CO2 Software Design Review

Team James Beasley, Andrew Greene, Sam Beals, Joseph Kelroy

Sponsors Dr. Andrew Richardson and Dr. Mariah Carbone

> Mentor Ana Steinmacher

Problem Statement

Dr. Richardson and Carbone's current work routine has a few outstanding issues :

- Data collection method is slow and cumbersome
- Collected data is not immediately readable
- Data analysis must be done externally



Solution Overview

We developed a solution that :

- Is on a mobile platform that can run the software
- Has an Interface that visually communicates the data being collected
- Processes all recorded data in-app

Implementation Overview





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Site Name:			
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	Passing MetaData to Graph Screen: String

Graph Screen

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Site Name: Flagstaff			
Sample ID 249			
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Passing MetaData to Graph Screen: String Graph Screen

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Parsing Data From Stream

Distributing Data to Respective Graph

File Directory





File Directory

Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph

Line Graph

Android GraphView Integration

Adding Data Points

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Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph Line Graph

Android GraphView Integration

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Parsing Data From Stream

File Directory

Line Graph Android GraphView Integration Adding Data Points Distributing Data to Respective Graph Reconstruction From Saved Data

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File Directory

Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph Line Graph

Android GraphView Integration

Adding Data Points





File Directory

Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph

Line Graph

Android GraphView Integration

Adding Data Points





File Directory

Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph

Line Graph

Android GraphView Integration

Adding Data Points





File Directory

Graph Manager Communication With Gas Analyzer Parsing Data From Stream Distributing Data to Respective Graph Line Graph

Android GraphView Integration

Adding Data Points





 Image: Contract of the contract





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LI-840A-Interface

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M-Mar 7, 2018 9:12:11 AM.csv

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	View Screen	
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Line Graph
Android GraphView Integration
Adding Data Points
Reconstruction From Saved Data





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Challenges

• Connection

• Android application

• Overall design

Schedule

	Start Date E	E I D I	Jan					Feb				Mar			
lask Name		End Date	Dec 31	Jan 7	Jan 14	Jan 21	Jan 28	Feb 4	Feb 11	Feb 18	Feb 25	Mar 4	Mar 11	Mar 18	N
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- Home Screen	01/21/18	01/24/18													
Application Navigation	01/21/18	01/31/18									a				
Buttons	01/21/18	01/31/18													
- MetaData Screen	01/21/18	03/16/18													
Date, Time, and GPS Functionality	02/14/18	02/23/18													
GPS AutoFill	03/07/18	03/12/18													
Data Fetching	02/14/18	02/26/18													
Passing MetaData	02/21/18	02/26/18													
- Graphing Screen	01/21/18	03/16/18													
Simultaneous Graph Readout	02/14/18	02/20/18													
Live Switching Between Graphs	02/14/18	02/20/18													
Live Number Displays	02/21/18	02/26/18													
- File Directory Screen	01/21/18	03/16/18													
Array List of Files	02/07/18	02/14/18													
List View Object	02/07/18	02/14/18													
File Saving System	02/07/18	02/20/18													
- View Screen	01/21/18	03/16/18													
Data Reconstruction	02/26/18	03/05/18													
Graph Reconstruction	02/26/18	03/05/18													

Conclusion

- CO2 Flux: A Mobile Application for Ecological Data Collection
- Improves the CO2 data collection process
 - Mobile
 - Visual
 - Faster
- All the functionality of the previous system and more

Questions?



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