

## sdmay19-37: Are Cross Country Courses Avoiding Hills?

Week 7 Report

October 28 - November 3

### Team Members

Connor Smith — *Ground Truth Engineer*

Thomas Chambers — *Ground Truth Engineer*

Ryan Hilby — *Data Handling Engineer*

Jacob Feldman — *Data Handling Engineer*

David Kirshenbaum — *Data Analysis Engineer*

Andrew Mumm — *Data Analysis Engineer*

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### Summary of Progress this Report

This week the team focused its efforts on settling upon two different frameworks to use for the web app's necessary functionalities. We also conducted two different surveys, one of the Iowa State Cross Country Course Complex and another study that relied upon geodetic points as a reference baseline. We also met with Iowa State's nationally renowned former cross country coach Bill Bergan to pitch him our idea and receive his input from a coach's perspective. This meeting went very well, and he was genuinely excited about the features we're trying to build. He even went as far as saying that we "were asking questions he doubts anyone has ever asked about XC courses before."

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### Pending Issues

The data handling team may explore different alternatives to R this week.

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### Past Week Accomplishments

- Connor
  - Coordinated and conducted survey of ISU XC 8K course
  - Cleaned and aggregated device data from survey
  - Research and outlined possible filtering tools for data handling
  - Prepped for meeting with former ISU head coach Bill Bergan
- Thomas
  - Survey of ISU cross country course
  - R Shiny tutorials
- Ryan
  - Investigating techniques to detect how many hills given a route
  - Finding slopes of hills using LDAP
- Jacob
  - Researched front end and back end frameworks to use for our server. We landed on Django for the back end and Angular for our front end.
- David
  - Had to research Angular and how to use it.
- Andrew
  - Looking into an Alternative for R
- All
  - Met with former ISU head cross country coach Bill Bergan to discuss coaches' perspectives on our project's utility

## Plans for Upcoming Reporting Period

- Connor
  - Evaluate different data sources' elevations from ISU XC course survey
  - Savitzky-Golay filter experimentation on ISU XC course data
- Thomas
  - Coordinate with team members on new framework
- Ryan
  - Learn angular/django
- Jacob
  - Set up simple front end and back end for the web app using the Django and Angular frameworks.
- David
  - Will integrate current front end with angular.
- Andrew
  - Will not be working on the project because I have far too many things to do this week.

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Connor Smith	ISU XC course survey execution, data filtering research, and meeting prep	7.5	48
Thomas Chambers	Performed GPS survey on ISU XC course. Investigated data recorded on mobile phone/troubleshooting.	4	31.5
Ryan Hilby	Investigating techniques to detect how many hills given a polyline	5	27
Jacob Feldman	Researched front end and back end frameworks to use for our server. We landed on Django for the back end and Angular for our front end.	2	31.5
David Kirshenbaum	Angular Research	4	29
Andrew Mumm	Research Alternative to R	2	24

## Gitlab Activity Summary

Pushed assets for Django and Angular frameworks.