

envismo

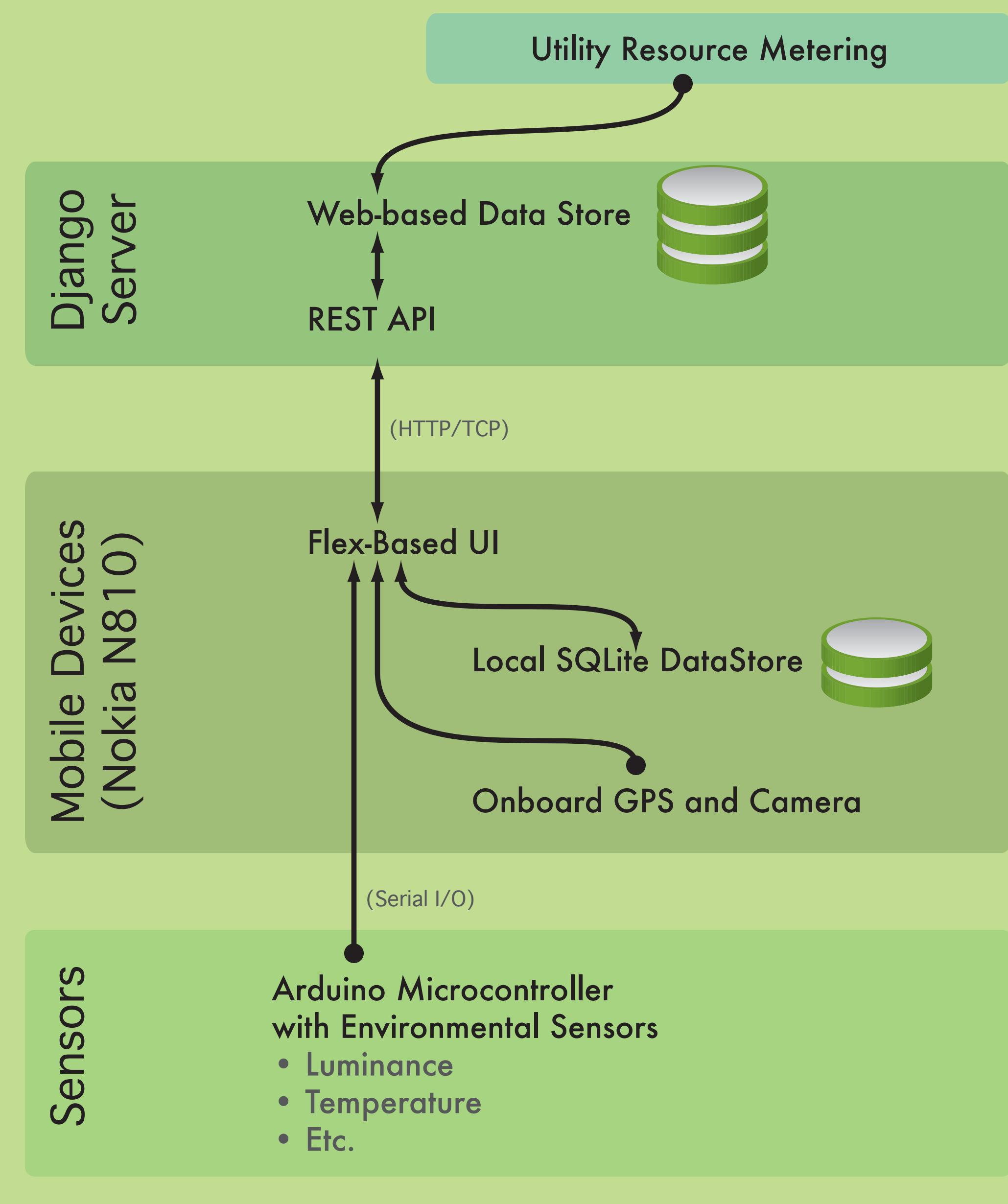
A Mobile Platform for Collecting and Visualizing Energy Usage Data

CS262A - Fall 2008
(Advanced Topics in Computer Systems)

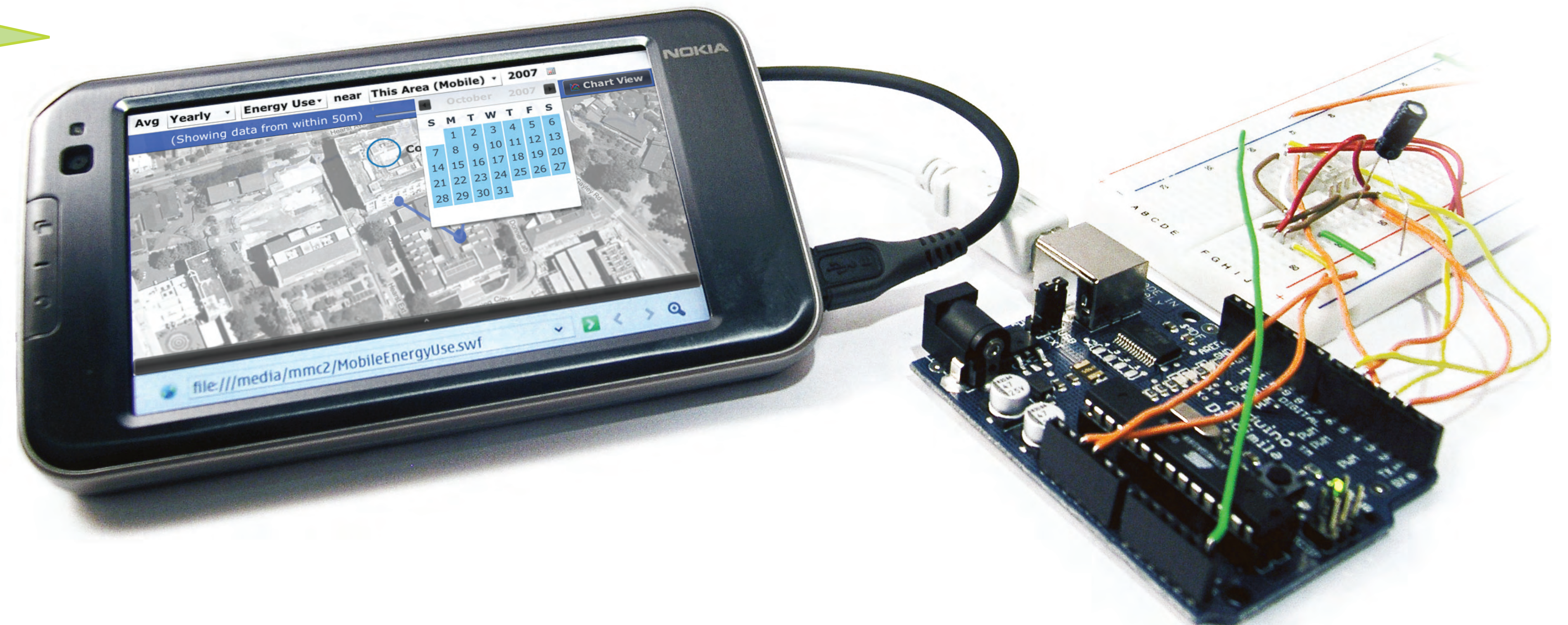
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The System

We add additional sensors to the device using an attached Arduino microcontroller. A local datastore enables off-line data logging, while a webserver provides permanent storage and access to data from fixed resource meters.



We have constructed a prototype of a real-time energy monitoring platform by pairing common mobile internet devices (Nokia n810 internet tablets) with cheap, readily available environmental sensors and a web-based datastore tied to an existing energy-monitoring network. This allows for the collection of real-time fine-grained environmental and energy usage data that can supplement and contextualize existing measures like electricity consumption and water use. Users can interact with visualizations of this data on the mobile device in order to evaluate energy consumption patterns, diagnose electrical problems and inefficiencies, and explore their own energy use.

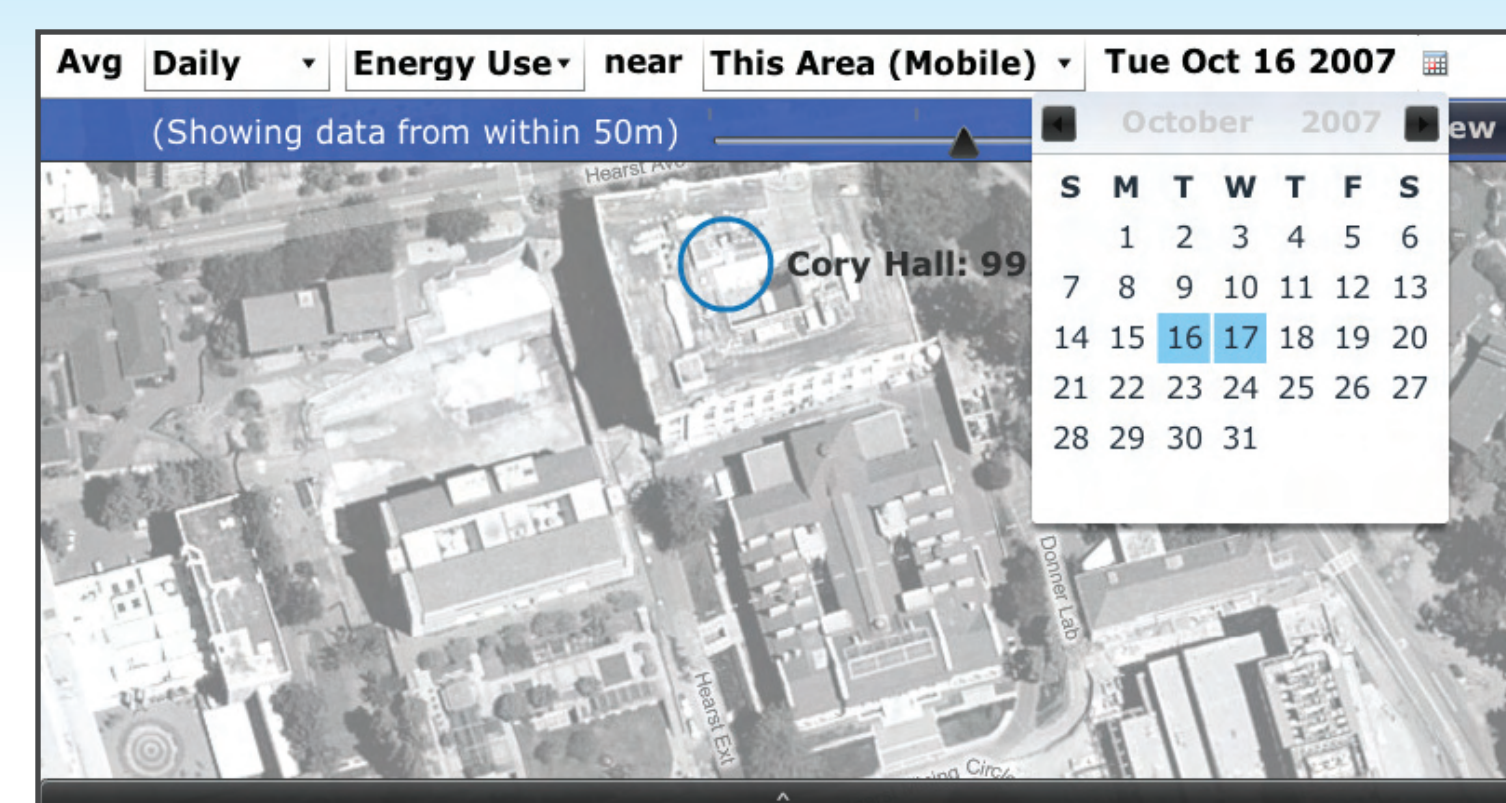
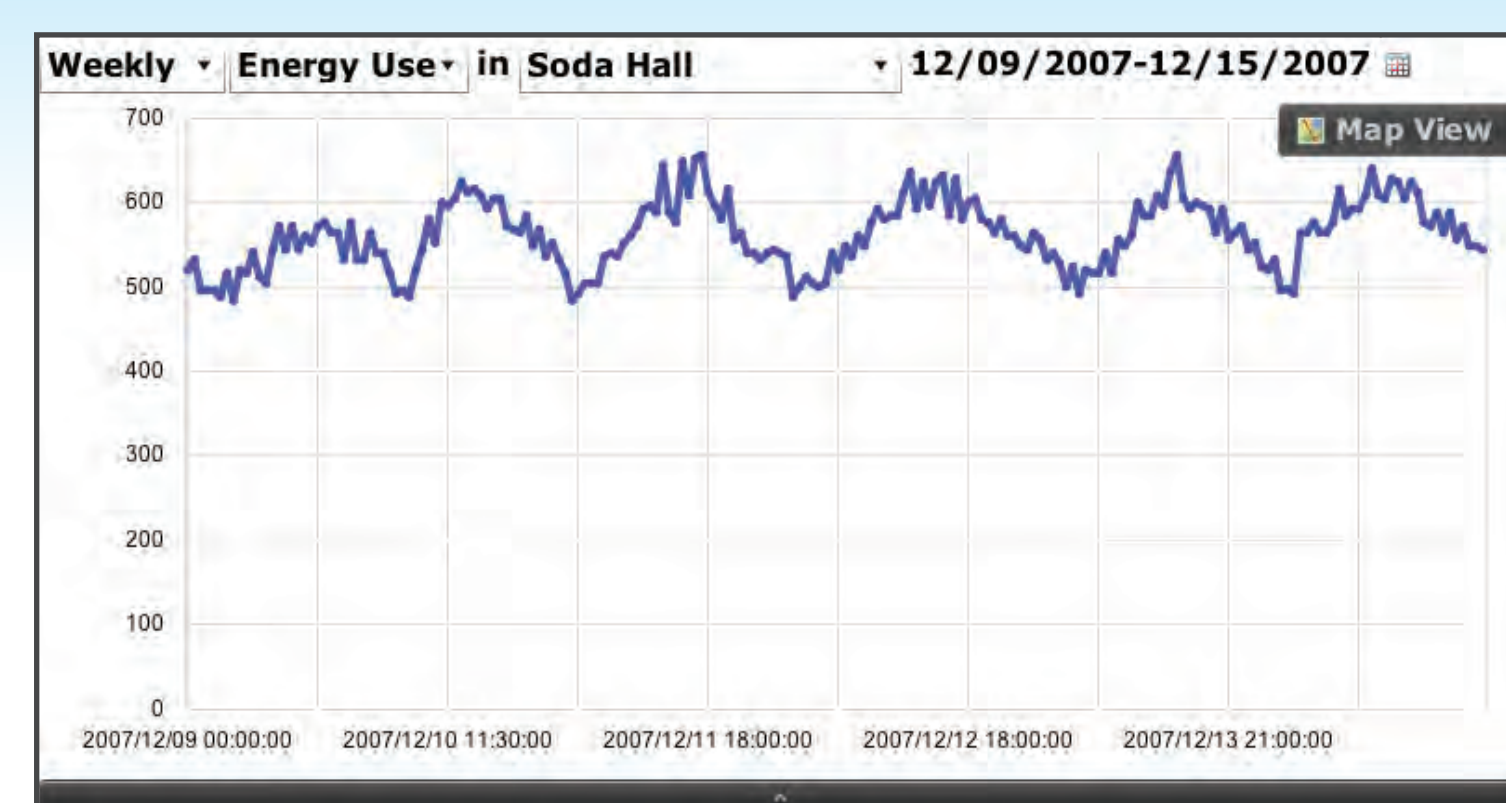


Screen Image simulated for clarity.

The current system uses utilities data from the UC Berkeley Green Building Research Center. This allows us to display current and historical data from energy, steam, and water meters across the Berkeley campus. However, we designed the platform with a more general set of applications in mind. For example, pairing the system with meter readings from a home or office setting could facilitate similar sorts of usage evaluation there.

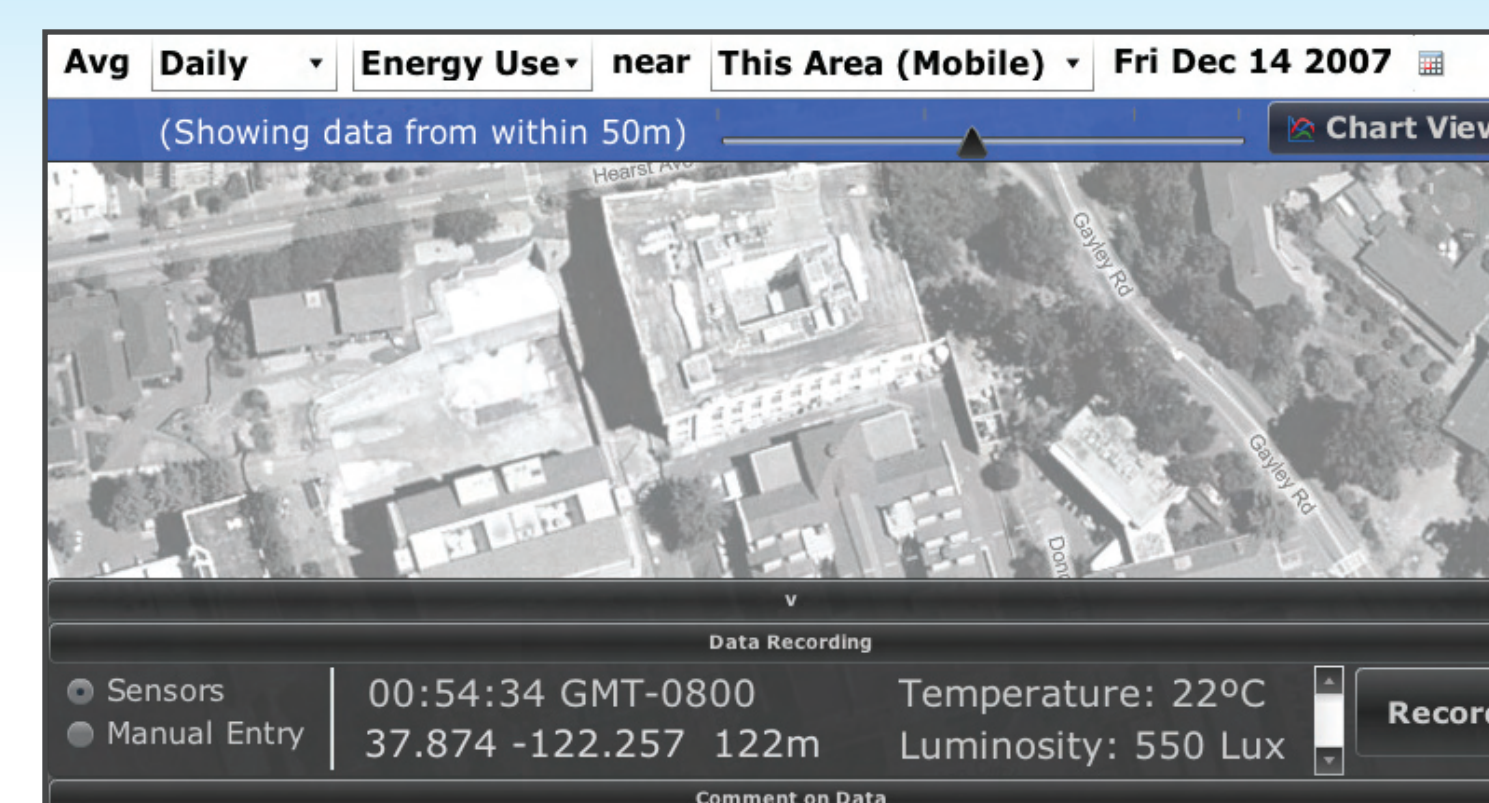
Visualization & Mapping

The system provides mobile visualizations of up-to-date energy monitoring data from utilities. It can also produce plots and maps showing data collected locally and by other users.



Data Collection

Users can set the device to automatically record data from the attached sensors and can manually enter readings from an external source like a Kill-A-Watt.



Collaboration

Users can also add text annotations and comments from the mobile device. In the future, these could become part of a larger online discussion.

