CSPB 3112 – NauticCharge App

Team Members:

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Vision:

The goal of this project is to develop a mobile application for Windfall Power's NauticCharge hybrid supercapacitor battery. The project will be structured into multiple sprints to establish realistic timelines and trackable metrics. By following this approach, we will enhance our professional skills in app development, including coding, applying the Agile methodology to manage expectations, and ensuring smooth deliveries and product handoffs.

Modification to MVP :

We made a few minor adjustments to our original Minimum Viable Product (MVP) plan for the iOS battery monitoring app. Most of these changes resulted from aligning our design with client expectations rather than our initial assumptions.

Windfall Power requested a simpler application, focusing on a basic percentage display and gauge representation of battery status. Additionally, the shopping page we had mocked up was not required, leading us to restructure the app layout and data collection approach.

One key learning was in optimizing data collection frequency. Initially, frequent polling of Bluetooth data negatively impacted iPhone battery life, despite using Bluetooth Low Energy (BLE). As a solution, we are implementing a scheduler to collect battery status every 15 minutes, unless the user actively checks the display, in which case data is fetched immediately.

Currently, we are working on decoding the responses from our first polling attempts. We have successfully extracted and structured the necessary data for the dashboard view. Looking ahead, we plan to expand our reporting features, introducing a diagnostic page (currently named Report 03) to display more detailed data beyond what is presented on the dashboard.

Milestones meet:

We have successfully met most of our planned milestones, though not in the original sequence (we used agile, so we could shift task as we were provide data). We can now connect to the battery, collect data, and parse basic reports. This functionality is sufficient to build the backend database and support the frontend interface.

The main challenges we are currently facing involve UI design and clarifying requirements. We are actively engaging with Windfall Power to obtain more guidance before finalizing the UI layout. However, we have a solid understanding of the core functionality needed and are actively debugging UI issues, such as handling horizontal vs. vertical orientations and optimizing data presentation.

To showcase progress, we have sent a test build via TestFlight, which is mostly functional but primarily serves as a working prototype demonstrating the app's capabilities.

We are now in the design and refinement phase and remain on track to meet the MVP deadline by mid-May, as originally committed.

Reflection on the project:

One key area for improvement is the planning phase. Instead of jumping straight into coding as soon as we received the batteries, we should have spent more time analyzing best practices and defining a clear development strategy. This would have minimized the need for recoding.

Another improvement area is UI/UX design tools. Initially, we built the UI directly in Xcode, which was time-consuming and made iterations difficult. Using Figma for wireframing and prototyping would have been more efficient, allowing us to visualize and refine the UI before implementation.

We have recently experimented with Figma in another class, and it has proven to be a valuable tool for communicating design ideas. We are now in the process of obtaining updated graphics and integrating them into Figma to establish a clearer design roadmap for the final product.