Capstone Letter of Intent (LOI)

Project Overview

- **Capstone Project Name/Idea:** SolParking
- **Brief Project Description:** An app that will allow homeowners to rent out parking space(s) to drivers. A sensor will communicate available spots to the app. Price is set by the homeowner and a smart contract on the Solana blockchain will handle payment transactions.
- **Reason for Choosing this Project:** Parking is troublesome to find in densely populated cities like LA and NYC. COL is high also in these cities and this app could give homeowners another source of income while helping drivers find parking and saving them time, money and frustration. There are times when I debate whether or not I want to go somewhere and deal with the hassle of finding parking. Having an app like this would help make such a trip more worthwhile if I knew ahead of time where and how much parking would be.

Go-to-Market Strategy

- **Target Audience:**
    - Homeowners with available space for parking who want to make extra income
    - Drivers who need parking and do not want to pay high prices
- **Value Proposition:**
    - Homeowners: Parking spot provider will not have to pay fees for listing a parking space unlike other apps.
    - Drivers: Rather than driving around endlessly upon arrival to find parking, a driver can use the app ahead of time to find and reserve a spot at the destination, saving time and money.
- **Marketing and Distribution:**
    - Place flyers with QR codes on cars in parking garages
    - Social media
    - Advertise to Uber/Lyft users as an alternative
- **Competitive Landscape:**
    - There are other similar apps, but they are not using blockchain
    - Other apps also have either a listing fee or transaction fee, the only fees for this app would be Solana transaction fees which are very low
    - Other apps are also only available in limited markets, but this app will attempt more markets and countries

Technical Details

- **Tech Stack:**
    - Blockchain Platform: Solana
    - Smart Contract Language: Rust

    - Anchor framework
    - LoRaWan Sensors
    - Front-End Framework(if time allows): React/Next.js
- **Smart Contract Development:**
    - Rust will be used for smart contract development
    - Testing: Use Solana Test Suite for testing which has tools for fuzzing, code coverage, and finding common security vulnerabilities
    - Auditing: Use tools to find common vulnerabilities
    - Formal Verification: Research tools that work with Solana

Conclusion

- **Project Timeline:**
    - User Stories - April 18, 2025
    - Architectural Diagram - April 24, 2025
    - Implementation - May 1, 2025
    - Testing - May 12, 2025
    - Video/draft deck - May 13, 2025
    - Ship to devnet - May 15, 2025
    - Demo Day - TBD
- **Commitment:** I am committed to producing a POC by the ship date
- **Initials:** HL