AD490 Capstone - Transmission Drawings Interface

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Agenda

Project Description

Development Process

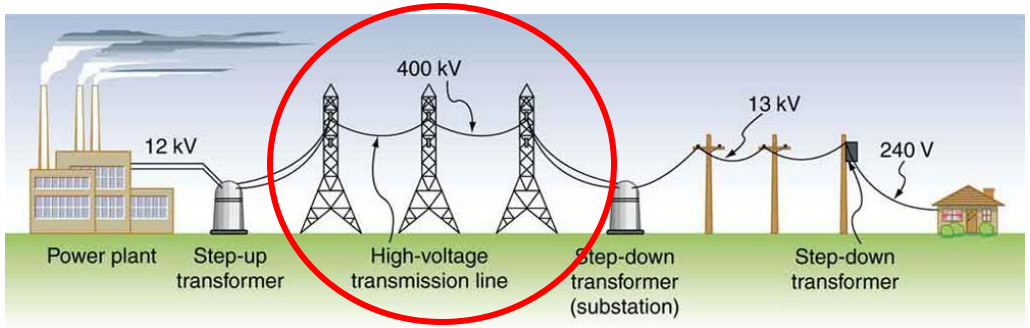
- Key Decisions
- Key Updates

Next Steps

Demo

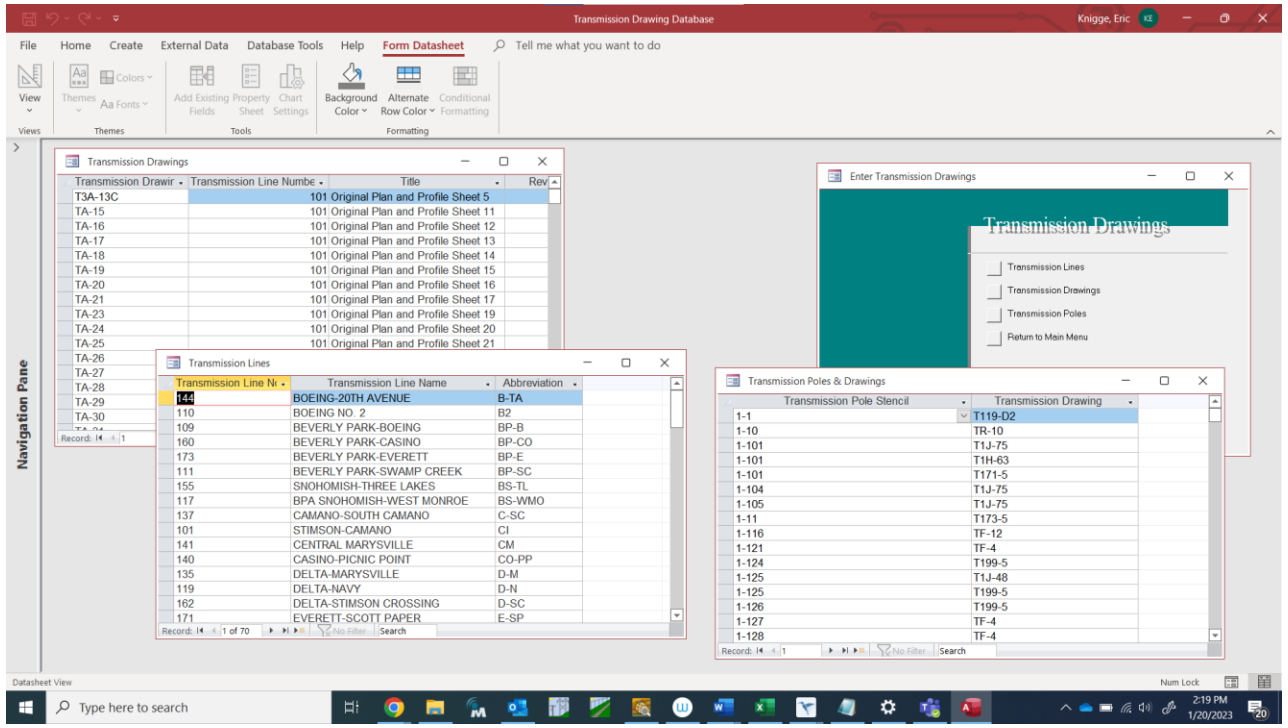
Project Description - Background

- Utilities keep records for their larger power structures, known as transmission lines.
- Transmission structures are like the highways for electricity.
  - They are higher voltage and transmit electricity between substations and power generation facilities.
  - Are often the large metal lattice structures you see, but can take other forms too
- We received an engineering drawing database from a local utility, as well as information about how this data is accessed



Project Description – Existing Conditions

- Microsoft Access is used to open databases and run queries
- Service not well-utilized due being slow and non-intuitive
- Access forms limits features and extensibility



Project Description – New System

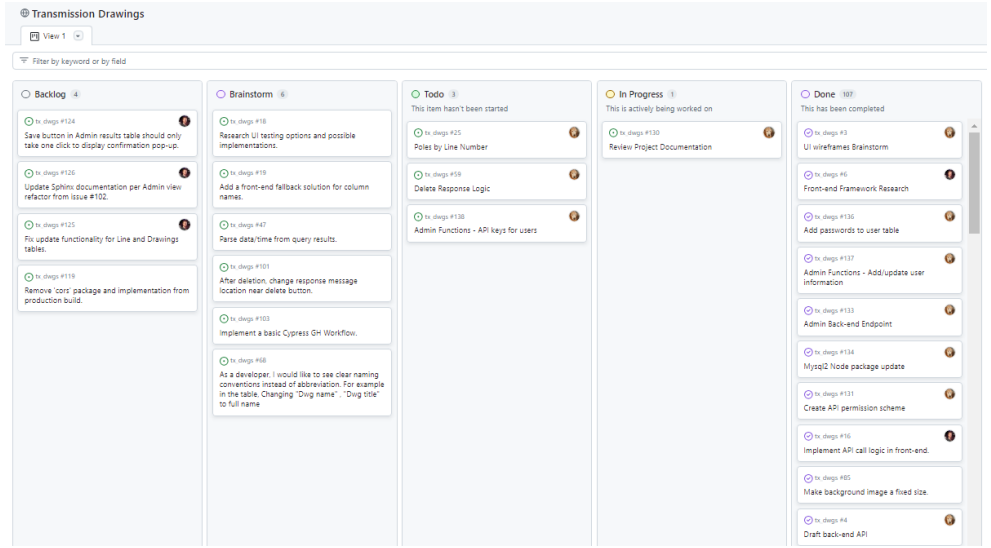
- Create web-based interface that functions similarly to a search engine, does not require client software installation
- Utilize open-source technologies to keep operational costs to a minimum
- Provide a fast and intuitive interface for searching for information
- Create an administrative interface for making updates to the system and database

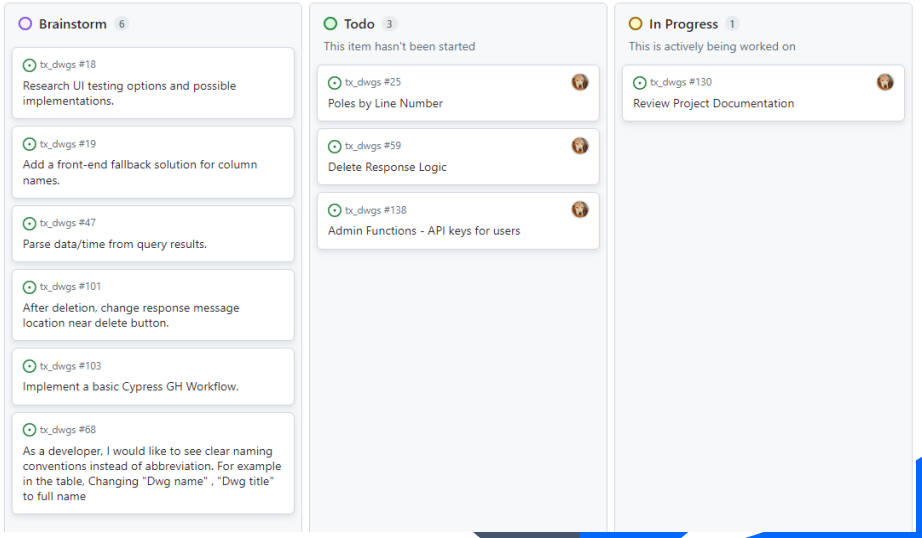
Development – Key Decisions

- Simplify technology by using JavaScript as the primary programming language for front-end and back-end tasks, Python for data manipulation and testing, and MySQL for the database
- The scope of the project was limited - administration tasks were deferred. This allowed us to focus on core functionality and complete the project before the end of the quarter.
- Team members focused on specific areas: one person on back-end, another on front-end, and the other on UI and data graphics.
- Everyone was responsible for maintaining their own documentation, but it was reviewed by others.

Development – Project Management

- Assign roles to the project team.
- Create a repository and brainstorm initial project tasks.
- Set a timeline and goals, working backwards from completion to project initiation.
- Make decisions on system architecture.





Development – My Tasks

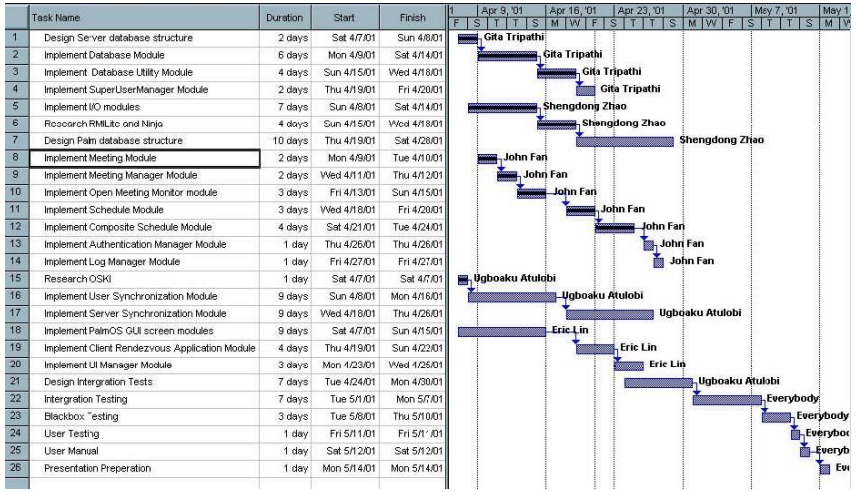
- **Project manager**: ran meetings, assigned tasks, tracked progress, took notes, and adjusted work and scope to meet project goals
- **Data wrangling**: wrote scripts to manipulate data from exported tables
- **Back-end**: was responsible for building and updating database, importing project data, and making updates to administration tables. Also built middleware (Express.js) to service API
- **Documentation**: created Sphinx documentation for API and project

Development – Recent/Key Updates

- Ability to store and access user passwords from the API was added. Passwords were stored using salt and secure hash.
- Administration API functionality was added:
  - password reset,
  - Add new users
  - Revise implementation of user removal
- Project documentation was revised and updated

Development – Next Steps

- Update the UI to add administration to the UI
- Add additional administration features such as being able to update user information, display users, and review system logs
- Make UI improvements based on user feedback – current implementation only received limited user testing



	Task Name	Duration	Start	Finish
1	Design Server database structure	2 days	Sat 4/7/01	Sun 4/8/01
2	Implement Database Module	6 days	Mon 4/9/01	Sat 4/14/01
3	Implement Database Utility Module	4 days	Sun 4/15/01	Wed 4/18/01
4	Implement SuperUserManager Module	2 days	Thu 4/19/01	Fri 4/20/01
5	Implement I/O modules	7 days	Sun 4/8/01	Sat 4/14/01
6	Research RMILite and Ninja	4 days	Sun 4/15/01	Wed 4/18/01
7	Design Palm database structure	10 days	Thu 4/19/01	Sat 4/28/01
8	Implement Meeting Module	2 days	Mon 4/9/01	Tue 4/10/01
9	Implement Meeting Manager Module	2 days	Wed 4/11/01	Thu 4/12/01
10	Implement Open Meeting Monitor module	3 days	Fri 4/13/01	Sun 4/15/01
11	Implement Schedule Module	3 days	Wed 4/18/01	Fri 4/20/01
12	Implement Composite Schedule Module	4 days	Sat 4/21/01	Tue 4/24/01
13	Implement Authentication Manager Module	1 day	Thu 4/26/01	Thu 4/26/01
14	Implement Log Manager Module	1 day	Fri 4/27/01	Fri 4/27/01
15	Research OSKI	1 day	Sat 4/7/01	Sat 4/7/01
16	Implement User Synchronization Module	9 days	Sun 4/8/01	Mon 4/16/01
17	Implement Server Synchronization Module	9 days	Wed 4/18/01	Thu 4/26/01
18	Implement PalmOS GUI screen modules	9 days	Sat 4/7/01	Sun 4/15/01
19	Implement Client Rendezvous Application Module	4 days	Thu 4/19/01	Sun 4/22/01
20	Implement UI Manager Module	3 days	Mon 4/23/01	Wed 4/25/01
21	Design Intergration Tests	7 days	Tue 4/24/01	Mon 4/30/01
22	Intergration Testing	7 days	Tue 5/1/01	Mon 5/7/01
23	Blackbox Testing	3 days	Tue 5/8/01	Thu 5/10/01
24	User Testing	1 day	Fri 5/11/01	Fri 5/11/01
25	User Manual	1 day	Sat 5/12/01	Sat 5/12/01
26	Presentation Preperation	1 day	Mon 5/14/01	Mon 5/14/01