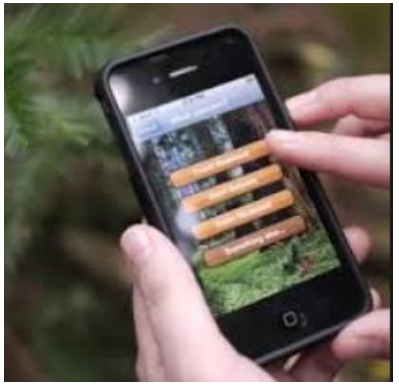
What is

MOBILE ENVIRONMENTAL CITIZEN SCIENCE @ Michigan Tech

- Mobile and web-based apps are designed by Michigan Tech students to collect environmental data.
- We have two primary goals for the project:
  - put mobile and web-based tools in the hands of citizens for collecting information that will be valuable to scientists and managers studying natural and social environments
  - encourage computer science students to harness their skills to solve environmental problems, by engaging them in real-world projects with scientists as collaborators.

boingboing.net



ctaudubon.blogspot.com

Why Citizen Science?

- Citizen science employs the public to collect scientific information, offering everyone an opportunity to contribute to a better understanding of the natural and social world.

- For scientists, the advantage of citizen science is that citizens gather important data that would be too expensive or otherwise difficult to obtain.

- Citizen science makes citizens stakeholders in the scientific process and thus they may become more supportive of scientific endeavors.

Imagine unleashing 100s, 1,000s, even millions of citizens to act as remote sensors for all sorts of data- from concentrations of air pollutants to counts of plant or animal species- as they move through their normal routines or exploring nature.

- As citizens learn more about science, in particular, environmental science, their attitudes and behavior towards the environment may change…for the better.

Why develop mobile and web-based apps?

- Mobile devices can automate collection of important data types, such as images, audio, and text, with a single handheld device that easily "stamps" the date, time, and geographic location of the observations.

- External sensors with other functions- measurements of water and air conditions, for example- can be connected to mobile devices, either wirelessly or through cables.

- The prevalence of mobile devices and social networking sites is growing exponentially, especially with younger people.

http://enterprisemobilitytoday.com

- The popularity of data-gathering activities for products and services suggests that the public may be motivated to assist the scientific community in collecting data.

What apps have been developed?

LICHEN AQ

Monitor the marine west coast air quality by observing lichens.

RIOMIO

Look into the watershed health around the Zona de Xalpala.

BEACH

Find out about the conditions of selected Midwest Beaches.

MUSHROOM MAPPER

Contribute to the collection of mushroom observations all over the country.

WATERLEVEL

View Stream and Record Waterlevels.

MEGA CRYSTALS

Learn about the gealogical area by counting rocks

THUNDER BAY

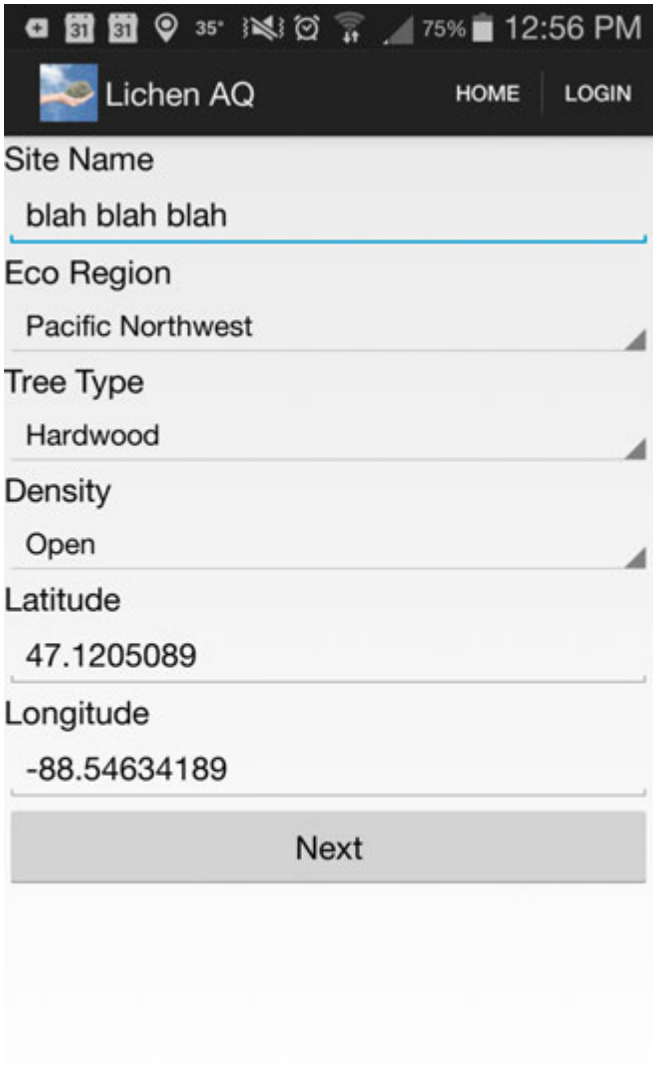
Find sunken treasure in Lake Superior.

Development of apps

- Professionals express need for data-gathering and specify data types, usability needs, etc.
- Students participate in groups from three courses
  - Undergraduate & Graduate Human-Computer Interactions
  - Undergraduate Usability and Instructions Writing
- Student groups choose apps for semester-long project.
- Students interact with professionals throughout the project and iterate the product according to the professionals' suggestions.

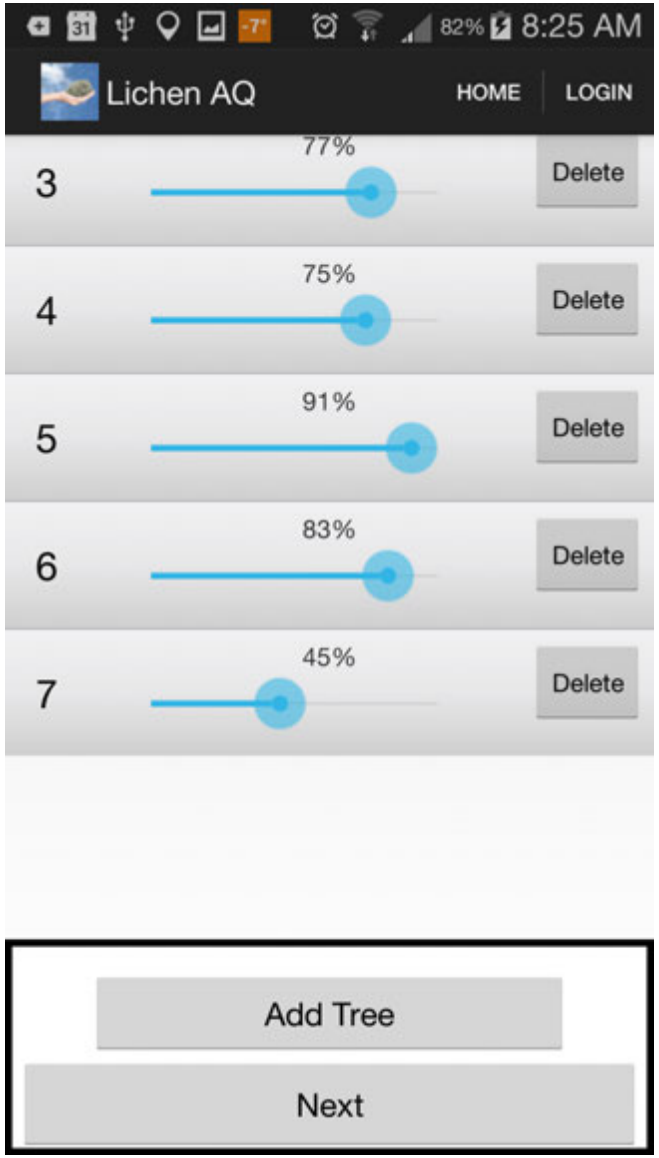
Example: Lichen AQ

Enter site data



Novice Version

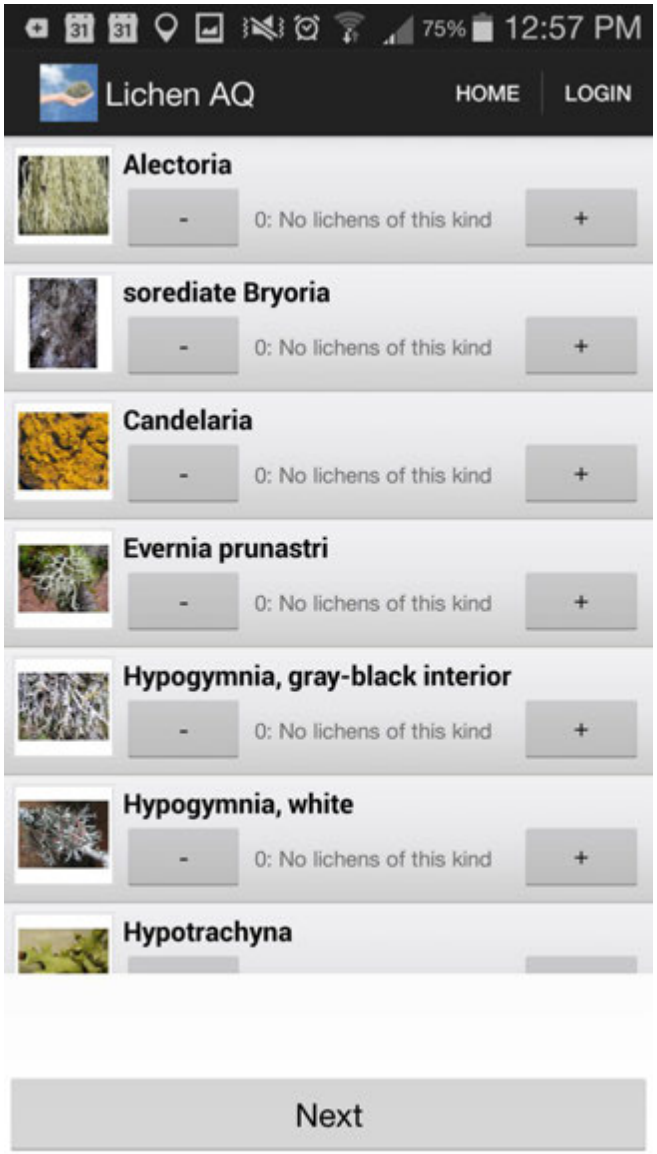
Enter lichen coverage data



AQ score calculation!

Intermediate Version

Enter lichen coverage data



AQ score calculation!

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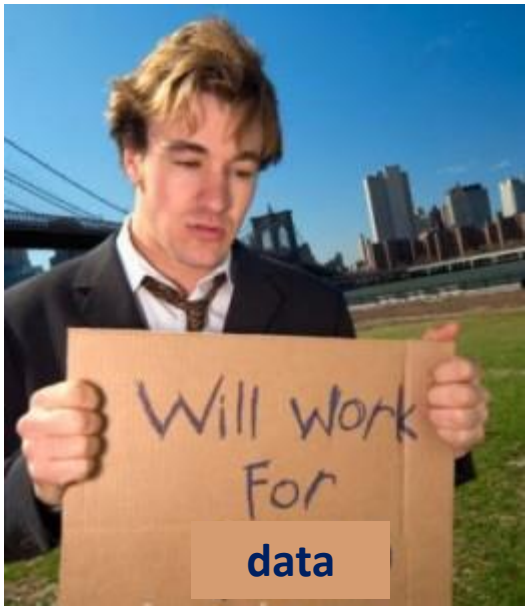

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