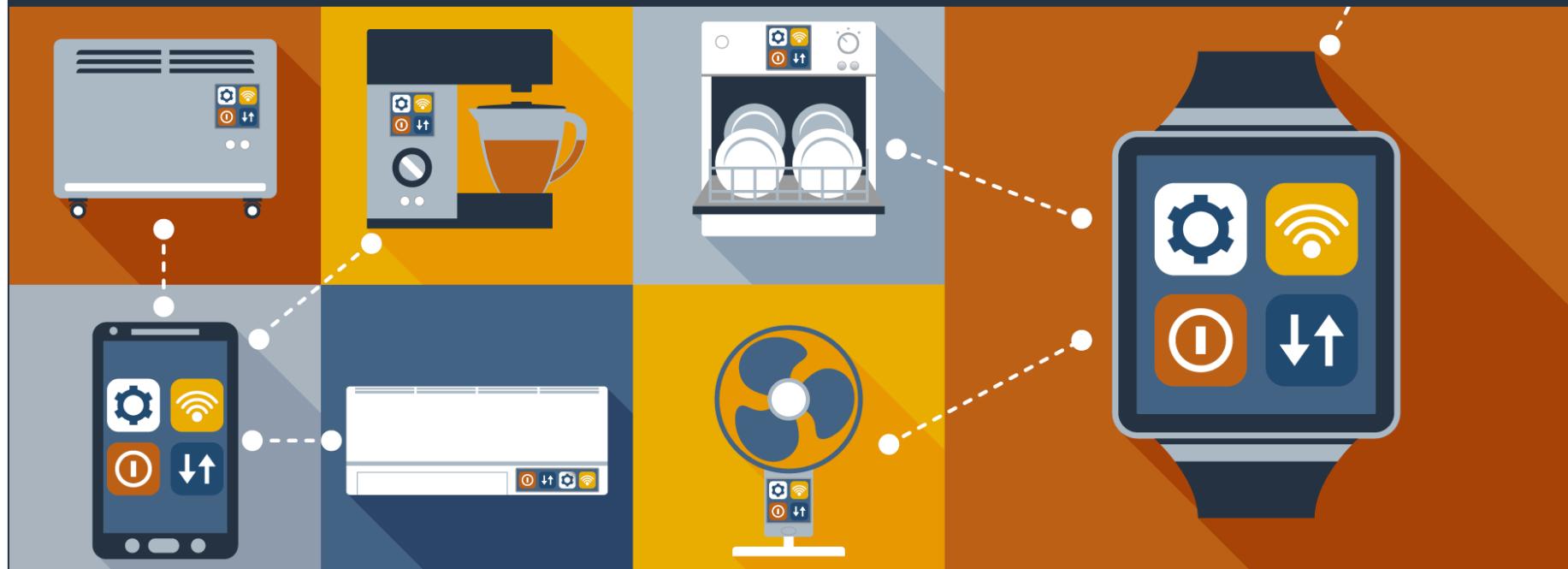
coursera

edX

The logo for Learn Zillion consists of a dark gray square containing a white globe icon with horizontal stripes. To the right of the icon, the words "LEARN" and "ZILLION" are stacked vertically in a white, sans-serif font.

# Ubicomp

Internet of Things



# HCI Design Principles

1. User-centric

2. Empirical

3. Iterative

# User-Centric

- Who is this for?
- What are their needs?
- How does this technology meet those needs?
- Will this person be able to use this technology?
  - Don't just design for yourself!

# Empirical

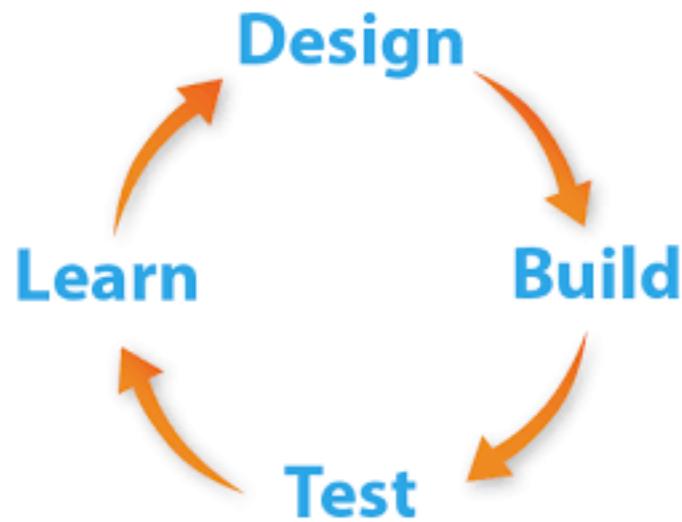
- Measurable, consistent feedback and data collection
- Pay attention to all the variables
  - Differences in user background and preference
  - Environmental influences

and if you were doing this professionally...

- Statistical significance
- Reproducibility

# Iterative

- Get feedback early and often from multiple people
- Don't expect your first try to be perfect



# Weekly Schedule

- Tuesday
  - Brainstorming
  - Background research
  - Planning
- Wednesday
  - Iteration (plan + implement + test)
- Thursday
  - Iteration (plan + implement + test)
- Friday
  - Final trials
  - Presentation writing

# Suggested Approaches

- Identify a problem and audience, then create a solution to solve it
  - What can be done in a week?
  - What else has been done to solve this problem?
    - What are you doing better/different?
- Recreate an existing device's functionality
  - What is the purpose of this device?
  - What can you copy with C.P.'s hardware?
  - Can you improve it at all?

# Some Ideas

- Alarm Clock w/ snooze function
- Pedometer with daily step goal
- Burglar Alarm w/light sensor and disarm code
- “iPod” with multiple songs and playback control
- Meal tracker w/ calorie input and daily goal

# Ideas for ways to interact with Circuit Playground

- Use the slide switch to change “modes”
  - E.g. between input and output
- Display numbers in a range by lighting more neopixels up
  - Could also beep x times to show smaller numbers
- Buttons can be used to move cw and ccw over the neopixels
- C.P. can tell if both buttons are pressed at the same time
- NeoPixels can be used to display binary numbers
  - Up to  $2^{11}$  in theory
- The circuit pins can also sense touch
- Rob and Google are your friends