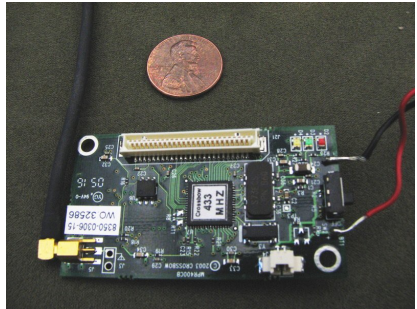


# Bernard Field Station Network

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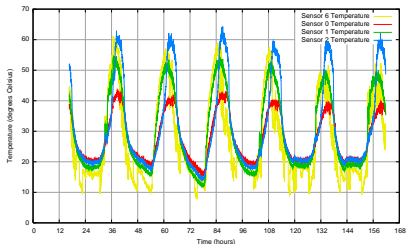
**Background.** Teams at Harvey Mudd have been working on the Bernard Field Station Network over the last two summers. Using an embedded operating system called SOS and running on tiny computers called motes, the project has progressed towards setting up a sensor network to monitor the environment in the Bernard Field Station.

**Approach.** We have extended and modified last year's data retrieval applications to provide automated control via a web interface. Working closely with the developers of SOS at the Networked and Embedded Systems Laboratory at UCLA, we have deployed software to read temperature data, transmit it across the wireless network, and store it in a database on a computer connected to a base mote.



A close-up of a MICA2 mote.

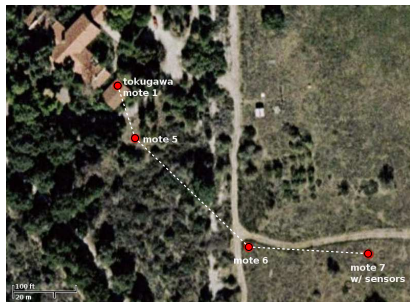
**Results.** We have developed a robust multi-layer application for acquiring data from temperature sensors across a wireless network of motes. We are able to collect microclimate temperature data over long periods of time at high data resolution.



A graph of temperature data from the field station.

**Future Directions.** This summer we were not able to address issues of power conservation, network flexibility, and camera deployment. Future research efforts in these areas could achieve easier-to-access and better-quality biological data. Now that basic deployment has been accomplished, a mixed group of both biologists and computer scientists might be able to take the project in new directions.

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A map of the motes in the Bernard Field Station.

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