

SECOND CREEK OBSERVATORY



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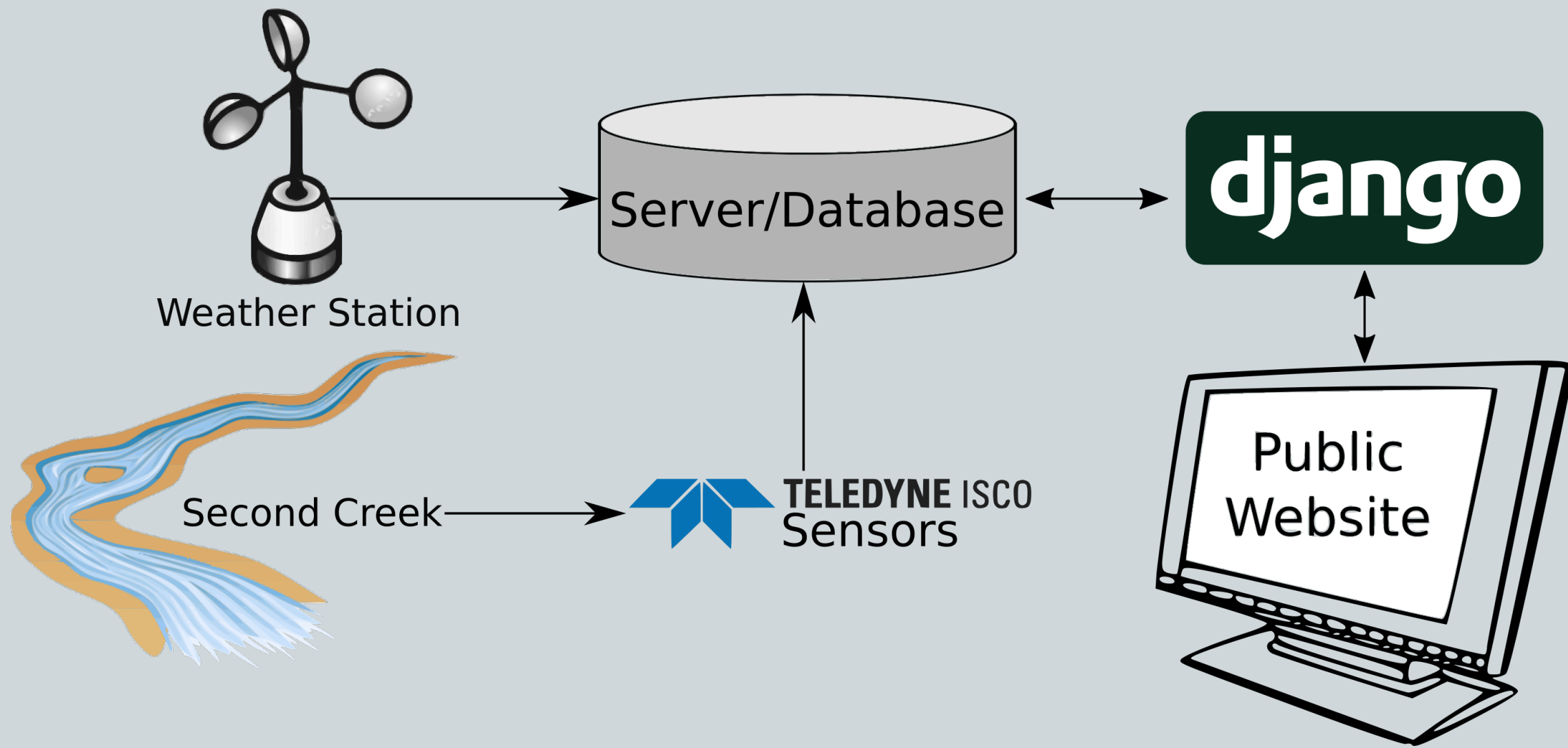
TEAM 04

MOTIVATION:

A public need exists for access to information concerning environmental and creek conditions in order to support watershed awareness.

PROJECT OVERVIEW:

Dr. Jon Hathaway, assistant professor in the Department of Civil and Environment Engineering, participates in ongoing efforts to collect high resolution data from Second Creek and the university's weather station. He desires to host a website where students and the general public can check the local conditions of the creek and the environment. The website will provide a user-friendly, aesthetically pleasing interface and improved access to real time information about the local environment. Another goal of this project is to ensure data security. It is critical to minimize any data loss that would potentially affect the ongoing research.



INTRODUCTION DATA FLOW

BACK END:



INTERMEDIARY:



FRONT END:



MATERIALS + METHODS

AIR TEMPERATURE
BAROMETRIC PRESSURE
RAINFALL
RELATIVE HUMIDITY
SOIL TEMPERATURE
WIND DIRECTION
WIND SPEED

CONDUCTIVITY
DISSOLVED OXYGEN
FLOW RATE
MAX WATER LEVEL
PH
TURBIDITY
WATER LEVEL
WATER TEMPERATURE

WEATHER
STATION
DATA VALUES

2ND CREEK
DATA VALUES

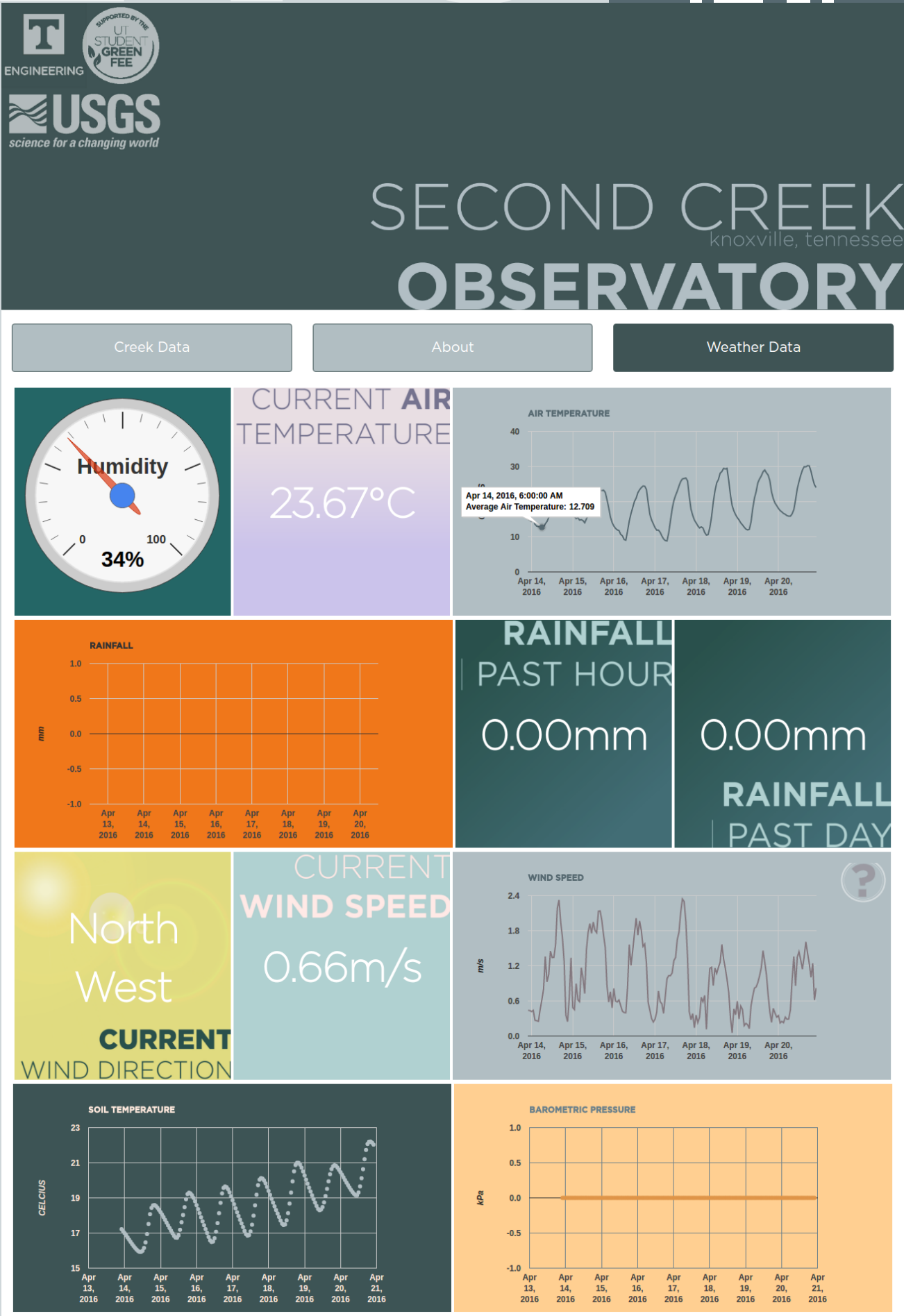
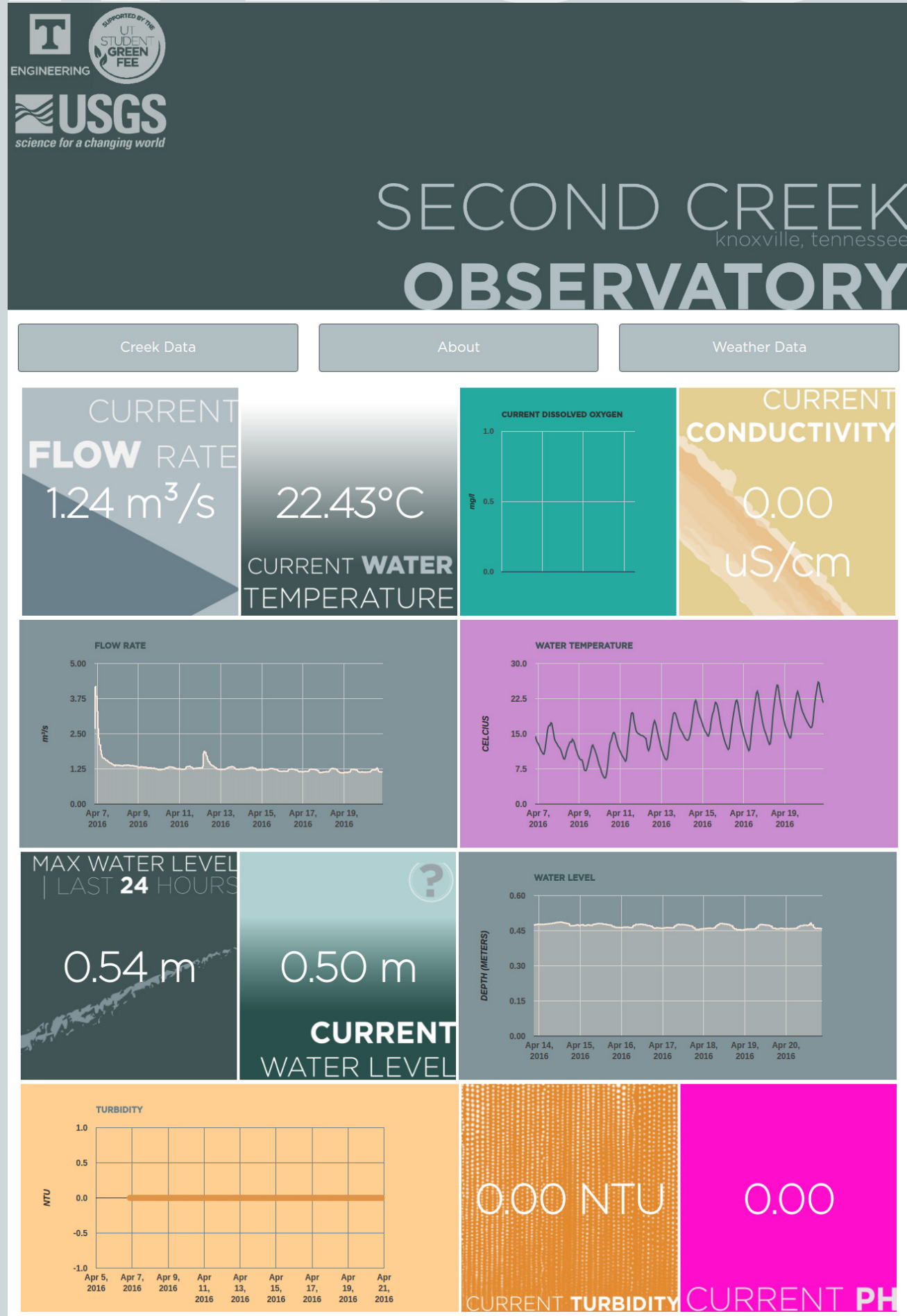
This project has resulted in an aesthetically pleasing website showing the recent data collected from Second Creek and the University of Tennessee's weather station. The website has many interesting and appealing features. In addition to loading recent data from the server, the website provides pop-up explanations when the top right corner of a tile is selected. These boxes explain how to interpret the information being displayed. Furthermore, the graphs on the website are interactive, allowing a user to

hover and view specific data points. In order to limit the amount of data transferred to the client's computer, historical data points are averages over the course of an hour rather than specific measurements. If left open, the website will reload updated data every five minutes.

On the Back-End, all of the data from the creek sensors and the weather station is backed up into Microsoft SQL Server. This data services the website and acts as a repository of the

information Dr. Hathaway needs to support his research. Flowlink and LoggerNet are used on the server to collect the measurements from the creek and weather station respectively. Additionally, Internet Information Services is run on the server to host Django and serves the Front-End of the website.

RESULTS



HYDROLAB02.ENGR.UTK.EDU

CONCLUSION:

Over the course of the website development and design process, several issues were overcome pertaining to sensors in Second Creek and weather station function. Troubleshooting and testing were needed to determine solutions to such issues, leading to a robust final product. Our team is confident that this website will be utilized for years to come both by students and the general public who are interested in the local environment.

ACKNOWLEDGMENTS:

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EECS SENIOR DESIGN

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