Developing A Low-Cost, Arduino Based Datalogger

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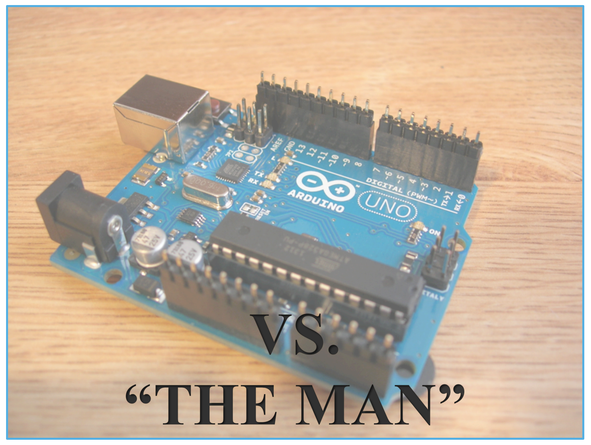
Goals

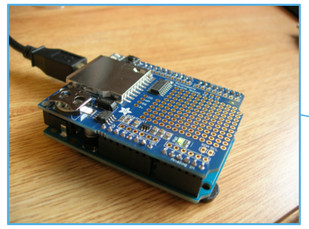
1. To develop an inexpensive, functionally comparable, Arduino based data logging unit.



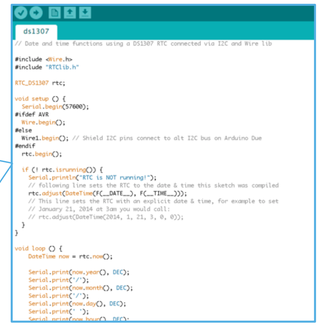
2. To compare a traditional tipping-bucket method of measuring outflow against an eTape volume sensor and Arduino data logger.

Image 1: Arduino Uno R3

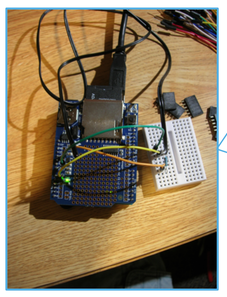
Simple Process



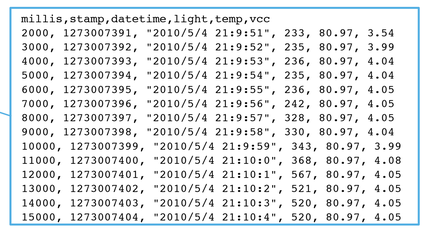
- Install data logging shield for RTC and SD storage.



- Configure Board: upload example code from GitHub.



- Connect various sensors.



- Modify existing codes to save sensor data as a CSV file.

Comparison

Tipping-bucked and volume sensor methods will be compared to manual flow rate determination.

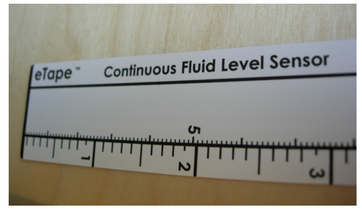


Image 2: Volume sensor used to determine flow rate.

Percent errors will be compared in addition to overall practicability.

Uses

This unit will be tested for use in a green roof ET rate experiment.

Useful when resources are limited.

Image 3: Youcan Feng’s Lysimeter at the University of Utah Marriott Library.

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